CHAPTER - I

INTRODUCTION

1.1 Background of the Study

Public debt refers to loans raised by a government within or outside the country. It is any financial obligation such as bonds or loans assumed by the government, where it agrees to make interest and principal payments in given time period. Governments create debt by issuing government bonds and bills. Public debt is the accumulation of annual budget deficits. It is the results of years of government leaders spending more than they take in via tax revenues. A size of deficit budget of the government effects on the public debt and vice-versa. The public debt is how much a country owes to lenders outside itself. These can include individuals business and even other government. It usually refers to national debt. But some countries also include the debt owed by states provinces and municipalities.

Public debt is incurred by the government to finance its activities when other sources of public income fail to meet the requirements. In this wider sense, the proceeds of such borrowing constitute public income. However, since debt has to be repaid along with interest from whom it is borrowed, it does not constitute income. Rather it constitutes public expenditure. Public debt is incurred when the government floats loans and borrows either internally or externally.

Public debt is a modern invention and was not heard prior to 18^{th} century. Public debt is the creation of the last three centuries. After the first and second world war, public debt becomes very popular for reconstruction and maintenance. Most of the countries in the world started tomorrow systematically and still borrowing to develop their economic at a faster rate. But in the modern times, the growth of public debt is the result of changing economic and political situation of all countries (Aybarc, 2019).

The interest on the public debt is how much the federal government must pay on outstanding public debt each year. The interest on the public debt immediately reduces the money available for other spending programs. As it increases over the next decade, advocates of certain benefits will call for a reduction in spending in other areas. As interest rates rise, it becomes more expensive for a country to refinance its

existing debt. In time, income has to go toward debt repayment, and less toward government services.

There is no doubt that a country needs financing for its economic growth, development and the appropriate choice of financing depends upon the availability of resources, level of the economic development, budgetary situation of the government and the robustness of the external sector. Most of the least developed countries (LDCs) face both savings gap and trade gap and seek for external financing. Nepal, as being a LDC also falls in this category and has relied on the foreign aid for the last four decades or more for its development endeavors. (Bhatta, 2003)

Nepal is one of the least developed country (LDCs) of the world. One major problem of all LDCs is the acute shortage of resources to finance the public expenditure. In such situation, they require to borrow money. However, in the modern world, not only for the LDCs but for developed countries also, public borrowing is becoming an important technique of government finance along with other sources of revenue, e.g. tax and non-tax revenue. When income of individuals cannot meet his/her expenditure, he/she should borrow money from somewhere. In the similar manner, government should also borrow, when its revenue cannot meet the expenditure (Bhattrai, 2013).

Higher interest rates caused by expanding government debt can reduce investment, inhibit interest-sensitive durable consumption expenditures, and decrease the value of assets held by households, thus indirectly dampening consumption expenditures through a wealth effect. The magnitude of these potential adverse consequences depends on the degree to which federal debt actually raises interest rates (Engen & Hubbard, 2004). Under conditions of nominal interest rate setting and staggered price adjustment, the central bank has control over the real interest rate to influence aggregate demand, and therefore inflation. Any increase in the real interest rate brought about by the central bank not only depresses current demand, but also puts a strain on the government budget because of its relation to the cost of government servicing the existing debt. The main insight is that with distortionary income taxation, the resulting tax rate adjustment that is necessary to prevent the path of debt from exploding feeds back on the private sector through its negative influence on labor supply. Since a decrease in labor supply leads to rising production costs, higher taxation may increase inflation and possibly overturn the inflation dampening effect

of higher real interest rates. If short-run deficits are allowed such that debt is endogenous, determinacy with active interest rate policy by the same logic requires that tax revenues must adjust positively but not too strongly in response to temporary increases in government debt. However, the higher is the interest rate response to inflation and thus the inflation induced demand slack the less critical is the tax response to budgetary pressure and hence debt and thus the inflation induced supply contraction for determinacy(Linnemann, 2006).

The significant growth in debt burden is basically because of the increased investment need of the government for infrastructure building, macroeconomic adjustment and structural reform. This investment need is keenly addressed by the foreign creditors along with the liberalized economic policy adopted by the country in the mid-eighties in general and after the restoration of multiparty democracy in 1990 in particular. In addition, lower resource mobilization and higher revenue expenditure on the government's part have also contributed to debt burden. The volume of public borrowing is also increasing in Nepal due to the growing public expenditure and increasing rate of inflation. The burden of public debt and debt servicing capacity is evaluated on the basis of poor economic growth rate in Nepal. In the liberal economic policies of Nepal, public borrowing is considered as most appropriate means of resource collection for development.

1.2 Statement of the Problem

Nepal being a developing country, public debt has been an instrument to deficit financing as a regular mechanism. Therefore, Nepalese economy heavily depends upon domestic debt and external debt. Despite a tool to finance a country, it has become a burden to a country. Country has been unable to invest in productive sectors and make the country liable. There should be proper management of the public debt in the country. For the better public debt management export earning, revenue growth and the real structure interest rate structure should be in favorable condition in future to pay off the debt. There are some factors that should be taken in consideration while taking public debt. If there is increased public debt it leads increase the government spending which creates decrease the private capital and lead to increase the interest rate in the country. Increased interest rate creates decrease of public saving. Since the study under consideration was concerned with the impact of government debt on interest rate after controlling for inflation and the monetary policy, so the study tries

to answer the following questions. However, the research questions of the study are as given below.

a) What are the sources and composition of public debt of government of Nepal?

b) What are the effects of public debt on interest rate of Nepal?

1.3 Objectives of Study

The main purpose of the study is to examine the effects of public debt on interest rate of Nepal. However, specific objectives of the study are as given below.

a) To analyze the sources and composition of public debt of the government of Nepal.
b) To examine the effects of public debt on interest rate of Nepal.

1.4 Hypothesis of the Study

The hypothesis of the study is that there is a significant effect of public debt on interest rate of Nepal.

1.5 Significance of the Study

The effects of public debt on interest rate are required to know for the economic development of the country for the developing countries like Nepal. It is considered to be an important area for research. The government needs a huge amount of resources for reconstruction rehabilitation and relief to make the country prosperous and economically strong. In this regard, public debt can be a major source of revenue due to low level of tax payable capacity of people. And the country is also borrowing the money from internal (domestic) country or external loan (outside) country. But the continuous increase in external borrowing of the country leads burden in the country. Public debt in Nepal has positive impact on the investment and on the level of per worker GDP. Debt properly utilized on the productive sectors lead economic development in the country. For the economic development of Nepal public debt is required to improve condition. Particularly the study is significant due to following points.

i) This research is assumed to be useful for further research conduct a research in this field.
ii) This research provides information for policy makers in order to formulate wise policies to channel the public debt on productive sectors.

iii) This research may be helpful in formulating suitable policies to divert the government to borrow money from domestic country to foster the economic development of Nepal.

1.6 Limitations of the Study

The study is also not free from limitations and constraints like others such

a) The study period covered is 24 years only from 1996 to 2019.
b) The validity of secondary data relies on the accuracy of their sources.
c) Only general statistical and econometric tools were used.

1.7 Organization of the Study

The study is divided into five chapters.The first chapter is the introduction that includes background of the study, statement of the problem along with research questions, objectives of the study, hypothesis of the study, significance of the study, limitations and organization of the study.

The second chapter is the review of literature.The chapter deals with the theoretical review and empirical review. Similarly, the empirical review is also divided into international context and Nepalese context along with research gap.

The third chapter is the research methodology. It consists of conceptual framework, research design, nature and sources of data, study period covered, tools and method of data collection, data organization and processing, tools and method of data analysis, model specification, variable specification and hypothesis testing.

The fourth chapter is the data presentation and analysis which is the body part of the study.It includes the sources and composition of public debt and the effects of public debt on interest rate.

The final chapter is the major findings, conclusion and recommendations.

CHAPTER -II

REVIEW OF LITERATURE

Review of literature is a search and evaluation of the available literature in the given subject and study area. It shows the readers that the study has an in-depth grasp of the subject. It demonstrates a familiarity with a body of knowledge and establishes the credibility of the work. It summarizes prior study how the study is linked to it, integrated and summarized about the subject matter. Similarly, it also demonstrates that the researcher has learnt from others and this research is a starting point for new ideas. A variety of theoretical and empirical literature exists on the relation between interest rate, public debt, broad money supply, and consumer price index based on different techniques and time periods. The chapter attempts to review different theories and empirical studies relating to interest rate, broad money supply and consumer price index. The chapter consists of theoretical review, empirical review including both of international and national context and research gap.

2.1 Theoretical Review

The classical economists such as J.B. Say, David Ricardo and Malthus gave negative view towards the public debt. They said that public borrowing is unproductive sector which burden the country from the interest payment. Similarly, neo-classical economists have used Cobb-Douglas production function which shows that an increase in government debt leads to a reduction in private capital which implies to increase in marginal product of capital and increase the real interest rate. Modern theory of public debt gives an opinion favoring the laissez faire. The Keynesian theory of public debt viewed that increase in public debt through the multiple effects would raise the National Income. Similarly, in the post Keynesian theory of public debt the economist M. Buchanan challenged the modern theories view that, public debt is no burden on the economy and no matter how financed cannot be shifted to future generation.

a) Classical Theory of Public Debt:-J. B. Say aggressively opposed public debt. For him, ‘There is a makeable distinction between an individual borrower and a borrowing government, the former borrows capital for the purpose of the barren consumption and expenditure’. And he further conceived that public borrowing is not

only unproductive because the capital is consumed and lost, but in addition, the nation is burdened by the annual interest payment". It cannot be argued that the annual circulation of interest payment is a net addition to capital (Koolman, 1971).

David Ricardo referred to public debt as one of the most terrible sources which was even invented to afflict a nation. Ricardo made important modifications in the arguments of Adam Smith and J. B. Say pointed out that important burden of national debt was in the annual interest transfer, but in the lost of original capital. To quote him "when for the expenses of the years was, twenty million are raised by means of loans, it is twenty million which are withdrawn from the productive capital of the nation. The million per annum which is raised by taxes to pay interest of this ban is merely transferred from those who pay it to those who receive it, from the contributor of the tax to the natural creditor. The real expenses in the twenty million, and not the interest which must be paid for it". He was of the view that presence of a debt did not affect the nation ability to pay taxes, hence no great economic advantage could be achieved by retiring the debt. Levying of taxes to pay, the interest obligation may lead to capital movements to other countries (Churchman, 2001).

National debt according to T. R. Malthus was not evil which it was generally supposed to be. He was of vies that those who live on the interest from the national debt "Contribute powerfully to distribution and demand they ensure that effective consumption which is necessary to give the proper stimulus to production". According to him debt once created was not a great evil. But later on the modified he views to bring them closer to that of the classical. There are after all evils in the debt. The taxation which is required to meet the interest payments may be harmful; people thing that debt should be paid off, so the interest on it is always to some degree. "In sense", the presence of the debt aggravated the evils arising from changes in the value of money (Cremaschia and Dascal,1798).

b)Neo-classical Model of Production related to Debt and Interest Rate:-The neo-classical production function can be used to demonstrate a theoretical link between debt and interest rates and provides a useful benchmark estimate of that relationship. In the context of a standard Cobb-Douglas production function, an increase in government debt leads to a reduction in private capital, which implies an increase in the marginal product of capital and, therefore, an increase in the real interest rate. The mathematical representation of that relationship is as follows:

$$\frac{\partial r}{\partial D/Y} = \frac{\alpha(1-\alpha)c}{k^2}$$

Where,

α is capital's share of income,

r is the real interest rate,

k is the ratio of capital to GDP,

Y is GDP,

and D is government debt.

The parameter c represents the degree of crowding out. If c = 1, then there is complete crowding out of private capital. If c = 0, which would be the case if there was Ricardian equivalence or if the flow of foreign capital was infinitely elastic, there is no crowding out of private capital from the government's issuance of additional debt (A & I,2018).

c) Modern Theory of Public Debt:-The economic philosophy of public debt in modern finance shows a radical departure from the "Laissez Faire" notions. This situation changed after the Great Depression of 1930s to a great extent. The classical theory of public debt had absolutely collapsed which had taken for granted full employment and unproductiveness of public expenditure. The classical antagonism towards public borrowing was based on these assumptions. Those that follow Keynes take into account the income-generating aspect of the public debt and reject any possibility of internal debt being burden upon the community (Churchman, 2001).

d) Keynesian Theory of Public Debt:-The economic crisis created by the great depression of 1930's was partly responsible for the development for modern theory of public debt. The traditional view that constant unbalanced budgets and rapidly rising public debt imperial the financial stability of the nations, gradually gave way to the conception which states that a huge public debt is a national asset rather than a liability and that continuous deficit spending is essential to the economic property of the nations (of public debt assumed full employment). The Keynesian attack on the classical principles of budgeting and public finance was logical extension of the Keynesian attack on the view that economy tends to equilibrium at full employment. Keynes assumed that if there were unemployed resources. Keynes held the views that increase in public debt through the multiple effects would raise the National Income. He linked public borrowing with deficit financing and authorized government to

borrow for all purposes so that effective demand in the economy is increased resulting in increased employment and output. He did not draw any demarcation between productive and unproductive expenditure as the classical. Keynes borrowing for consumption was as desirable as borrowing for investment in productive goods because consumption expenditure induced investment to rise (Apromourgos, 2018).

e) Post-Keynesian Theory of Public Debt:-The Post-Keynesian theory of public debt written on the background of huge rising public debt and the developed nation going through a phase of inflation and price rise. Government expenditure also was rising at a rapid rate and non-developmental component of it was quite high too; these recent theories of public debt again revived the controversy of whether public debt is a burden and how to measure the burden of public debt. James. M. Buchanan's public principles of public debt (1958), challenged the modern theories view that, public debt is no burden on the economy and no matter how financed cannot be shifted to future generation. Later J. E. Meade and R .A. Musgrave, too agreed to Buchanan's idea. Buchanan had tried to prove that in the most general case. The primary real burden of a public debt is shifted to future generation. The analysis between public debt and private debt is fundamentally correct. The external debt and internal debt are fundamentally equivalent (Sharp, 1959).

2.2Empirical Review

In the literature of public debt, both the national and international economists have made some known issues regarding the effects of public debt on interest rates. They give argument how the interest rate is affected by the borrowing from the government. They have given arguments through showing the relationship between both direct and indirect tests of relationship between public debt and interest rate. Panel vector auto regression(PAVR),vector auto-regression(VAR),annual time series data, cointegration, granger causality test, ordinary least square regression(OLS), vector error correction model (VECM), Autoregressive Distributed Lag (ARDL) model has been used to estimate the results.

2.2.1 International Context

Kalulumia (2002) examined the impact of government debt on interest rates in the United States of America, Germany, the United Kingdom and Canada, using the sequential causality test procedures suggested by Toda and Philips (1994) in the

Johansen error-correction model (ECM).It explored the impact of government debt on interest rates in the United States of America, Germany, UK and Canada. The paper used the general portfolio balance framework which allows for both direct and indirect tests of relationship between public debt and interest rates. Indirect tests of the debt effects on interest rates were investigated through the impact of debt on exchange rate and money demand. It found an overwhelm evidence of long run causality or neutrality of government debt on interest rate from both direct and indirect test techniques.

Carvalho et al., (2016) estimated the fiscal costs of an increase in Brazilian policy of interest rate by considering not only the direct effect on the yield of public bonds that are indexed to the SELIC, but also indirect effects on (i) the yield of public bonds that are indexed to the exchange rate and inflation; and (ii) the stock of public net debt through adjustment in the value of international reserves measured in domestic currency. Projections were based on the estimation of the relationship between interest rates, exchange rates and inflation by means of vector auto-regression. The study suggested that in the short term, without considering variations in assets values, the recent increase in price indexation is indeed mitigating the direct impact of monetary policy on the implicit interest rate on Public debt.

Al-Attar et al.,(2019) aimed to figure out the type of relationship between the effective interest rates and the consumer price index rate CPI and to determine the real relationship between them. In order to achieve the desired objectives of the research the rate of inflation has been calculated through the change in the consumer price index (CPI),for the period 2010-2018.A Pearson Correlation is conducted between the CPI rates and effective interest rates for the same period. The study showed that the outcomes of the correlation analysis conducted refer to a negative relationship between CPI rates and the effective interest rates.

Cecchetti et al.,(2011) addressed the question, when the debt goes from good to bad. They addressed the question using a new dataset that includes the level of government, non-financial corporate and household debt in18 OECD countries from 1980 to 2010. The results supported the view that, beyond a certain level, debt is a drag on growth. For government debt, the threshold is around 85 percent of GDP. The paper concluded that advanced countries with high debt must act quickly and

decisively to address their looming fiscal problems. The longer they wait, the bigger the negative impact will be on growth, and the harder it will be to adjust.

Silva et al., (2007) studied the relationship between exchange rate and public debt is intermediated by two mechanisms. On the one hand, exchange rate devaluation implies higher payment on local currency over the debt denominated in foreign currency. On the other hand, the rise of public debt leads a perception of higher default risk, forcing capital outflows and a devaluation of exchange rate. The paper has developed a simple model where the exchange is crucial to analyze public debt dynamics which is based on functional finance ideas. The paper suggested low rates of growth and relatively high rates of interest indicate that small changes may lead to an unsustainable debt dynamics, and in particular a small depreciation of the domestic currency may increase public debt denominated in domestic currency by a large amount and lead to a currency crisis and an eventual default.

Apere (2014) examined the impact of public debt on private investment in Nigeria over the period 1981-2012.The study showed positive impact of domestic debt on ratio of GDP, private consumption expenditure has negative impact on ratio of GDP, external debt has U-shaped impact on ratio of GDP. The paper concluded that unless external debt as a ratio of GDP reaches some threshold value that is large enough for meaningful investment the impact of external debt on private investment in Nigeria will always be negative. The study recommended for Nigeria that to benefit from government, external borrowing funds should be large enough compared to GDP and should be invested in productive ventures.

Kelikume (2016) examined the effects of government deficit financing on interest rates. The study applied panel vector auto regression techniques (PVAR) on dataset collected from 18 countries across sub Saharan Africa over the period 2000-2014.The result showed interest rate response to government fiscal deficit to be neutral or insensitive. The panel VAR granger causality test revealed that inflation mainly granger cause interest rate. These findings lend credence to the ‘Ricardian Equivalence Theory’ which emphasizes the neutrality of budget deficit on interest rates. Therefore, this study implied that inflation rate provide much explanation for changes in interest rate in Sub-Saharan Africa than rising governmental fiscal deficit.

Izak (2004) analyzed a panel of four transition economies: Czech Republic, Hungary, Poland and Slovakia in the time period 1994-2002.The interest cost of servicing public debt is key both to its public debt sustainability and to the burden to its places on the public finance and the economy. The factors influencing the debt service in nominal terms and analyzed in this paper are primary balance growth rate of real GDP, inflation rate and debt level. The paper found that country specific effects have logically played a very important but their impact has been tapering off in the last years and common problems of countries on the eve of EU entrance prevail.

Posta (2018) said that the application of exchange rate target zones modeling to interpreting the puzzles that emerged with the public debt euro area crisis, namely the nonlinear behavior of the interest rates and the fact that some standalone countries, not belonging to the euro area, have not been subject of speculative attacks in spite of equally large public debt to gross domestic product ratios. As a matter of fact this model showed that in the case of a non-credible upper threshold for the interest rate, the resulting public debt unsustainability determines interest rate nonlinearity and make the crisis possible for public debt levels that would be stable in the presence of a credible interest rate target. Pompeo Della Posta have argued that in the case of a non-credible upper threshold for the interest rate, the resulting public debt unsustainability increases the interest rate on it, thereby anticipating crisis at lower levels of public debt, compared to the case in which no binding constraint on the primary surplus was present and or a lender of last resort existed.

Ogawa et al.,(2016) investigated the causal relationship between the public debt to GDP ratio and economic growth for 31 EU and OECD countries from 1995 to 2013.The study estimated a panel VAR model that incorporates the long-term real interest rate on government bonds as a vehicle to transmit shocks in both the public debt to GDP ratio and economic growth. The paper found a causal relation from the GDP growth rate to the public debt to GDP ratio. In high-debt countries, the direct negative impact of economic growth on public debt is enhanced by a rise in the long-term real interest rate, which in turn decreases interest-sensitive demand and leads to a further increase in the public debt to GDP ratio. Findings showed that the long term interest rate plays a vital role in transmitting a shock in economic growth to public debt for high public debt countries. The paper recommended to investigate that why

the long term interest rate in one country stays at quite a low level in spite of large public debt, while it sharply rises in another country under the same circumstances.

Saungweme and Odhiambo (2019) surveyed and found diverse in some cases, inconsistent evidence on the relative impact of public debt on economic growth. The article found that a few other studies support the 'Ricardian Equivalence Hypothesis (REH)', which states that the relationship between public debt and economic growth is nonexistent. The paper concluded that theoretical models and empirical studies yield inconclusive results depending on a set of heterogeneous factors, including the level of development of the sampled countries, data coverage, methodology used, and the researchers' choice of control variables, among other factors. The study, therefore, concluded that the impact of public debt on economic growth is not clear-cut, and that the notion that public debt is bad for economic growth is merely based on prima facie or superficial evidence - and should be taken with a pinch of salt.

Umaru et al., (2013) investigated the impact of external debt, and domestic debt on economic growth in Nigeria between 1970-2010 through the application of Ordinary least square method to establish a simple relationship between the variables under study, Augmented Dickey-Fuller technique in testing the unit root property of the series and Granger causality test of causation between GDP, external debt and domestic debt. The results of OLS also revealed that external debt possessed a negative impact on economic growth while domestic debt has impact positively on economic growth (GDP).The study found that domestic debts if properly manage can lead to high growth level. The study recommended that government should rely more on domestic debt in stimulating growth rather than external debt. Government should formulate policies aimed at encouraging domestic savings vis-à-vis domestic investment.

Wang and Rettenmaiert (2008) revisited the long standing issue of the relationship between government borrowing and long term interest rates. The study used emerging method Cholesky decomposition of directed acyclic graphs for model identification. The primary findings of this paper was that the explicit debt and implicit debt both appear to have some positive effect on the long term interest rate within a 10 year horizon and secondly findings is that, the effects of deficits on interest rates may persist upto 8 years but they were not permanent and tend to die out after that. The paper suggested that the future studies on the impact of fiscal policy on interest rates

and other macro variables may benefit from considering the significant magnitude of unfunded obligations embodied in the generational transfer programs.

Barry et al., (2008) examined whether the timing of debt issuance is affected by the current level of interest rates relative to historical rates, total financing and capital expenditures have been accounted. The paper examined empirically whether corporate managers time the issuance of external debt with respect to interest rates and found that debt issuance activity is very much affected by the level of interest rates relative to historical rates. When interest rates decline, companies tend to refinance past debt that is eligible for refinancing. The paper considered the effects of refinancing transactions on debt issuance related to levels of interest rate and found that refinancing is more common in sample 14000 new issues of corporate debt for the period 1970-2001 when interest rates are at low levels relative to their history.

Barry et al., (2009) examined a large detailed sample of public debt and Rule 144A issues and bank loans over the period 1970-2006, the paper investigated the relationship between interest rate changes and issues of floating and fixed-rate debt. Specifically, this paper examined interest rate changes subsequent to corporate debt issuances and found that managers are not successful in issuing debt and locking in fixed interest rate in anticipation of increased future interest rate in issuing high levels of floating debt prior to debt decreases. The findings in this paper suggested that evidence of timing success is dependent on the time interval and type of debt examined.

Checherita-Westphal and Rother (2012) investigated the average impact of government debt on per-capita GDP growth in twelve euro area countries over a period of about 40 years starting in 1970. It found a non-linear impact of debt on growth with a turning point - beyond which the government debt-to-GDP ratio has a negative impact on long-term growth - at about 90–100 percent of GDP. The channels through which government debt is found to have a non-linear impact on the economic growth rate are private saving, public investment and total factor productivity. This means that public debt is associated, on average, with lower long-term growth rates at debt levels above the range of 90–100 percent of GDP. The long term perspective is reinforced by the evidence of a similar impact of public debt on the potential/trend GDP growth rate. This paper suggested that for many countries current debt levels may already have detrimental.

Akhanolu et al., (2018) focused on the Nigerian government's debt and its impact on economic growth from 1982-2017 using the two-stage least square regression. For the first equation both internal and external debt and their lags were regressed against GDP, the result showed that external negatively impacts the economy while internal debt positively does the same. For the second equation GDP, total savings deposits in the Nigerian deposit money banks and capital expenditure were regressed against internal debt, the result showed that all the variables have significant relationship with internal debt. The study recommended that corruption of borrowed funds should be tackled at all cost and also government should minimize external borrowing since it impacts the economy negatively.

Nastansky et al., (2014) analysed the interaction between public debt and inflation including mutual impulse. The paper showed the transmission from public debt to inflation through money supply and long term interest rate. And it found that public deficits can lead to higher inflation if the money supply is expansive. The liquidity condition of the banking sector and the institutional framework such as the independency of the central bank determine the relationship between national debt and inflation .The lower the level of independence the higher the potential of debt – caused inflationary process. The paper analysed the variables public debt, consumer price index, money supply (m3) and long-term interest rate based on the theoretical thoughts within a vector error correction model estimated by Johansen approach.

Baum et al., (2013) investigated the relationship between public debt and economic growth and adds to the existing literature by using a dynamic threshold panel methodology in order to analyse the non-linear impact of public debt on GDP growth and by focusing on 12 euro area countries for the period 1990-2010, therefore adding to the current discussion on debt sustainability in the euro area. The empirical result in this paper suggested that the short-run impact of debt on GDP growth is positive and highly statistically significant, but decrease to around zero and loses significance beyond public debt to GDP ratios of around 67%.The reverse imply that when the debt ratios are very high, reducing it would have beneficial effects for annual growth. On the other hand in case of low debt levels reducing the debt further would have a rather detrimental impact on growth in the short-run.

Paesani et al., (2006) focused on the USA, Germany and Italy, over the 1983-2003 period and investigated two interrelated problems, whether the accumulation of

government debt has an impact on long-term interest rates, after controlling for inflation and monetary policy and, whether there are spill-over effects for across countries. The paper analysed based on a small, multivariate econometric model, which allows disentangling the more permanent and transitory components of interest rate developments. Empirical evidence on this paper showed that in all cases a more sustained debt accumulation leads at least temporarily to higher long-term interest rates.

Ardagnaet al., (2007) investigated the effects of government debts and deficits on long-term interest rates by using a panel of 16 OECD countries over several decades. The effects are both statistically and economically significant and they are robust to a variety of specifications. These effects are non-linear, becoming stronger as a country's debt grows and its fiscal balance becomes weaker the dynamic analysis presented showed that the long run effects of sustained deficits are much larger than the immediate impact of a one-time deficit. The paper suggested that each country's fiscal imbalance has its greatest impact at home, it is also a legitimate concern at the level of the world economy.

Perveen and Munir (2017) examined the impact of total, internal and external government debt on nominal interest rate in Pakistan .The study used annual time series data from 1973 to 2016 and loanable fund theory as theoretical model and ARDL bound testing approach for cointegration and Granger causality test to estimate the results. The study found negative relation between total government debt, external debt and nominal interest rate in long run, while the study found no evidence of long run relation between internal government debt and nominal interest rate. The results found unidirectional causality between total government debt and nominal interest rate. The study suggested that reforms should be made to lessen the burden of government debt and to stabilize the interest rate.

Benedict and Ekhikioya (2012) investigated that the continuous increase in Nigeria's public domestic debt profile has raised concerns regarding its effect on economic growth as well as on the crowding-out of private lending in the economy. The paper used the Ordinary Least Square (OLS) regression technique and time series data from 1980 to 2009 to evaluate the modified Barro Growth Model, the results showed that domestic debt in Nigeria has an inverse and significant impact on economic growth .The study found that domestic debt robustly crowds-out private lending in Nigeria

such that a 10% increase in domestic debt results in a 2.2% decrease in private lending and the consequent adverse effect on economic performance. The paper recommended that government should put in place adequate macroeconomic policies to restructure its revenue base and minimize tax evasion and avoidance.

Kundu and Munim (2016) explored the phenomenon that each year a major portion of the government debt in Bangladesh is expended on interest payment, giving rise to more budgetary deficit in the future. The paper empirically investigated the long-run effects of government debt on long-term nominal interest rate and explored the short-run dynamics in the context of capital market in Bangladesh. The study found a single cointegrating equation depicting long-run stable relationship between long-term nominal interest rate and the explanatory variables in the model using time -series data and vector error correction model (VECM) on Bangladesh. The paper concluded that government debt has a positive impact on the long-term nominal interest rate in the capital market of Bangladesh.

Claeys et al., (2012) anlaysed the effect of financial integration on crowding out for a panel of OECD and emerging economies over the period 1990–2005.The study found that the crowding out effect of public debt on domestic long term interest rates is small. A 1 percent increase in the debt ratio pushes up domestic rates by 2 pp at most. The paper tested the crowding out, and measures the degree of integration of government bond markets, using spatial modeling techniques. The paper concluded that the result from the study has some implications for fiscal policy. Persistent increases in deficits lead to large accumulated effects over time and in crisis periods, debt often rises by double digit numbers.

Matiti (2013) investigated to establish the relationship between public debt and economic growth in Kenya. The study used secondary data collected from various sources collected from the Kenya National Bureau of Statistics and the Central Bank of Kenya. The study period included 2002/2003-2011/2012 financial periods. The data was collected using data collection sheet which was edited, coded and cleaned covering the period 1992/1993-2011/2012 financial periods. The study conducted a regression analysis to establish the relationship between public debt and economic development. The paper recommended that the government should develop a framework for recording and monitoring all contingent liabilities and also formulate and implement a policy for management of the contingent liabilities as well as

continue to implement wider reforms that promote investment in Treasury bonds, and encourage institutional investors such as pension funds and insurance companies to invest in Treasury bonds.

Moore and Thomas (2010) investigated whether debt can be used to finance growth or not. The paper utilized meta-analysis approach to address the issue. This approach allowed researchers to combine the results from published and unpublished research to gain insights regarding the directional and statistical significance of the relationship between two variables. The paper concluded that there exist a positive relationship between debt and economic growth. The study suggested that future research should be conscious of the effect model specification can have on the results on their studies. Indeed, when external debt, the fiscal balance, debt relief where included in the econometric specification the relationship between debt and growth was weakened.

Ramos-Herrera and Sosvilla-Rivero (2016) empirically investigated the relation between public debt and economic growth based on a data set of 115 economies covering the period 1970-2013. The paper used the World Bank's classification for income groups and found those countries that present the lowest public debt are characterized by the highest economic growth, while the smallest growth rates are associated with the highest public debt. The paper concluded that when using the IMF's country classification, the results do not suggest a clear pattern in the public debt–economic growth nexus across different countries, but indicated a heterogeneous relationship between key macroeconomic variables

Gamber and Seliski (2019) presented evidence on the relationship between federal debt and interest rates. The paper used a dynamic stochastic general equilibrium model to illustrate how the response of interest rates to debt depends on the type of fiscal policy generating changes in the debt. In the context of that model, fiscal policies that bolster incentives for households and firms to invest in private capital or supply additional labor elicit a smaller interest rate response than the response suggested by the reduced-form estimates, which do not control for the nature of the fiscal policy change. The paper suggested that the average long-run effect of debt on interest rates ranges from about 2 to 3 basis points for each increase of 1 percentage point in debt as a percentage of GDP.

2.2.2 Nepalese Context

RA et al., (2005) studied the problem of debt management for the Nepali economy by applying the framework studied in Hahm and Kim (2003). The paper has analysed the foreign debt and found that it is desirable to have a larger portion of the currency whose exchange rate relative to Nepali rupee has a lower average rate of change and smaller variability of rate of change than other currencies. The paper has used analytical approach which can be easily applied for other countries to identify their benchmark government debt portfolios. Simulation on this paper showed that the Nepali economy needs to increase longer-term domestic borrowing instruments, and that the maturity structure of domestic bonds should be simplified. The simulation suggested an optimal currency composition of external debts in Nepal and a richer and more informative data set has to be accumulated to analyze more interesting issues and performed detailed anlaysis of debt management in Nepal in the future.

Bista (2013) has investigated the impact of domestic borrowing on private investment, interest rate, commercial banks loan to private sector and economic growth in Nepal .The paper has analysed the time series annual data from 1975 to 2011.The long run and short run relationships are established by using Autoregressive Distributed Lag (ARDL) and error correction models. The empirical results on this paper showed that domestic borrowing has positive and significant impact on private investment and economic growth rate in long run and short run .The overall results empirically verified that the effect of domestic borrowing on private investment and economic growth rate is positive and confirms the Crowding-in effect as described by Keynesians in the case of Nepalese economy. The paper recommends that Nepal, as being a developing country needs huge government fund for economic development it can further utilize the domestic loan for government budget deficit financing.

Pandit (2005) examined the relationship between the long-term nominal interest rate and budget deficit variables in Nepal. The study found the evidence that there exists positive but insignificant relationship between long-term nominal interest rate of government securities and budget deficit variables. The empirical evidence presented in this paper does support the theoretical prediction that the deficit causes interest rates to rise but insignificantly in the Nepalese case. The findings of this paper provide an insight into a policy agenda for Nepal, especially to provide basic pre-requisites to ensure the smooth functioning of the market for achieving efficiency of

the policies. The study suggested that budget deficit and stock of public debt in relation to GDP have positive but statistically insignificant effect in determination of long term nominal interest rates on of the government bonds in Nepal.

Dahal (2014) investigated the impact of government debt stock on the level of GDP per worker of Nepal using data of the period 1975-2014 by incorporating gross fixed capital formation (GFCF) and a measure of education-centric human capital in a Cobb-Douglas production function framework applying the ARDL approach to cointegration. The result showed that the outstanding total stock of Nepal Government's debt has no growth retarding effect; debt has positive effect on the level of per worker GDP. The paper concluded that borrowing would be a healthy option for the government to finance its development projects to boost economic growth until the government is able to service both the domestic and foreign debt in time.

Sharma(2014) attempted to find out the situation, trend and impact of public debt in Nepalese economy. The paper found the growing trend of borrowing creates a great problem for debt management and has become a challenging issue for the country. The country is falling into debt trap in the form of interest and principal payment because the government has been financing mostly on unproductive sectors and that is why public debt and its interest rate is mounting rapidly. The paper suggested that the debt should be properly utilized on productive sectors otherwise debt trap will drag to the path of difficult situation.

2.3 Research Gap

From the review of literature it is found that many studies are taken on the study of public debt management, situation trend and impact of public debt on Nepalese economy, impact of government debt stock on the level of GDP, impact of domestic investment on private investment, interest rate. However sources, composition and effect of public debt on interest rate changes with the changes in time. Therefore, this earlier research study may not be grasping the effect, sources and composition of public debt changes with the changes in time. As a result these earlier research may not be relevant for the understandings of the different sources and composition of public debt and effect of public debt on interest rate. In this context, this research study has tried out to analyze the sources and composition of public debt and effect of public debt on interest rate by using latest data and information.

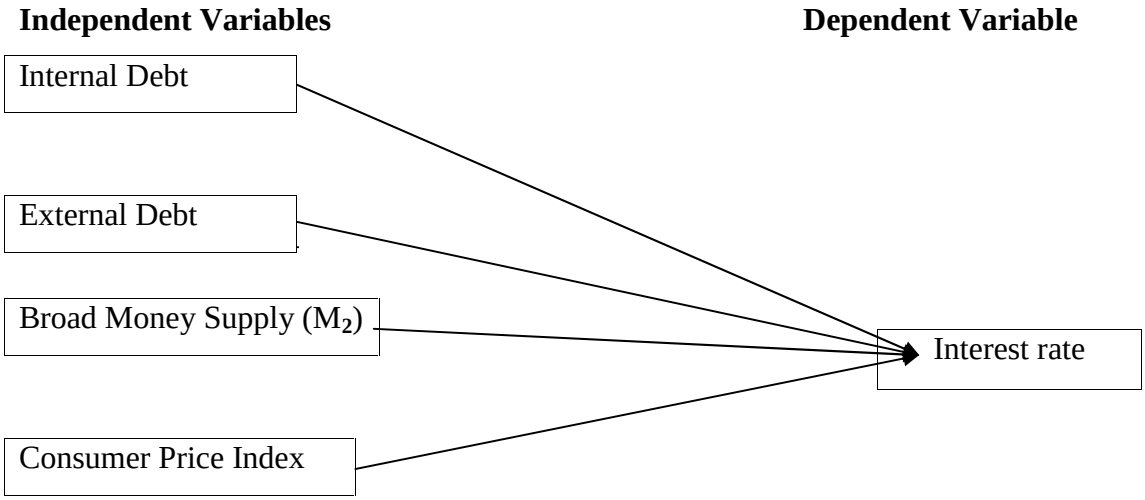
CHAPTER - III

RESEARCH METHODOLOGY

Research is the creation of new knowledge in a way to generate new concepts, methodologies and understandings whereas research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a given subject matter. In a research work, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The chapter deals with the methodological procedure adopted in the study

3.1 Conceptual Framework

Public debt is a financial instrument of financing the gap between government revenue and expenditure. It refers to the loans incurred by the government to finance its activities when other sources of public income are inadequate or fail to meet the requirements. Borrowing is a healthy option for creating for government to finance development projects to boost the economic growth for this there should be proper utilization on the productive sectors which will save the country from debt trap. Developing country like Nepal needs huge government fund for economic development it can further use the domestic loan for government budget deficit financing whereas the growing trend of borrowing creates a problem debt management and has become challenging issue for the country.



3.2 Research Design

The research design of the study is both of quantitative data and information are collected from secondary sources. The general objective of the study is to assess the effects of public debt on interest rate. The time-series data of the selected variables were used to analyze the sources and composition of public debt of the government of Nepal. The deductive approach is applied to quantify the effects of independent variables to dependent variable. The major tools and method of data analysis of the study are various tables, graphs, percentage, correlation analysis, multiple regression analysis, R^2, adj-R^2, t-test, F-test, and D-W test etc. using computer software Microsoft Excel and SPSS-25 version.

3.3 Nature and Sources of Data

This study is solely based on secondary data. The required data and information are collected from various publications of books, booklets, research reports, Journals, articles, magazines, and dissertations, published from Ministry of Finance (MoF), Nepal Rastra Bank (NRB), Center Bureau of Statistics (CBS), Central Library of T.U. and other relevant agencies. The study period of this area is 1996/97 to 2019/20.

3.4 Study Period Covered

The study covered 24 years of data from fiscal year 1996/1997 to 2019/20.The reason to select this period is for the consistency of the availability of all concerned variables. It also covers long series of data which is quite sufficient for the reliability and validity of the result and analysis obtained from the statistical model.

3.5 Tools and Method of Data Collection

The required data and information for the study were collected by the researcher herself visiting various concerned offices, institutions, and libraries through consulting, reading, note making, web sides of the concerned institutions etc.

3.6 Data Organizing and Processing

The collected data and information were systematically classified, tabulated, organized and processed in such a way that could provide the answers of given research questions, justify the objectives, and help for testing hypothesis. Organized data were then processed as per the given objectives and hypothesis of the study in

such a manner that they can be easily proceeded to analyze. The collected raw data were calculated by using computer software 'Microsoft Excel' and SPSS-25 version.

3.7 Tools and Method of Data Analysis

The major tools and method of data analysis of the study are various tables, graphs, percentage,correlation analysis, multiple regression analysis, coefficient of determinants (R^2), adjusted coefficient of determinants (adj. R^2), t-test, F-test, D-W test etc. All collected data is analyzed using SPSS (Statistical Package for the Social Sciences) version-25. The Microsoft Excel is also used for drawing the figures.

3.8 Model Specification

The study is going to use the multiple regression in which interest rate (IR) is the dependent variable and internal debt (ID), external debt (ED), broad money supply (M_2) and consumer price index (CPI) are the independent variables. The functional equation of the study is - $IR = f(ID, ED, M_2, CPI)$

Modifying the functional equation into linear form i.e.

$$IR = \alpha + \beta_1 ID + \beta_2 ED + \beta_3 M_2 + \beta_4 CPI + e_n$$

Taking natural log on both sides,

$$\ln IR = \beta_0 + \beta_1 \ln ID + \beta_2 \ln ED + \beta_3 \ln M_2 + \beta_4 \ln CPI + e_n$$

Where,

IR = Interest rate of 364 days Treasury Bills of

ID= Internal Debt

ED=External Debt

M_2 =Broad Money Supply

CPI=Consumer Price Index

β_1 = Regression Constant

$\beta_{1 \ldots 4}$ = Regression Coefficients or parameters

e_n= error term

All the variables except interest rate are expressed in logarithmic term so that regression coefficients directly express the elasticity of the independent variable as the explanatory variables.

3.9 Variable Specification

The study is having five variables in which one is dependent and four are the independent variables as given below.

a) Interest Rate (IR):-Interest rate is the amount a lender charges for the use of assets expressed as a percentage of the principal. It is the rate a bank or other lender charges to borrow its money, or the rate a bank pays its saver for keeping money in an account. It is the dependent variable of the model. Treasury bills are usually sold at discount from the par value. They do not pay periodic interest at six month intervals therefore the interest rate is determined through a combination of total discounted value and the maturity length. The interest earned on a T-bill is not necessarily equal to its discount yield, which is the annualized rate of return the investor realizes on an investment. The interest rate of T-bill of 364 days has been taken for the analysis of the study.

b) Internal Debt (ID):-Internal debt is the part of the total government debt in a country that is owed to lenders within the country. Internal government debt's complement is external government debt. Commercial banks, other financial institutions etc constitute the sources of funds for internal debts. Internal debt influence interest rate which can change the level of saving investment and consumption. Interest rate determines how much borrowed money is invested and saved by the borrower. It also shows how much borrower has to pay loans. It is the first core independent variable of the study.

c) External Debt (ED):-External debt is owed to creditors outside the country. The outside creditors can be foreign governments, international financial institutions such as World Bank, Asian Development Bank etc. External debt may be of several kinds such as multilateral, bilateral, IMF loans, trade creditors, external commercial borrowing etc. The country borrows debt externally from the foreign countries to repay back with the interest rate or without interest rate. When there is higher interest rate on external debt create imbalance over a long period in the country. It is the second core independent variable of the study.

d) Broad Money Supply (M_2):-Broad money supply is the sum of currency held by people in their hands / pockets (c), demand deposits (DD) and time deposits (TD) of people with banking and financial institutions (BFIs) i.e. $M_2 = C + DD + TD$ or $M_2 = M_1 + TD$. Broad money supply has the close link up with the interest rate. An increase in supply of money works both through lowering interest rates and through putting more money in the hands of consumers, making them feel wealthier and thus stimulating spending. It is the first counter variable of the study.

e) Consumer Price Index (CPI):-CPI is a measure of the average change overtime in the prices paid by consumers for a market basket of consumer goods and services. It measures the inflation as experienced by consumers in day to day living expenses. Therefore, rising interest rate lead fewer consumers in the market i.e increase interest rate leads lower CPI and vice versa.

3.10 Hypothesis Testing

Hypothesis testing is applied for judgment of statistical reliability of estimates of the regression coefficients or regression equation etc. The following tests will be performed to test the hypothesis in the study. It is a powerful tool for testing the power of predictions. It produces a definite decision about which of the possibilities is correct based on data. These are two hypothesis involved in hypothesis testing i.e.

Null Hypothesis (H_0) and Alternative Hypothesis (H_1). The study used three types of tests like t-test, F-test, and D-W test.

a) t-test:-The **t**-test is used to perform in order to identify the statistical significance of an observed sample regression coefficient. The formula for calculating it is as follows:

$$t = \frac{\hat{a}_1}{SE(\hat{a}_1)} \qquad \text{(Bhusal, 2018)}$$

Where,

$\hat{a}_1$ = Estimated value of a_1

$SE(\hat{a}_1)$ = Standard error of a_1

If the probability (Prob.) value of t-statistics is less than **α** level of significant (either 0.01 or 0.05 or 0.10), null hypothesis is rejected or alternative hypothesis is accepted.

b) F-test (Goodness of Fit):-F-test is used to examine the overall significance of the model. The formula for calculation is:

$$F=\frac{R^2/K-1}{(1-R^2)/N-K} \qquad \text{(Bhusal, 2018)}$$

Where,

R^2=Coefficient of Determination

K= No of Explanatory Variables

N= No of Observation in Sample

If the probability (Prob.) value of F-statistics is less than **α** level of significant (either 0.01 or 0.05 or 0.10), null hypothesis is rejected or alternative hypothesis is accepted.

c) Durbin Watson (D -W) Test:-The most popularly used test (from computer also) for detecting autocorrelation is known as DW- statistic which is developed by well-known statisticians Durbin and Watson. This test is used for testing autocorrelation in the residual from statistical regression analysis. It is the similarity of a time series over successive time intervals. It can be computed as follows:

$$DW = \frac{\sum_{t=2}^{T}(e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2}$$ (Bhusal, 2018)

Where,

e= estimated error

The Durbin-Watson tests always have a value between 0 and 4. A value of 2.0 means that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation and values from 2 to 4 indicate negative autocorrelation

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

4.1Sources and Composition of Public Debt

There are different sources of public debt. These sources can be broadly divided into internal and external sources. Internally government can borrow from individuals, financial institutions, and non-financial institutions. On the other hand externally it can borrow from foreign governments, international financial institutions and regional financial institutions. The composition of internal debt include various debt instruments treasury bill, development bond, national saving bond, citizen saving bond, special bond and employment saving bond whereas the composition of external debt are grants and loans.

4.1.1 Sources of Public Debt

The debt is useful resource for economic development of underdeveloped countries. To fulfill the objectives of economic development, there is need of heavy investment to build up socio-economic infrastructure such as health, education, transportation, communication etc. Public debt is widely accepted as a means of deficit financing measures to reduce the BOP deficit, and imbalance and resource gap. It is a useful tool for diverting resources from unproductive sector to productive resources. In Nepal, there are mainly three reasons for raising the public debt.

- To recover budget deficit,
- To tackle emergency period of crisis, and
- To sustain the economic and monetary liability.

Nepal has been borrowing fresh loans mainly to balance its deficit budget but there may be other reasons for public debt. It is applied for the maintenance of the balance between revenue and expenditure. It is also applied for financing economic development since under developed countries always face the problems of fund scarcity which is reflected in a large extent as ever government budgetary. Nepal lacks the sufficient internal resources for the economic development. The huge amount of debt is inevitable. The debt proportion of the budget is relied upon the GDP

of the nation, it is hence necessary to maintain the internal debt with in the limit of 2 percent of GDP.

Nepal started receiving foreign loans since the first year plan (1956/57-1959/60) but it systematically raised public debt since FY 1961/62 by issuing treasury bills of Rs.7 million which carried 1 percent interest rate. The government issued public debt regulation in FY 1963/64 which is still in practice. Since then, the amount of external borrowing has continued to increase every year. Basically, there are two sources of public debt in Nepal. They are internal debt and external debt.

a) Internal Debt:-Internal debt is the debt which is borrowed from individuals and institutions within the country and repayment will constitute only a redistribution of resources without causing any change in total resources of the country. It is owed by a government (money a government borrows from its citizens) which is part of the country's national debt. It is a form of flat creation of money, in which the government obtains finance not by creating it from beginning, but by borrowing it. The money created is in the form of treasury securities or securities borrowed from the central bank. Internal debt may involve a direct real burden on the community according to the nature of series of transfer of incomes from tax payers to the public creditors.

b) External Debt:-External debt refers to money borrowed from a source outside the country. External debt has to be paid back in the currency in which it is borrowed. Countries borrow from foreign creditors mainly to finance their own excess expenditures, build additional infrastructure, finance recovery from natural disasters, and even to repay its previous external debt. External debt can be obtained from foreign commercial banks, international financial institutions like IMF, World Bank, ADB etc. and from the government of foreign nations.

Normally these types of debts are in the form of tied loans, that is these types of loans have to be used for a predefined purpose as determined by a consensus of the borrower and the lender. Companies and governments generally do not prefer external debt, since they impose restrictions on the borrowing country and give the lender country some leverage over them. However, certain circumstances compel countries to borrow money from outside when domestic commercial banks and financial institutions lacks sufficient money to lend, when available domestic funds need to be

utilized in other important areas, such as healthcare and education, and when international financial institutions and foreign governments lower interest rates and easier repayment schemes than domestic debt market.

Table 4.1: Sources of Public Debt (Rs in Million)

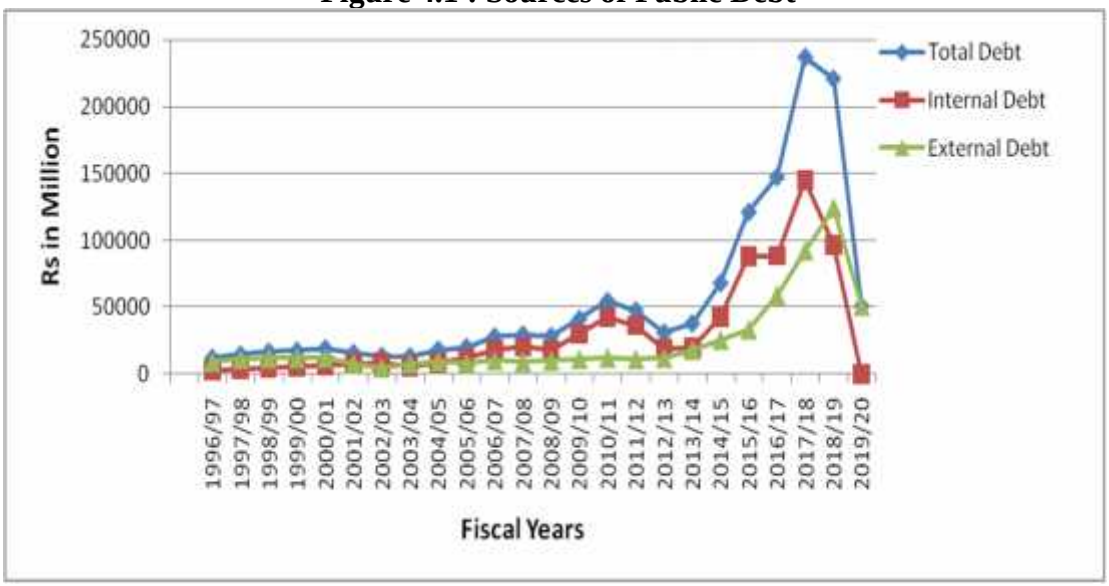
Fiscal Years	Total Debt	Internal Debt	External Debt	Percent of Internal Debt	Percent of External Debt
1996/97	12044	3000	9044	24.91	75.09
1997/98	14454	3400	11054	23.52	76.48
1998/99	16562	4710	11852	28.44	71.56
1999/00	17312	5500	11812	31.77	68.23
2000/01	19044	7000	12044	36.76	63.24
2001/02	15698	8000	7698	50.96	49.04
2002/03	13426	8880	4546	66.14	33.86
2003/04	13236	5607	7629	42.36	57.64
2004/05	18204	8938	9266	49.09	50.9
2005/06	20048	11834	8214	59.03	40.97
2006/07	27946	17892	10054	64.02	35.98
2007/08	29476	20496	8980	69.53	30.47
2008/09	28386	18417	9969	64.88	35.12
2009/10	41137	29914	11223	72.72	27.28
2010/11	54592	42516	12076	77.88	22.12
2011/12	47502	36419	11083	76.67	23.33
2012/13	31012	19043	11969	61.41	38.59
2013/14	37982	19983	17999	52.61	47.39
2014/15	68039	42423	25616	62.35	37.65
2015/16	121003	87775	33228	72.54	27.46
2016/17	147360	88338	59022	59.95	40.05
2017/18	236984	144751	92233	61.08	38.92
2018/19	220755	96382	124373	43.66	56.34
2019/20*	50792.2	4.2	50788	0.01	99.99

*=upto mid-march

Source: Various Issues of Economic Survey, 2019/20

Table 4.1shows the sources of public debt. The sources of public debt include internal debt and external debt. In 1996/97 total debt is Rs. 12044 million where internal debt is Rs 3000 million (24.91%) and Rs 9044 million (75.09%) external debt. In 2019/20 total debt is Rs 54.99 million where internal debt is Rs 4.2 million(0.01%) and external debt is 50788 million(99.99%) upto mid-march of the fiscal year. Table shows there is increase in the share of internal debt in comparison to the external debt in the country during the study period.

Figure 4.1 : Sources of Public Debt



Source: Based on table 4.1

Figure shows the sources of public debt of country Nepal. The internal debt is increasing rate from the FY 2005/06 while external debt is increased at slow pace till FY2014/15 and then starts to increase. There is fluctuation of internal debt during the study period.

4.1.2 Composition of Public Debt

Composition of public debt includes various instruments of debt from which the country borrows. Internally country Nepal borrows debt from instruments which are treasury bill, development bonds, national saving certificate, citizen saving certificates, special bonds whereas external debt are borrowed through instrument grants and loans.

4.1.2.1 Composition of Internal Debt

Internally government can borrow from individual, financial institutions, non-financial institutions. Government borrows from five types of domestic borrowing instruments. They are treasury bills, development bonds, national savings certificate, citizen saving certificates, special bonds. Internal borrowing carried out since 1961.

a)Treasury Bills:-Treasury bill is a short-term money market security issued by the public Debt Department of the NRB on behalf of the government of Nepal to fulfill its short term financial requirement. It has term to maturity ranging from 28 days to 364 days. It is one of the safest securities since it has zero default risk and

is also the most marketable or tradable security in Nepalese market. The treasury bills are issued weekly or monthly especially 52 weeks treasury bills are issued twice a month. However, the most common type of T-bill used is 91 days, 182 days and 364 days T-bills. These are issued on a discounted basis. Hence, the return to the investor is the difference between maturity value and the issue price.

The treasury bill most of the time purchased by commercial banks as a competitive bidders. At least 15 percent of offered amount has to be separated for non-competitive bidders and they should purchase the bill at average discount rate. It should be noted that commercial banks are not allowed to take part as non-competitors. Treasury bills are issued on every Tuesday. Before one week of issuing Treasury Bills, the notice of auction would be published in the national daily newspaper mentioning the 45 necessary terms like series number, offered amount, taxable/non-taxable, maturity period, earnest money, issue date bidding time and other conditions.

b) Development Bonds:-It was started to rise in Nepal since fiscal year 1963.It is issued to raise the fund from individual and institution for development purpose of nation for long-term. It is divided into competitive and non-competitive categories dividing at least 15 percent for non-competitive bidders. The notice would be public in newspaper with special features and also put in NRB website.NRB has been issuing these bonds in the market on behalf of the government.

c) National Saving Certificates:-It is long-term government bond normally issued for 5 years maturity period. It can be purchased by non-banking sector only like individuals, organizations etc. If the purchaser is institution, it can be purchased in the form of stock and if the purchaser is an individual, it can be purchased in the form of promissory notes. It has fixed interest rate and can be transferred from one person to another.

d) Citizen Saving Certificates:-It is long term bond. Its maturity period is normally 5 years. The natures are same as other long term bonds like development bond, national saving certificates etc. It cannot be used as collateral. If the holders needs fund immediately, the holder of national saving bond and development bond can be used as collateral to these bonds**.**

e) Special Bond:-It is issued for special occasion by indicating for special sector by government. Generally it is issued if there will be scarcity of money on the government account and government has to pay the overdraft interest, commission, cash subsidy etc. It is issued only for institution. The holder of this bond can use it as collateral.

f) Foreign Employment Saving Bond:-The purpose of issuing these bonds is to inculcate savings culture among Nepalese working abroad and pool their resources for country's development. In return for buying these bonds, the government guarantees a fixed return which can be collected every six months till the time of the maturity of the securities. Also these securities carry zero risk because they are issued by the state and they can be used as collateral to obtain loans.

Table 4.2: Composition of Internal Debt (Rs in Million)

Fiscal Years	Total Internal Debt	Treasury Bills	Development Bond	NSB	SB	% share of TB	% share of DB	% share of NSB	% share of SB
1996/97	35635.9	7142.5	3672.2	8736.5	16084.7	20.04	10.3	24.52	45.14
1997/98	38406.7	9182.5	3302.2	9886.4	16035.6	23.91	8.6	25.74	41.75
1998/99	49669.4	17586.9	3872	10426.4	17784.1	35.41	7.8	20.99	35.8
1999/00	54357	21027	4262.2	11526.5	17541.3	38.68	7.84	21.21	32.27
2000/01	60043.7	27610.8	5962.2	12476.4	13994.3	45.98	9.93	20.78	23.31
2001/02	72992.6	41106.5	11090.7	11536.1	9259.3	56.32	15.19	15.8	12.69
2002/03	83714.2	48860.7	16059.2	9629.8	9164.5	58.37	19.18	11.5	10.95
2003/04	84954.8	49429.6	17549.2	9029.8	8946.2	58.18	20.66	10.63	10.53
2004/05	86135.3	51383.1	19999.2	6576.7	8176.3	59.65	23.22	7.64	9.49
2005/06	93031.9	62970.3	17959.2	3876.8	8225.6	67.69	19.3	4.17	8.84
2006/07	102385.1	74445.3	19177.2	1516.9	7245.7	72.71	18.73	1.48	7.08
2007/08	113025.2	85033	21735.5	1116.9	5139.8	75.23	19.23	0.98	4.55
2008/09	121240.5	86515.1	29478.5	216.9	5030	71.36	24.23	0.18	4.15
2009/10	142932.9	102043.7	35519.5	0	5369.7	71.39	24.85	0	3.76
2010/11	179569.3	120340.7	43519.5	10680	5029.1	67.02	24.24	5.95	2.8
2011/12	209852.4	131624.1	57519.5	15680.1	5028.7	62.72	27.41	7.47	2.4
2012/13	217104.507	136468.11	51610.9	15680	13345.5	62.86	23.77	7.22	6.15
2013/14	205036.607	136468.11	47110.9	16586.5	4871.1	66.56	22.98	8.09	2.38
2014/15	198385.707	119858.11	57070	16586.5	4871.1	60.42	28.77	8.36	2.46
2015/16	230736.707	116059.11	108900	906.5	4871.1	50.3	47.2	0.39	2.11
2016/17	280086.9	110409.2	163900.1	906.5	4871.1	39.42	58.52	0.32	1.74
2017/18	1381917.2	1144847.9	235900	906.5	262.8	82.84	17.07	0.07	0.02
2018/19	444139.9	146792.9	297347	0	0	33.05	66.95	0	0
2019/20*	431215	136267.9	294947.1	0	0	31.6	68.4	0	0

*=upto mid-march

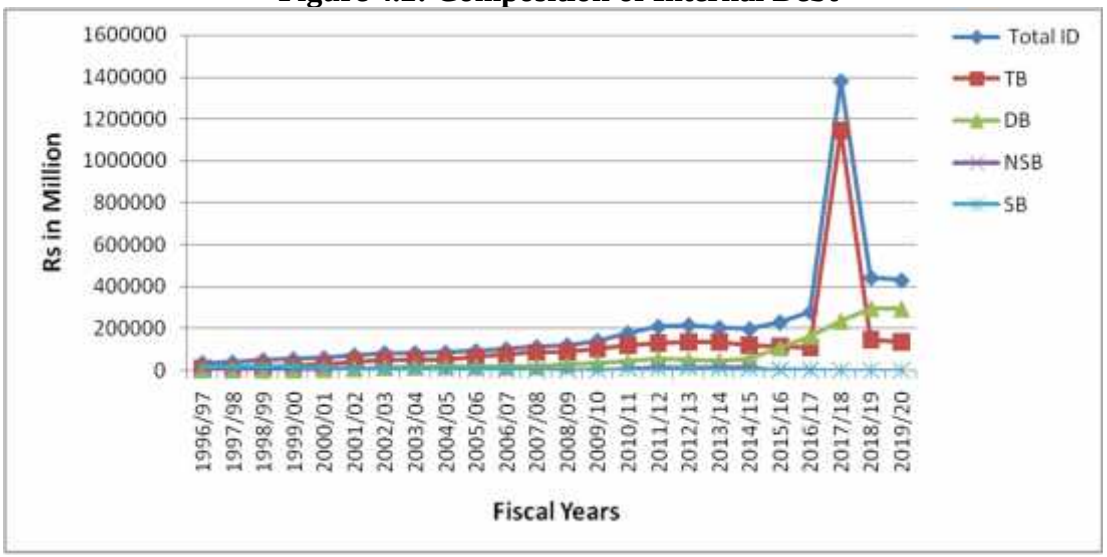
Source: Various Issues of Economic Survey,2019/20

Note: TB=Treasury Bill, DB=Development Bond, NSB=National Saving Bond, SB=Special Bond, ID=Internal Debt

Table 4.2 shows that in 1996/97, the beginning year of review period, there was Rs 35635.9 million. These 24 years of study period shows our economy is heavily indebted. During the study period, most of the year's treasury bills dominate other debt instruments. In some period development bond and national saving bond also dominates other. But treasury bills are the popular instrument in economy and it also becomes easy means to raise the loan for the government. Mostly, the treasury bills are hold by commercial banks, financial institutions and central bank, it may be inflationary.

In 1996/97 the share of treasury bill, development bond, national saving bond and special bond is Rs. 7142.5 (24.04%), 3672.2 (10.3%), 8736.5(24.52%) and 16084.7(45.14%) million respectively of total net internal debt. In 2009/10 there was no loan raised by national saving bond likewise it also don't raise loan in 2018/19 and 2019/20.Special bond also don't raise the loan in 2018/19 and 2019/20.At the last period of study treasury bill, development bond raise the loan of Rs. 136267.9 (31.6%), 294947.1 (68.4) million respectively of total loan.

Figure 4.2: Composition of Internal Debt



Source: Based on Table 4.2

Figure 4.2 shows the composition of internal debt. The figure shows treasury bills dominate other internal debt instruments. In some period development bond has also dominated other instruments. But the treasury bill as the popular instruments in economy, it has become an easy instrument to raise the debt. And national saving bond and saving bond has raised the debt in similar proportion.

4.1.2.2 Composition of External Debt

Externally the amount of external borrowing has been increasing every year .The main sources of external borrowing in Nepal are bilateral sources mainly and multilateral sources. Bilateral sources is an agreement between two countries. The country borrows money or quantity of goods and services from the government of another country. The country acquires money or goods and services from the union of nations or governments institutions; business person and consumers or international organizations (such as World Bank, IMF, ADB and EU etc). Externally government can borrow money from bilateral and multilateral sources.

Table 4.3 : External Debt by Sources (Rs in Million)

Fiscal Years	Total Debt	Bilateral Sources	Multilateral Sources
1996/97	25899.3	8821.7	17077.6
1997/98	123439	1455.4	121983
1998/99	5048.3	488.3	4560
1999/00	7587.8	N.A	7587.8
2000/01	16997.9	3449.9	13548
2001/02	9887.5	1146.5	8741
2002/03	15845.1	129.3	15715.8
2003/04	14781	0	14781
2004/05	12759.6	0	12759.6
2005/06	2659.9	0	2659.9
2006/07	6162.7	0	6162.7
2007/08	8122	7485.5	636.5
2008/09	4879.5	3541.5	1338
2009/10	26351.2	0	26351.2
2010/11	35062.9	700	34362.9
2011/12	39841.9	21453	18388.9
2012/13	47566.8	1521	46045.8
2013/14	60526	6587	53939
2014/15	134216	98029	36187.2
2015/16	116395	44757	71638
2016/17	152569	51287.4	101281
2017/18	117094	0	117094
2018/19	104827	0	104827
2019/20*	90090.7	333	89757.7

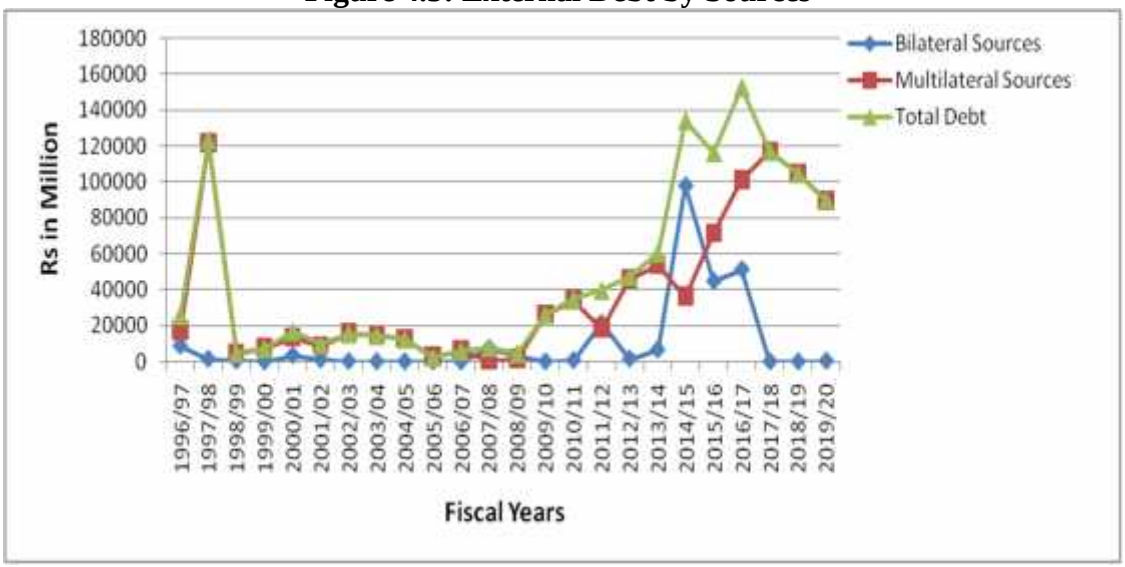
*=upto mid-march

Source: Various Issues of Economic Survey, 2019/20

Table 4.3 shows the composition of external debt assistance by sources. In 1996/97 total debt is Rs 25899.3 million where bilateral debt is Rs 8821.7 million and

multilateral debt is Rs 17077.6 million. In 2019/20 total debt is Rs 90090.7 million and bilateral debt, multilateral debt is Rs 333 million, Rs 89757.7 million respectively upto mid march of the fiscal year.

Figure 4.3: External Debt by Sources



Source: Based on Table 4.3

Figure 4.3 shows composition of external debt assistance by sources. Composition of external debt assistance by sources includes bilateral and multilateral sources. In 1996/97 there is increasing trend of borrowing money through the multilateral sources till the fiscal year 1998/99 but after this study period the borrowing increase in decreasing order. After 2008/09 country again started to borrow money which is in increasing order. The borrowing of money started to increase through the study period 2010/11.The figure shows the country borrows more from the multilateral sources.

4.1.2.3 External Debt Disbursement by Sources

Disbursement is the drawings by the borrower on commitments during the year. External debt has been disbursed through bilateral and multilateral sources.

Table 4.4 : External Debt Disbursement by Sources(Rs in Million)

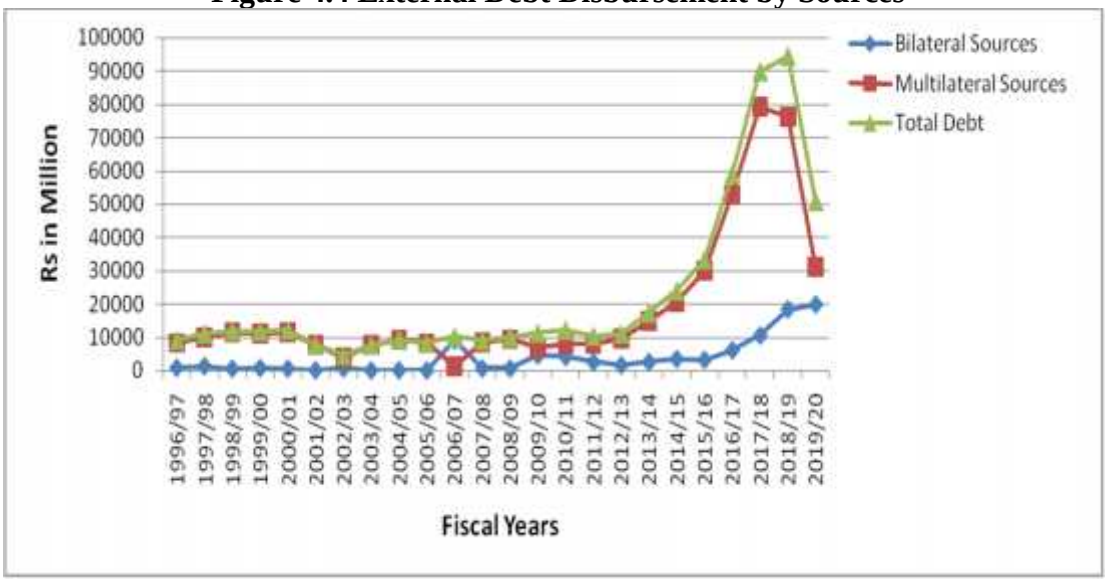
Fiscal Years	Total Debt	Bilateral Sources	Multilateral Sources
1996/97	9043.6	850.7	8192.9
1997/98	11054.5	1314.5	9740
1998/99	11852.4	584	11268.4
1999/00	11812.2	757.9	11054.3
2000/01	12044	586.7	11457.3
2001/02	7698.6	87	7611.6
2002/03	4546.4	657.2	3889.2
2003/04	7629	66	7563
2004/05	9266.1	126.5	9139.6
2005/06	8214.06	40.36	8173.7
2006/07	10054	9005	1049
2007/08	8980.1	632.1	8348
2008/09	9969	613	9356
2009/10	11224	4551	6673
2010/11	12075.6	4112.4	7963.2
2011/12	10358.4	2529.4	7829
2012/13	10988.1	1593.1	9395
2013/14	17285.3	2527	14758.3
2014/15	23913.2	3428	20485.2
2015/16	33228.4	3201.4	30027
2016/17	59022.4	6099	52923.4
2017/18	89777	10490	79287
2018/19	94401.3	18319.3	76082
2019/20*	50787.6	19738.2	31049.4

*=upto mid-march

Sources: Various Issues of Economic Survey, 2019/20

Table shows composition of external debt disbursement by sources. In 1996/97 the total debt is Rs 9034.6 million and the money borrowed through bilateral source and multilateral source is Rs 850.7 million, Rs 8192.9 respectively. In 2019/20 total debt is Rs 50787.6 million and the money borrowed through bilateral sources is Rs 19738.2 million and multilateral source is Rs 31049.4 million.

Figure 4.4 External Debt Disbursement by Sources



Source: Based on Table 4.4

Figure 4.4 shows the composition of external debt disbursement by sources. Figure shows increasing trend of money borrowed through multilateral sources than bilateral sources. From the beginning of the study period the money borrowed through bilateral sources is at constant level till fiscal year 2005/06 after this study period it started to increase at slow pace.

4.2 Effects of Public Debt on Interest Rate

Statistical tools are the mathematical technique used to analyse and interpret performance. It is used to describe the relationship between variables and interpret the result. Firstly descriptive statistical analysis is used to interpret the variables. Then the analysis includes correlation coefficient and regression coefficient(r) between the following financial variable have been calculated and interpreted. The study calculated multiple correlations and multiple regression coefficients between interest rate and internal debt, external debt, broad money supply and CPI.

4.2.1Correlation Analysis

Correlation analysis is the statistical tools that can be used to describe the degree to which one variable is linearly related to another. The correlation coefficient measures the degree of relationship between two sets of figures. It measures the degree or direction of movement. Correlation anlaysis only determines the extent to which the two variables are correlated, however it does not tell about cause and effect

relationship. Though, there is a high degree of correlation two variable, it cannot be said which one is the cause and which one is effect. There are four main properties of correlation coefficient. They are first the value of correlation coefficient lies between -1 and +1.Second,the formula of correlation is symmetrical i.e.$r_{xy}=r_{yx}$. Third, the correlation coefficient is independent of change of origin and scale. And fourth, correlation coefficient is geometric mean between two regression coefficients. When correlation coefficient is +1, there is positively perfect correlation between two variables. Similarly, when correlation coefficient is -1,there is negatively perfect correlation between two variables and when correlation coefficient is zero the variables are uncorrelated.

Table 4.5: Coefficients of Correlation

Variables	**Interest Rate**	**Internal Debt**	**External Debt**	**Broad Money Supply**	**CPI**
Interest rate	1				
Internal debt (P-value)	-0.193 (0.365)***	1			
External debt (p-value)	-0.351 (0.92)***	0.143 0.506***	1		
Broad money (p-value)	-0.569 0.004**	0.185 0.388***	0.800 0.000*	1	
CPI (p-value)	-0.576 0.003**	0.199 0.351*	0.803 0.000*	0.998 0.000*	1
Multiple Correlation (r)=0.617, P- value=0.049, No of observation (N)=24					

Note: *0.01 level,**0.05 level,***0.10 level of significance.

Source: Author's Calculation

Table 4.4 shows the results of correlation coefficient matrix of used variables (IR,ID, ED,M_2 and CPI).Correlation coefficients measure the degree or direction of movement, however it does not tell about the cause and effect relationship. In other word, though there is a high degree of correlation between two variables, it cannot be said which one is cause and which one is the effect. Hence it further required the estimation of regression coefficient.

Table shows that there is a negative correlation between IR and ID with the coefficient of -0.193 that means there is a fairly negative relationship between them and it is not significant even at ten percent level as p-value(0.365) is greater than α (0.10%).Similarly, the coefficient of correlation between IR and ED is -0.351 which

shows both of them are negative correlated to each other and it is not significant at ten percent level as p-value is greater than α (0.10 percent). Similarly, the coefficient of correlation between IR and M_2 is -0.569 which shows both of them are negative correlated to each other and it is significant at 5 percent level as p value is less than α (0.05).Again, the coefficient of correlation between IR and CPI is -0.576 which shows that both of them have negative correlation to each other and it is significant at 5 percent level as p-value(0.003) is less than (0.05 %).Finally, the coefficient of multiple correlation among all variables is 0.617 which shows that there is positive correlation among variables and it is significant at five percent also at p-value is (0.049) less than the α-value (0.05 %).

4.2.2 Multiple Regression Analysis

The multiple regression equation of the study is:

Taking natural log on both sides,

$\ln IR = \alpha + \beta_1 \ln ID + \beta_2 \ln ED + \beta 3 \ln M_2 + \beta_4 \ln CPI + e_n$

Table 4.6: Summary Statistics

Variables	Coefficients	S.E	t-value	p-value
Constant(α)	-0.762	27.149	-0.28	0.978
ID ($\beta_{1)}$	-0.132	0.507	-0.261	0.797
ED(β_2)	2.029	1.934	1.049	0.307
M_2 (β_3)	8.215	15.962	0.515	0.613
CPI (β_4)	-28.146	37.635	-0.748	0.464
R^2=0.380 , Adj. R^2=0.250, No of observation =24, F-value =0.2914, p-value=0.049, D-W value= 0.767, p-value=0.049				

Source: Authors Calculation from SPSS

The value of R^2 shows that overall significance of the model. The value of R^2 shows the 0.380.It means if other things remain the same about 38 percent variation in the interest rate can be explained or addressed by the change in independent variables. The adjusted R^2 is 0.250.It also shows the overall significance of the model. Other things remaining the same 25 percent variation in interest rate is explained by the change in independent variables.

The result shows that the coefficient of 1% of ID (β_1) leads to decrease the interest rate by 0.13 %. Similarly, the coefficient of 1 % of ED (β_2) leads increase the interest rate by 2.03%.Similarly,the coefficient of 1% of M_2 (β3) leads to increase the interest

rate by 8.23%.And the coefficient of 1% of CPI (β4) leads to decrease the interest rate by 28.15%.

The F-statistic is 0.2914 and its corresponding probability is 0.049.As p-value of F-statistic is less than 5 percent, it shows that it is significant at 5 percent level of significance. It shows all the independent variables significantly influence the dependent variable (interest rate).

The regression results show that p-value for internal debt is 0.797. It means the p-value of ID (β_1) is insignificant even at 10 percent level significance. Hence, there is no significant effect of internal debt on interest rate. Similarly, the p-value of external debt is 0.307.It means p-value of ED (β_2) is also insignificant even at 10 percent level significance. Hence, there is no significant effect of external debt on interest rate. Similarly, the p-value of counter variable broad money supply is 0.61.It means the p-value of M_2 ($\beta 3_)$ is insignificant even at 10 percent level of significance. It shows there is no significant effect of broad money supply on interest rate. And the p-value of another counter variable consumer price index is 0.464. It means p-value of CPI (β_4) is insignificant even at 10 percent. Hence, there is no significant effect of CPI on interest rate.

The results shows that internal debt, external debt, broad money supply and consumer price index does not have significance impact as their respective p-value for t-test is 0.797,0.307,0.613, and 0.464 respectively. It means these four variables are not significantly determining the interest rate. There is negative relationship between these variables and interest rate.

The test static value of D-W test is 0.767.It is less than 1.5.A rule of thumb is that test statics values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Hence there is autocorrelation in residual for regression analysis.

CHAPTER- V

MAJOR FIN DINGS, CONCLUSION, AND RECOMMENDATIONS

5.1 Major Findings

Public debt in Nepal has been playing great role in prominent role for socio-economic development of the nation. So, public debt has been a source of financing because Nepal is underdeveloped and its economic performance is not satisfactory. Nepal is demanding more and more financial resources through public debt to bridge the growing resources gap in budget.

There are mainly two sources of public borrowing .They are internal sources and external sources. The internal sources are usually treasury bills, special bonds, development bonds, national saving certificate and employment saving bond. And huge portion of internal debt is taken by the banking sector of Nepal since the debt programs was started. And external sources are received from bilateral and multilateral sources like ADB, IMF, and WB etc.

As the country borrows from the internal and external sources it must pay with the interest rate. The interest on public debt is how much the federal government must pay on outstanding public debt each year. The interest rate on public debt immediately reduces the money available for other spending programs. As interest rate rise it becomes very expensive for the country to refinance its existing debt. Higher interest rates caused by expanding government debt can reduce investment, consumption expenditure, value of assets held by households.

David Ricardo considered public debt as one of the terrible sources. Levying taxes to pay the interest obligation may lead to capital movements in another country. According to Malthus, public debt is once created is not evil. It helps to ensure effective consumption which helps to increase the production. The neo-classical production function has demonstrated the theoretical link between debt and interest rate. In the context of Cobb-Douglas production function an increase in government debt leads to reduction in private capital which implies increase in marginal product of capital and therefore leads to increase the interest rate.

The international context of the study shows that there is negative relation between total government debt, external debt and nominal interest rate in long run. The study also argued that the impact of government debt on interest rates which shows both direct and indirect tests of relationship between public debt and interest rates, but there is only indirect relationship between public debt and interest rate. But, some of the article has concluded that government debt has a positive impact on the long-term nominal interest rate in the capital market of Bangladesh. The study has also analyzed that there is negative relationship between interest rate and CPI.

The Nepalese context of the study shows that public debt has been great source for deficit financing to developing countries like Nepal, as being a developing country needs huge government fund for economic development it can further utilize the domestic loan for government budget deficit financing. The public debt has been more source for deficit financing in Nepal, the government has been borrowing from two sources external sources and internal sources .Country should heavily rely on domestic debt in stimulating growth rather than external debt .The study has also recommended that corruption of borrowed funds should be tackled at all cost and also government should minimize external borrowing since it impacts the economy negatively. Similarly, study recommends that the Nepali economy needs to increase longer-term domestic borrowing instruments, and that the maturity structure of domestic bonds should be simplified.

There are two sources of borrowing in Nepal, the study shows there is increasing trend of multilateral sources of external debt. Multilateral debt has dominated the bilateral debt from the total external debt. In 1996/97, the multilateral debt by assistance is 65.94 percent the bilateral debt is 34.06 percent. In 2019/20, multilateral debt has been increased to 99.63 percent. Similarly, in disbursement by sources of external debt, multilateral debt has dominated the bilateral debt. In 1996/97, the multilateral debt is 90.59 percent while bilateral debt is 9.41 percent. In 2019/20, multilateral debt has decreased to 61.13 percent the bilateral debt is 38.86 percent which is increased.

The country borrows the public debt through different composition of debt. The domestic debt has been borrowed through instruments like treasury bill, development bond, special bond, national saving bond, foreign employment saving bond. Among all these instruments treasury bill is used most to borrow the debt. Similarly, external

debt has been borrowed through instruments grants and loans. The study show loans is main instruments of borrowing external debt of the country.

The coefficients of correlation matrix is used with the variables (IR,ID, ED,M_2 and CPI).The correlation coefficient results shows that p-value for ID,ED,M_2, and CPI is 0.365,0.092,0.04 and 0.03 respectively. And the correlation coefficient for the given variables ID,ED, M_2, and CPI are -0.193,-0.351,-0.569 and -0.576 respectively. This shows that ID, ED, M_2, and CPI are negatively correlated to the dependent variable IR. The coefficient of multiple correlations among all variable is 0.617 which shows positive correlation among all variables.

The multiple regression model (exponential model) and SPSS (Statistical Package Tool for Social Sciences) have been used to analyze the effect of public debt on interest rate. The main reason of using log linear model is that slope coefficient measures the percentage change in interest rate and for other counter variables. The regression results show that p-value for ID, ED, M_2 and CPI is 0.7970.307,0.63 and 0.464 respectively. It shows p-value more than even 10 percent level of significance. Hence, there is no significance effect of internal debt, external debt, broad money and CPI on interest rate. It means that these four variables are not determining the effect on interest rate. The negative relationship between these variables shows that increase in interest rates leads decrease in counter variables (ID,ED, M_2 and CPI).

The value of $R^2$and adj-R^2 is 0.380 and 0.250.It means other things remaining same about 38 percent variation in interest rate can be explained or addressed by the change in independent variables. The F-statistic is 0.2914 and its corresponding probability is 0.49 which is more than even 10 percent. It shows that independent variables do not influence the dependent variable. The test static value of D-W test is 0.767.It is the ranges between 1.5 and 2.5.Values outside of this range could be cause for concern. Hence, there is autocorrelation in residual for regression analysis.

5.2 Conclusion

The study shows that there is negative relationship between dependent variable and independent variables. Independent variables (ID, ED, M_2 and CPI) are not significantly determined as p-value for t-test is not significant. The negative relationship shows that when interest rate increases counter variables decreases. The negative relationship shows that decrease in interest rate leads to increase the

borrowing of country helps to increase the investment and expenditure. The purchasing power of the people will also increase if the interest rate becomes low. It is found that debt of the country is in increasing trend. Multilateral debt has been the main source of borrowing of country Nepal.

5.3 Recommendations

Following are the recommendations based on the above major findings and conclusions of the study.

a) From the conclusion of negative relationship between interest rate and independent variables (ID,ED, M_2,and CPI) there is insignificant impact of public debt on interest rate. Hence, there is increase in borrowing of debt by the country.

b) The debt of the country is in increasing trend. The share of internal debt is more than the share of external debt during the study period. Hence, it should utilize all the available resources to decrease the debt.

c)The government should try to get more aid rather than debt. It should maintain such external policy so that more and more grants should be received rather than loans.

5.4 Directions for Future Research

This study is based only on few variables as independent variables. So the further study can be taken using some other independent variables as well. The study is based only on the form of multiple regression and correlations so it would be better to study by using more advance econometric model to get better results.

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Appendix - I

Foreign Assistance by Sources(Rs in million)

Fiscal Years	Total Grants	Total Loan	Total Debt
1996/97	13743.7	25899.3	39643
1997/98	18368.4	13653.7	32022.1
1998/99	13304.2	5048.3	18352.5
1999/00	12860.2	7587.8	20448
2000/01	14289.1	16997.9	31287
2001/02	23340.2	9887.5	33227.7
2002/03	27357.6	15845.1	43202.7
2003/04	8957	14781	23738
2004/05	25392.7	12759	38152.3
2005/06	18264.3	2659.9	20924.2
2006/07	30400.1	6162.7	36562.8
2007/08	41064.2	8122	49186.2
2008/09	43095.8	4879.5	47975.3
2009/10	37047.8	26351.2	63399
2010/11	42395.8	35062.9	77458.7
2011/12	30022.8	39841.9	69864.7
2012/13	53901	47566.8	101467.8
2013/14	72918	60526	133444
2014/15	19297.1	134216	153513.3
2015/16	79203.7	116395	195598.7
2016/17	97675.8	152569	250244.6
2017/18	84904	117094	201998
2018/19	33429	104827	138256.1
2019/20	16192.4	90090.7	106283.1

*=up to mid up March

Source: Various Issues of Economic Survey, MOF, 2019/20

Appendix- II

Disbursement of foreign assistance by Sources(Rs in million)

Fiscal Years	Total Grants	Total Loan	Total Debt
1996/97	5988.3	9043.6	15031.9
1997/98	5402.6	11054.5	16457.1
1998/99	4336.6	11852.4	16189
1999/00	5711.7	11812.2	17523.9
2000/01	6753.4	12044	18797.4
2001/02	6686.2	7698.6	14384.8
2002/03	11339.1	4546.4	15885.5
2003/04	11283.4	7629	18912.3
2004/05	14391.2	9266.1	13657.2
2005/06	13827.5	8214.3	22041.8
2006/07	15801	10054	25855
2007/08	20321.1	8980.1	29301.2
2008/09	26383.2	9969	36352.2
2009/10	38546.1	11224	49770.1
2010/11	45922.1	12075.6	57997.7
2011/12	32218	10358.4	42576.4
2012/13	28579	10988.1	39567.1
2013/14	36757.4	17285.3	54042.7
2014/15	31942	23913.2	55855.2
2015/16	33119.2	33228.4	66347.6
2016/17	32023.3	59022.4	91045.7
2017/18	35763	89777	125540
2018/19	21357	94401.3	115758.3
2019/20	9241.2	50787.6	60028.8

*=up to mid-march

Source: Various Issues of Economic Survey, MOF, 2019/20

Appendix – III(in Log)

Interest Rate, Internal and External Debt, Broad Money, Consumer Price Index

Fiscal Years	**Interest rate**	**logID**	**logED**	**logM2**	**log CPI**
1996/97	10.34	3.48	3.96	5.02	1.46
1997/98	6.86	3.53	4.04	5.1	1.5
1998/99	5.13	3.67	4.07	5.18	1.55
1999/00	6.16	3.74	4.07	5.27	1.56
2000/01	5.26	3.84	4.08	5.33	1.57
2001/02	5.2	3.9	3.89	5.35	1.58
2002/03	4.39	3.95	3.66	5.39	1.6
2003/04	4.15	3.75	3.88	5.44	1.62
2004/05	4.32	3.95	3.97	5.48	1.64
2005/06	3.95	4.07	3.91	5.54	1.67
2006/07	3.5	4.25	4	5.6	1.7
2007/08	5.49	4.31	3.95	5.69	1.73
2008/09	6.06	4.27	3.1	5.8	1.78
2009/10	7.85	4.48	4.05	5.86	1.82
2010/11	8.35	4.63	4.08	5.96	1.86
2011/12	2.94	4.56	4.04	6.05	1.89
2012/13	2.69	4.28	4.08	6.12	1.93
2013/14	0.76	4.3	4.26	6.19	1.97
2014/15	0.78	4.63	4.41	6.27	2
2015/16	1.03	4.94	4.52	6.35	2.04
2016/17	2.45	4.95	4.77	6.41	2.06
2017/18	4.18	5.16	4.96	6.49	2.08
2018/19	4.26	4.98	5.09	6.55	2.1
2019/20*	3.86	0.62	4.71	6.63	2.12

* = up to mid-march 2019/20

Source: Various Issues of Economic Survey, Economic Bulletin, NRB