CHAPTER I

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1.1 Introduction

This study analyzes the response of sectoral production to financial variable-variation using Malaysian quarterly data. The study aims to ascertain the relative importance of the role of monetary policy and its effect on sectoral production. The results indicate that significant changes in sectoral production are the result of monetary transmission via financial variables.

1.2 Historical Background

Most economists agree that, in the short run, monetary policy could significantly influence the course of the real economy (see Mundell, 1963; Fleming, 1962). Indeed, a spate of recent empirical research has confirmed early findings of Friedman and Schwartz (1963) that monetary policy actions are followed by movements in real output that may last for two years or more (see Romer and Romer, 1989; Bernanke and Blinder, 1992; Christiano, Eichenbaum, and Evans, 1994a,b). There is far less agreement, however, about exactly how monetary policy exerts its influences. The same research established that changes in monetary policy are eventually followed by changes in output. Previous studies on monetary policy and aggregate output relations have yielded mixed results such as in supporting both the money and credit view. In 1990s, a lot of research has been done by various researchers such as Bernanke and Gertler (1995) in USA, Willis Peterson (1996) in USA, Miyagawa and Morita (1998) in Japan, Monadjemi (1999) in Australia and USA; and Laidler (1999) in Canada showing the importance

of money on output. However, Eichenbaum and Singleton (1986) in USA, Karras (1996) in European countries and Scott and Kydland (1998) in USA conclude that money effect on output is neutral.

Although most of the previous literature has devoted much attention to the relationship between monetary policy and aggregate output, few have examined disaggregated production (sectoral production). Previous studies on the monetary policy-disaggregate output relations includes Gauger and Enders (1989), Oliner and Rudebush (1996), Ganley and Salman (1997), Hoya and Uhlenbrock (1999), Goodhart and Hofmann (2000), Malone (2000) and the latest by Azali and Habibullah (2000). Nowadays, the monetary policy-sectoral production relationship has become increasingly important for the government to evaluate and judge the distributive impact of such policies.

1.3 Targets of Monetary Policy

Central banks pursue different strategies in conducting monetary policy by aiming at variables that lie between its tools and the achievement of its goals. The strategies are as follows: After deciding its goals for employment and the price level, the central bank chooses a set of variables to aim for, called intermediate targets, such as the monetary aggregates (M1, M2 or M3) or interest rates (short- or long-term), which have a direct effect on employment and the price level. However, the central bank's policy tool does not directly affect even these intermediate targets. Therefore, another set of variables are aimed for, called operating targets (instruments), such as reserve aggregates (reserves, nonborrowed reserves monetary base, or nonborrowed base,) [1.1] or interest rates (federal funds rate or Treasury bill rate), which are more responsive to its policy tools.

The central bank is using its operating and intermediate target to direct monetary policy towards the achievement of its goals. After the initial setting of the policy tools, an operating target such as the monetary base in which the central bank can control and direct, is used to reset the tools so that monetary policy is channeled towards achieving the intermediate target of a certain rate of money supply growth. Midcourse corrections in the policy tools can be made when the central bank sees what is happening to its intermediate target, thus directing monetary policy in order to achieve its goals of high employment and price stability.

[1.1] Nonborrowed reserves are total reserves minus borrowed reserves, which are the amount of discount loans; Monetary base is the sum of currency plus reserves in the banking system; Nonborrowed base is the monetary base minus borrowed reserves; Federal funds rate is the interest rate on funds loaned overnight between banks.

1.4 Monetary Policy Instruments

The goal of monetary policy is to establish and maintain monetary and credit conditions consistent with a healthy economy. Federal Reserve (Fed) authorities tried to manipulate the money supply and credit conditions to achieve some or all these goals. The tools used to influence monetary and credit conditions are called the instruments of monetary policy.

The Fed has two classes of monetary policy instruments: general and selective. The general instruments of control are reserve requirements. The most important general instrument is open market operation, whose virtues include flexibility and the absence of announcement effects.

Discount policy is less important, primarily because borrowed reserves are a small fraction of total reserves. Nevertheless, discount rates must constantly be changed to prevent bank borrowing from interfering with open market operations. Because the public often misinterprets these changes, they are capable of generating undesirable announcement effects. Suggested reforms of the discount mechanism include tying discount rates to Treasury bill or federal funds rates and outright abolition. The Fed resists these proposals because it wishes to retain the ability to signal the market about important policy changes and because it believes banks need the discount window as a source of adjustment credit.

However, the authorities seldom use changes in reserve requirements as a monetary policy tool. Nevertheless, it is valued as a signaling device and is used to broadcast major policy decisions.

However, the selective instruments of control include margins in the stock market, Regulation Q, and controls over consumer and business. Regulation Q is the most controversial selective instrument. Its use has led to disintermediation, redistribution of income between small saver and borrowers, deadweight losses for the economy, and a complicated structure of rates designed to maintain "competitive equity" between commercial banks and thrift institutions. The major purpose of these tools is to give Fed the power to influence the cost and allocation of credit.

1.5 Monetary Policy in Malaysia

In Malaysia, Bank Negara Malaysia (BNM), as the nation's Central Bank is entrusted with the responsibility for the formulation and implementation of monetary policy to attain price stability. To achieve this objective, a key element is to ensure an efficient monetary transmission process. In most financial systems, banks in particular are legally required to hold claims against the central bank in order to create deposit and make loans. Hence, the central bank can control the supply of claims against itself. It also gives a form of control to the economy's money and credit in far broader sense. The evidence from experience, in one country after another, makes clear that the exercise of this control- monetary policy powerfully affects a country's economy, for either good or ill. Indeed, the early 1990s marked a major milestone in the conduct of monetary policy, which saw significant changes in term of strategies, approaches and instruments.

1.6 Monetary Policy and Transmission Mechanism

Economists have advocated monetary policy in the past and recent years to stabilize the output and inflation while exploring the possible links between the financial system and aggregate economic activity. In the field of monetary policy studies, it has reported most influentially by Friedman and Schwartz (1963) that monetary policy factor plays an important role in output fluctuations. However, in the recent literature development, there are two main views on monetary shocks that are transmitted into aggregate demand. The first highlights the role of money aggregates (Money view) in affecting output via interest rates, while the second view emphasises the role of credit (credit view or banking lending view) as another channel of transmission mechanism. Besides these two popular views, this paper will also investigate the role of another channel, which is the equity price channel (refer Table 1.1: Transmission Mechanism of Monetary Policy).

1.6.1 The Conventional Transmission Mechanism of Monetary Policy

The conventional transmission mechanism of monetary policy can be explained using Mishkin (1996) diagram.

$$M \downarrow \Rightarrow r \uparrow \Rightarrow I \downarrow \Rightarrow Y \downarrow$$

This diagram stated that in conducting a contractionary monetary policy (M), central bank reduces the money supply. This in turn leads to a rise in interest rates (r), which raises the cost of capital, leading to a decline in investment on financial and real assets (I). Therefore, it will cause a decrease in aggregate demand and a fall in output (Y).

.6.2 The Channel of Credit View Transmission Mechanism

On the other hand, the proponents of credit view argue that the credit channel places :mphasis on the effect of monetary policy on the supply of loans by the banking system Bernanke and Gertler, 1995). Generally, the monetary policy effect can be summarized as below:

$$M \downarrow \Rightarrow bank\ \ deposit \downarrow \Rightarrow bank\ \ loans \downarrow \Rightarrow I \downarrow \Rightarrow Y \downarrow$$

The above channel shows that a contractionary monetary policy action leads to a decline n bank reserves and deposits, which results in a decline in bank loans. This in turn leads to a fall n investment spending and output.

1.6.3 The Equity Effect Channel of Transmission Mechanism

The third one is the Equity Price channel. According to Mishkin (1996), the Equity Price :hannel emphasizes on the Tobin's q theory and the wealth effect channel. The Tobin's q can be defined as the market value of a firm places on the firm's replacement cost of capital. When value is low because stock prices are depressed, firms are reluctant to issue new equity and as a result, investment spending will fall. In summary, a contractionary monetary policy reduces money supply, raises interest rate, depresses stock prices, and decreases q value. Thus, lead to a fall in investment spending and output. Schematically

$$M \downarrow \Rightarrow stock\ \ prices \downarrow \Rightarrow q \downarrow \Rightarrow I \downarrow \Rightarrow Y \downarrow$$

1.6.4 The Wealth Effect Channel of Transmission Mechanism

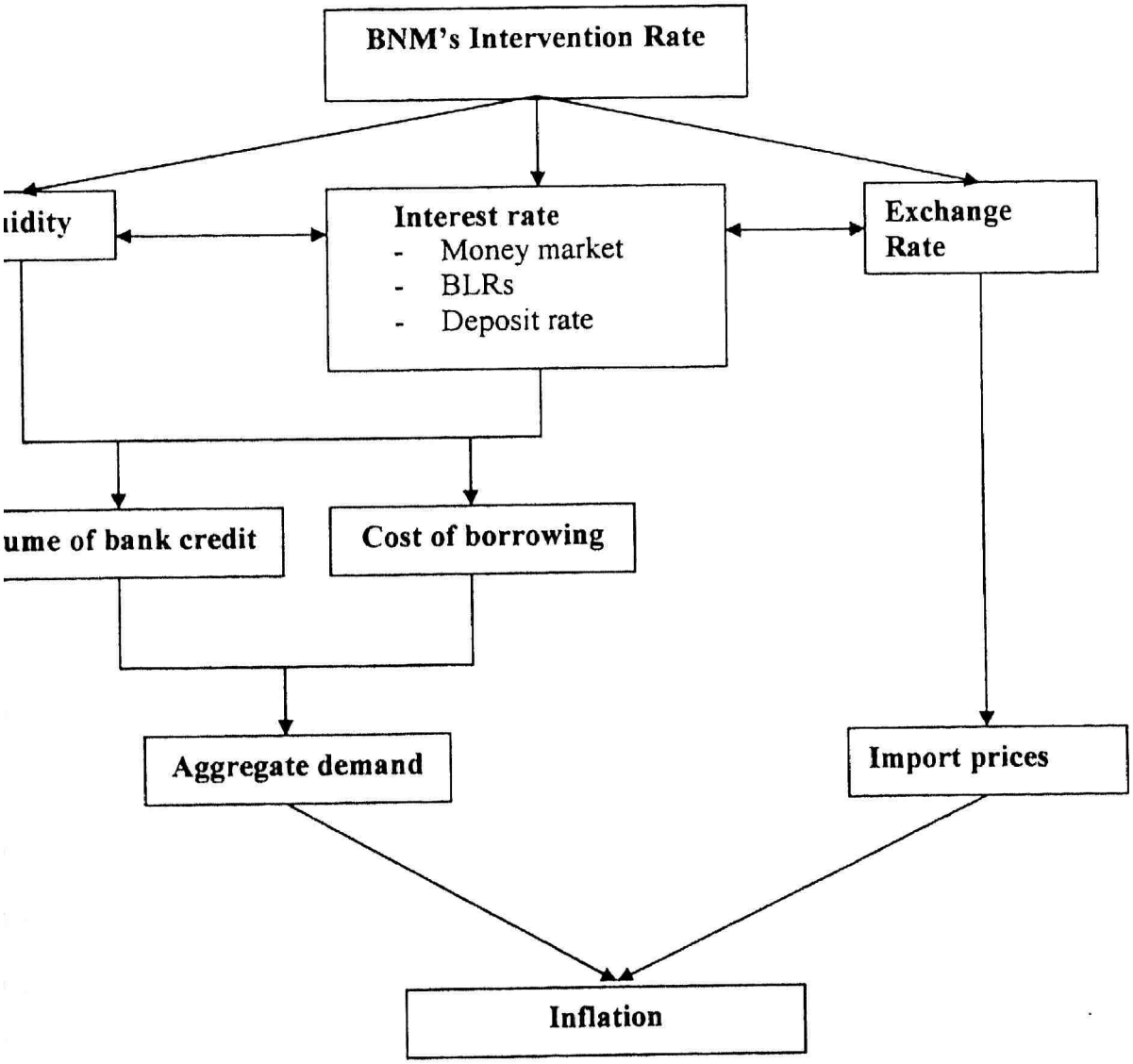
On the other hand, the wealth effect channel is almost similar to Tobins' q theory except the result of stock prices decline will lead to a fall in wealth level and then in consumption spending. By large, a contractionary monetary policy reduces money supply, stock prices, financial wealth, consumption level and output. In a schematic form,

$$M \downarrow \Rightarrow stock\ \ prices \downarrow \Rightarrow C \downarrow \Rightarrow Y \downarrow$$

.7 Monetary Policy Transmission Mechanism in Malaysia

In Malaysia, monetary policy operates through short-term interest rates to achieve its ıltimate objective of price stability. The level and direction of interest rates is influenced through iquidity management and its signaling impact. BNM conveys its policy intention to the market hrough its daily tender operations and the intervention rate. A change in policy rate will trigger a :hain of events that will affect the whole range of market rates. More specifically, changes in 3NMs policy rate will have a direction impact on lending rates, which will affect the cost of 'unds in the system. This in turn will affect the private sector's financial assets and liabilities)osition and hence, asset prices. It will also affect decisions to consume or save, and invest, vhich involves both domestic and external goods and services. These factors will ultimately nfluence aggregate demand, and finally prices. Generally, the objective is to ensure aggregate demand is in line with potential output to contain inflationary pressures. Price stability will lead :o efficient resources allocation; improve investment sentiment; provide incentive to save and enhance economic welfare. More importantly, price stability will foster sustainable long-term economic growth (refer Table 1.1: Monetary Policy Transmission Mechanism in Malaysia).

Table 1.1: Monetary Policy Transmission Mechanism in Malaysia



Resources: Bank Negara Malaysia 1999, Annual Report.

The Importance of Sectoral Production in Malaysia

The Malaysian economy has undergone rapid transformation during the last three ;ades as reflected by the dramatic changes in the sectoral contribution to the GDP (refer to ɔle 1.2). Malaysia's economy was largely based on agriculture before independence in 1957. ɔn after independence, Malaysia began to industrialize, so as to diversify and create more ployment opportunities. These have caused changes in the economic environment, and a shift m an agriculture-based economy to a manufacturing based economy.

ble 1.2: Sectoral Contribution to GDP (%)

ctor	1957	1967	1977	1987	1997	2000
;riculture	40%	30%	25%	23%	11%	8.8%
ining	7%	9%	7%	10%	7%	6.8%
anufacturing	8%	14%	18%	24%	35%	32.6%
ɔnstruction	3%	5%	4%	3%	4%	3.4%
rvices	42%	43%	44%	40%	45%	48.4%

urces: Ministry of Finance, Economic Report, various issues; Bank Negara Malaysia, Annual Report, various ues.

The share of the agriculture sector in GDP has declined over the years from 30.8% in 70 to 8.8% in 2000, notwithstanding considerable agriculture diversification, which has troduced several commercial crops including pepper and cocoa. The share of the anufacturing sector in GDP has increased rapidly from 14.5% to 32.6% between 1970 and 00, with a particular focus on the electrical and electronic (E&E) products. The share of ining sector would have been much smaller, had it not been for the fortuitous discovery of troleum.

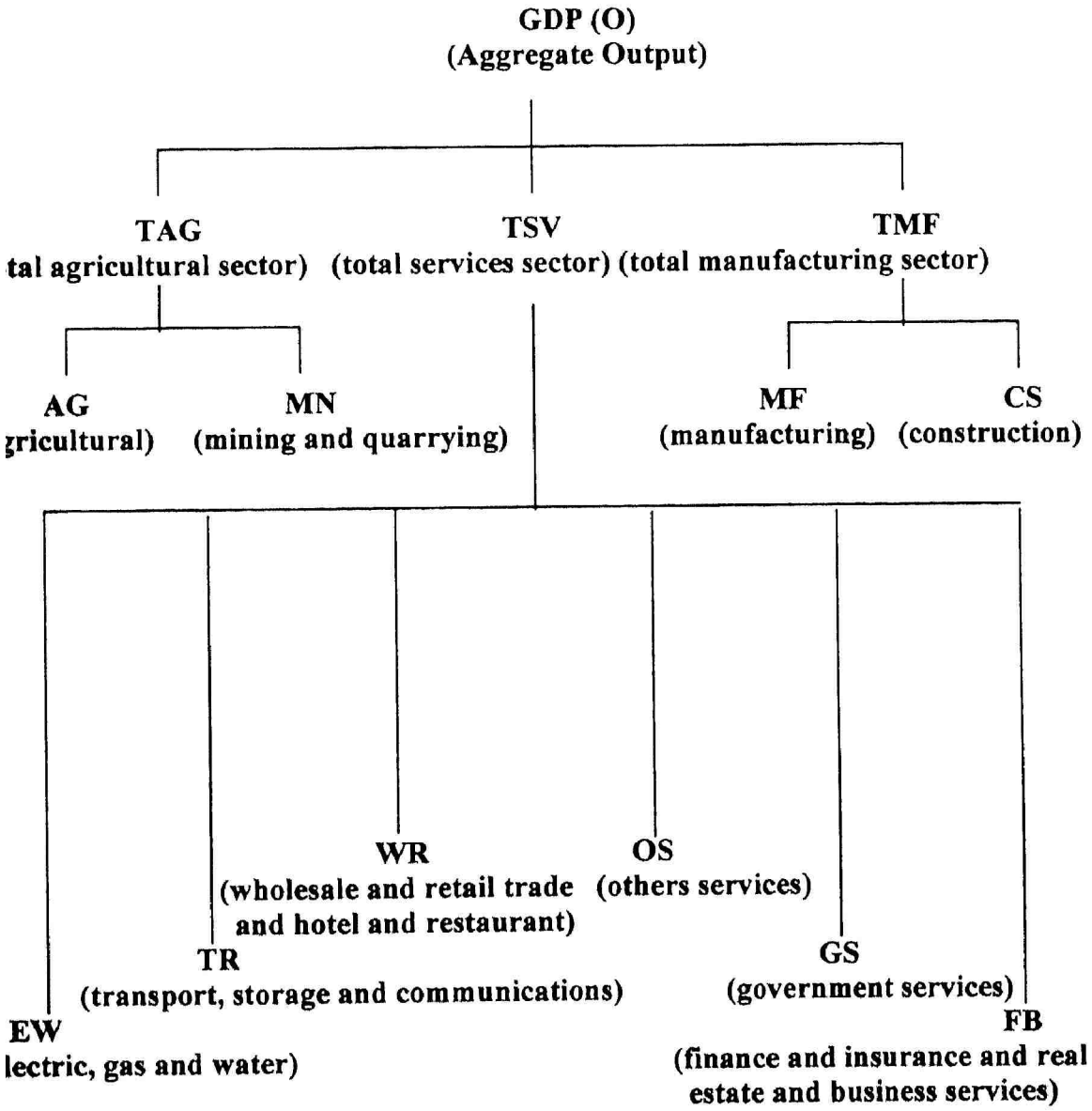
In the 1970s, import-substitution and export-orientated industrialization propelled onomic growth based on the low-cost labor and strong public sector support. In the early 1980s, vestment and growing service were the engine of growth through public and private sector pansion and FDI. In the 1990s, the economy is sustained through productivity and industrial grading to higher value-added industries.

The monetary policy plays an important role to enhance its resilience, productivity to hieve high and sustainable rate of growth. The targeted growth will be in with the potential tput of the economy and accompanied by low inflation and price stability.

1.1 Sectoral Basis of the Analysis

The sectoral production breakdown used in this paper is summarized in Table 1.3. At the adest level, the aggregate output measure of the economy, GDP (O), can be sub-divideded o three parts, namely the total agricultural sector (TAG), total manufacturing sector (TMF), d total services sector (TSV). The total agriculture sector can be broken into two groups, mely agricultural (AG), mining and quarrying (MN). The total manufacturing sector can also broken into two large sub-groups: manufacturing (MF) and construction (CS). Within these ee sectors, services can be split into six further components: electric, gas and water (EW), nsport, storage and communications (TR), wholesale and retail trade and hotel and restaurants /R), finance and insurance and real estate and business service (FB), governments services S) and others services (OS).

ble 1.3: A Sectoral Breakdown of GDP



ɔurces: Bank Negara Malaysia, Annual Report, various issues.

The Objectives of the Study

The general objective of this study is to obtain the relative importance of the monetary cy channel in affecting the sectoral production respectively. The rationale for pursuing this ective is to identify the possible transmission channels of the financial variables with respect he sectoral production and its underlying causal relationship.

The specific objectives of this study are as follow:

1. To test the Granger-causality of the monetary aggregate (M1 or M2 or M3) on the sectoral production respectively in Malaysia.
2. To test the Granger-causality of Credit (CR) on the sectoral production respectively in Malaysia.
3. To test the Granger-causality of Stock Prices (CI) on the sectoral production respectively in Malaysia.

These objectives can provide a clear guideline, in order for government to implement practical and beneficial targeting in a specify sector without causing the unnecessary affects to other sectors. Thus, it is also advisable to use money supply instrument of monetary policy to evaluate the efficacy of monetary policy and the potential targeting to achieve its goals.

0 Organization of the Study

This chapter is concerned on the general objective and hypothesis from several issues that related to monetary policy and the sectoral production in Malaysia. A brief introduction on historical background is conducted. This is followed by the objectives to provide readers an :rview of the study.

Chapter II provides a brief review of the literature. First, Table 2.1 summarizes the pirical evidence on the relationship between monetary policy and aggregate output on most of industrial countries, while Table 2.2 summarizes the review on the relation between credit iables and aggregate output. Follow by Tables 2.3 and 2.4 that summarizes the empirical iew on the relationship between monetary policy and sectoral production, and the selected pirical studies in Malaysia respectively. Finally, Table 2.5 summarizes the review on the pirical studies by using Granger-causality procedures.

Chapter III of the thesis states the theoretical framework acts as a benchmark to ensure : theories and methods in this study are in line.

Chapter IV of the thesis states the methodology and data used in the study. It consists th general description on the technique adopted in the study- Toda and Yamamoto (1995) test well as a few concepts related to the technique. The remaining sections in the chapter are voted to estimation procedures and followed by a brief explanation on how dates are derived d computed.

Chapter V presents the empirical results of the analysis as well as the interpretation of the mation results. A summary of the study and the findings of the empirical analysis are given in apter VI. This chapter ends up with the discussion of the implications of the results and some ommendation for further studies.