# THE NEXUS BETWEEN DEBT AND ECONOMIC GROWTH IN MALAYSIA: CAUSALITY AND THRESHOLD ANALYSIS

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## CERTIFICATION

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## ABSTRACT

This study assess empirically the non-linear relationship and assess the long-run and short-run links together with causality direction between debt and economic growth, both external debt and public debt using annual data from 1970-2013. The econometric methodologies employed are a batteries unit root tests and cointegration tests both with and without structural breaks, and causality test by Granger (1969) and Toda-Yamamoto (1995), and Hansen (2000) to address the threshold level. First, unit root test results confirm the stationarity of the variables at first difference. Secondly, according to cointegration analysis, this study validates the existence of long-run and short-run between the debts variable and the economic growth throughout the studied period. In the causality analysis, this study confirms the unidirectional causality that runs from economic growth to both external and public debt and not vice versa, suggesting the decline in growth leads to accumulation of debts, since the decline in economic growth in Malaysia is external shock-driven. On the threshold analysis, the result indicates a statistically significant non-linear impact of public debt-to-GDP on economic growth of Malaysia. The threshold level for public debt-to-GDP is found to be 52.66%, turning point where public debt starts to impair economic growth, while 54.68% for external debt-to-GDP. In general, the study may contribute to a new insight on the indebtedness and sustainable level of debt in Malaysia, both external and public debt as it suggests an optimal level of debt in which debt starts to impair economic growth.

# ABSTRAK

## HUBUNGAN ANTARA HUTANG DAN PERTUMBUHAN EKONOMI DI MALAYSIA: ANALISIS PENYEBAB DAN TAHAP OPTIMUM

*Kajian ini bertujuan untuk menilai secara empirikal hubungan tidak linear dan menilai hubungan jangka panjang dan jangka pendek bersama-sama dengan sebab dan akibat antara hutang dan pertumbuhan ekonomi, iaitu hutang luar negeri dan hutang awam menggunakan data tahunan 1970-2013. Kaedah ekonometrik yang digunakan adalah beberapa ujian kepegunan pemboleh ubah dan ujian kointegrasi, dengan dan tanpa peralihan struktur, dan ujian penyebab Granger (1969), Toda-Yamamoto (1995), dan Hansen (2000) untuk menganalisa tahap optimum bagi hutang. Pertama, keputusan ujian kepegunan mengesahkan bahawa kepegunan pembolehubah berlaku pada perbezaan pertama. Kedua, menurut analisis kointegrasi, kajian ini mengesahkan kewujudan hubungan jangka panjang dan jangka pendek antara hutang dengan pertumbuhan ekonomi sepanjang tempoh yang dikaji. Dalam analisis sebab dan akibat, kajian ini mengesahkan sebab dan musabab satu arah daripada pertumbuhan ekonomi kepada kedua-dua hutang luar negeri dan awam dan bukan sebaliknya, yang boleh diterangkan melalui penurunan dalam pertumbuhan yang membawa kepada pengumpulan hutang, kerana penurunan dalam pertumbuhan ekonomi di Malaysia didorong oleh kejutan dari luar. Bagi analisis tahap optimum, keputusan kajian menunjukkan keputusan yang bukan linear dan signifikan untuk hutang awam kepada pertumbuhan ekonomi Malaysia. Tahap optimum untuk hutang awam kepada KDNK didapati sebanyak 52.66 peratus, di mana titik perubahan hutang awam mula menjejaskan pertumbuhan ekonomi, manakala 54.68 peratus untuk hutang luar negara kepada-KDNK. Secara umum, kajian ini boleh memberikan pandangan baharu mengenai tahap hutang yang mampan untuk kedua-dua hutang luar negeri dan awam di Malaysia kerana kajian ini mencadangkan tahap yang optimum di mana hutang mula menjejaskan pertumbuhan ekonomi.*

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| | | |
|---|---|---|
| **ADF** | - | Augmented Dickey Fuller |
| **AIC** | - | Akaike Information Criterion |
| **BOP** | - | Balance of Payments |
| **DF-GLS** | - | Dickey Fuller-Generalised Least Squares |
| **EPF** | - | Employee Provident Fund |
| **ETP** | - | Economic Transformation Programme |
| **EU** | - | European Union |
| **EXPGDP** | - | Export-to-GDP |
| **EXTDGDP** | - | External Debt-to-GDP |
| **FDI** | - | Foreign Direct Investment |
| **FMOLS** | - | Fully Modified Ordinary Least Square |
| **FPE** | - | Final Prediction Error |
| **GDP** | - | Gross Domestic Product |
| **GFCFGDP** | - | Gross Fixed Capital Formation-to-GDP |
| **GGFCEGDP** | - | General Government Final Consumption Expenditure-to GDP |
| **GIIs** | - | Government Investment Issues |
| **GNI** | - | Gross National Income |
| **HQ** | - | Hannan-Quinn |
| **IMF** | - | International Monetary Fund |
| **IOFC** | - | International Offshore Financial Centre |
| **KLSE** | - | Kuala Lumpur Stock Exchange |
| **KPSS** | - | Kwiatkowski-Phillips-Schmidt-Shin |
| **LM** | - | Lagrange Multiplier |
| **LOFSA** | - | Labuan Offshore Financial Services Authority |
| **MARA** | - | Majlis Amanah Rakyat |
| **MGS** | - | Malaysian Government Securities |
| **MWALD** | - | Modified Wald |
| **NEP** | - | New Economic Policy |
| **NFPEs** | - | Non-Financial Public Enterprises |

| | | |
|---|---|---|
| **NKEAs** | - | National Key Economic Areas |
| **OECD** | - | Organisation for Economic Co-Operation and Development |
| **PDEBT** | - | Public Debt |
| **PETRONAS** | - | Petroleum Nasional Berhad |
| **PITA** | - | Petroleum Income Tax |
| **RPGT** | - | Real Property Gains Tax |
| **RSS** | - | Residual Sum of Squares |
| **SC** | - | Schwarz Information Criterion |
| **TAR** | - | Threshold Autoregression |
| **TNB** | - | Tenaga Nasional Berhad |
| **VAR** | - | Vector Autoregression |
| **WDI** | - | World Development Indicator |

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of the Study

A major macroeconomic issue that has raised much attention of policy makers and researchers is related to debt and its impact on economic growth. Malaysia faces significant economic challenges with the slow growth rate and intense increase in global competition. To cope with these challenges, the Economic Transformation Programme (ETP) represents a markedly different approach to building the Tenth Malaysia Plan. Economic Transformation Programme focuses on 12 key growth engines known as National Key Economic Areas (NKEAs), relying heavily on the private sector, and is based on a series of specific projects and anchored on country's Gross National Income (GNI). In such challenging environment, Malaysia has to face the obstacles of debt as well as debt-growth sustainability.



As an overview, the globally eye-catching debt issues has erupted in late 2009 following the European sovereign debt crisis or Eurozone crisis that has heightened global awareness on the hazards of debt. Greece is considered as an inconvenient entry to the Eurozone since its debt-to-GDP ratio has reached 126.4%, the 60% criteria for a country to become a member of Eurozone. The primary cause of the Greek debt crisis is the Eurozone entry. For a monetary stability, Eurozone adopts a policy of single currency. This has enabled a member country to borrow at lower interest rates, in turn leading to large borrowings and high debt burden. Other reasons for the debt crisis are the mass tax evasion, corruption in the public sector, a growing public spending, and insufficient bureaucracy. Greece receives bailouts from other Eurozone members and International Monetary Fund (IMF), however, the funds received are not properly injected to the growth-stimulating productive sectors but are used to service the payments of other international loans.

The first bailout was 110 billion euros ($146 billion) as IMF and EU agreed to bail for 3 years conditional on committing austerity measures and 30 billion euros in spending cuts and tax increases. The second bailout was approved with 130 billion Euros ($172 billion) conditional on reducing the debt-to-GDP ratio of the country from 160% to 120.5% by 2020. The inappropriate allocation of the funds received makes Greece continuously trapped in debt problem. Ultimately, the country missed its 1.6 billion euro ($1.7 billion) payments to the IMF that expired on June 30, 2015. However, the recent bailout amount was 86 billion euros or ($94 billion) conditional on tax increase and labour market liberalization. Another country such as Ireland, Italy, Portugal and Spain for instance, have also confronted with strong increases in their public debt to GDP ratios. This situation casts a doubt on their public finance sustainability.

Before turning to overview the debt issue in Malaysia, the definition of debt must be clarified in order to get the actual meaning of the concept. External debt as defined by IMF,



> "Gross external debt, at any given time, is the outstanding amount of that actual current, and not contingent, liabilities that require payments of principal and/or interest by the debtor at some points in the future and that are owed to non-residents by residents of an economy" (International Monetary Fund, IMF), 2014: 5).

In detail, the liabilities must be outstanding and present in order to be incorporated into external debt and are typically established through force of law[1], by events that require future transfer payments[2], and through the provision of economic value, for examples, assets, services, and/or income by one institutional unit, the

[1] These liabilities include those arising from taxes, penalties, and judicial awards at the time they are imposed. But, there will be an issue will about whether a government has jurisdiction to impose such charges on non-residents.
[2] These involves claims on nonlife insurance companies, claims for damages not involving nonlife insurance companies, and claims arising from lottery and gambling activity.

creditor to another, which is the debtor under a contractual arrangement with terms and conditions of the payments to be made.

While public debt, as in the Manual on Government Finance Statistics, is defined as,

> "Total gross debt often referred to as "total debt" or total debt liabilities", consists of all liabilities that are debt instruments. A debt instrument is defined as a financial claim that requires payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates, in the future. (Government Finance Statistics Manual, 2014, IMF)

The following instruments are debt instruments in the Total gross debt; Special Drawing Rights (SDRs), currency and deposits, debt securities, loans, insurance, pension, and standardized guarantee schemes (GFS), and other accounts payable.

The large external debt burden due to successive external debt obligations faced by those substantially indebtedness countries can be detrimental (Hameed and Ashraf, 2008; Iyoha, 2001). It can jeopardize the economic growth of the countries, especially the developing countries that largely rely on external funding to support domestic development and growth. Likewise, external debt problem can pose a threat to the economy of Malaysia. In 2012, Malaysia tallied 52.9% of public debt to GDP, making it closer to many of those developed countries, in which 6.7% of the fiscal deficits that happened during the Great Recession contributed to the value and become one of the causes of the hikes. However, the total debt to GDP is still below any critical threshold, and the government carries little external debt relative to domestic government debt which raised over 95% from the total government debt.

The financial system has more than sufficient excess liquidity to absorb further debt issuance, and both interests rates across the term structure and debt-service ratios are at near all-time lows. The Malaysian public external debt is about RM17 billion, but the public sector's domestic debt holdings are substantial. At the end of 2012, the domestic debt holdings stood at RM485 billion and accounted for 97% of the total debt of Malaysian public sector. It is about 66% of all Malaysian public and private sector debts. Further, public debt is predicted to almost double to close to RM1 trillion by 2020, following the historical trend and forecasts by IMF (Centre for Policy Initiatives, 2013).

On the other hand, the total external debt of Malaysia has recently increased to RM284.7 billion or US dollar 88.6 million at end-June 2013, from RM264.4 billion or US dollar 84.8 billion in the second quarter in 2013. The total external debt value is now equivalent to 29% of GNI of the country. In more details, the country's medium and long-term external debt has risen to RM170.3 billion, attributed by the offsets of public sector net repayment to the net drawdown of private sector external borrowings. This directly reflects that the main source of the country's excessive external debt accumulation is unlimited to the public debt component.

Moreover, the country's higher total external debt is also attributed to the noticeable higher short-term external debt accumulation. Short-term external debt should not be disregarded as during this quarter the value has reached RM114.4 billion, due mainly to the net drawdown of interbank borrowings (see Quarterly Bulletin, Second Quarter, 2013:50). According to Bank Negara Malaysia, BNM, short-term external debt also includes short-term offshore borrowing or the non-resident holdings of short-term debt. Since the external debt of Malaysia consists of different components, it is necessary to identify the root of the problem in relation to the high external debt faced by the country.

In fact, the existing literature on debt and economic growth in Malaysia are scarce. Only a few past studies focus on the topic exclusively for the case of Malaysia (Abu Bakar *et al*., 2008; Abdul Rahman, 2012; Mohd Daud *et al.*, 2013). Moreover, the past studies have provided mixed results. There is insufficient attention being paid to the debt impact to economic growth. Furthermore, the studies that emphasized on a country's debt and economic growth causality, in both the short-run and long-run is limited, hence the existing literature is insufficient to support the existence of such causality. Without reliable evidence, it is impossible to identify any feasible debt problem being faced by the country. Further, it is suspected that the threshold level measured in real value as found by the previous studies, for instance, Mohd Daud *et al.* (2013), probably inadequate to reflect the debt sustainable level for Malaysia because the actual debt stock position of this country varies over time. An alternative to the threshold level measure is based on percentage. On top of the aforementioned shortcomings in literature, there are other important aspects that must be emphasized to enable robust results and findings to be produced, including time-varying dynamics and the appropriateness of methodology applied.

In light of this, this thesis analyses the relationship between debt, both external debt and public debt and economic growth in Malaysia, by applying the most recent and expanded external debt and public debt datasets. In addition, the analysis of this thesis is based on comparative test methods, where structural breaks are incorporated into the analysis to capture the effect of feasible external shocks on the relationship between debt indicators with economic growth.

## 1.2 Problem Statements

Indebtedness both external and internal has always been one of the major concerns in the emerging economy like Malaysia. It is one of the crucial signs of overall vulnerability (Azam *et al.* 2013). Malaysia has involved in both external and internal borrowings to transform its economy into rapid growth and development.

The main concern that needs to be addressed is the sustainable level of Malaysian debt which has a direct impact of either contributing to or harming the country's economic growth. In many countries such as Greece, Spain, Italy and Portugal, Global crisis and expansionary public policies have caused a rapid increase in both external borrowings and unsustainable public debt. Looking at the Malaysian case, even though the country has prepared to survive another financial crisis, it must tackle its external debt, fiscal deficit, and other contingent liabilities before they become a large risk for the economy. As depicted in Figure 1.1 below, the most recent statistics show that the external debt position of this country is