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CAUSES AND CONSEQUENCES OF INFLATION

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ABSTRACT

Inflation is a persistent general increase in the price level of all goods and services. It is a situation where aggregate demand for all goods and services exceeds aggregate supply in a given economy. Such disequilibrium can be temporarily caused by a number of factors that affect either the demand side or supply side of the economy. The persistency of inflation, however, can be explained only by a continuous increase in total money supply. The current study looks into the causes of inflation as explained by different economic schools. First of all, the possible causes and economic and social effects of inflation are identified. Next, the theory of money and inflation is described from the viewpoint of different economic schools. The last part carries out an empirical study to test the monetarists' argument that excessive money supply leads to inflation. The study uses Grangers causality test to see the direction of causality between money supply and inflation in selected countries. The results of the test, for nine countries, seem to support the monetarists' argument that excessive money supply leads to inflation. In addition, the results show that the time it takes for additional money supply to translate into inflation varies among the countries studied.

ملخص البحث

التضخم هو عملية الزيادة المستمرة في سعر البضائع والخدمات وهي حالة تحصل عندما الطلب الكلي للبضائع والخدمات يكون أكثر من العرض في حالة اقتصادية معينة. ونتيجة لذلك تحصل حالة عدم التوازن المؤقت بسبب عدة عوامل تؤثر في العرض والطلب في سوق الاقتصاد. إن التضخم المستمر يمكن أن يُعزى إلى الزيادة المستمرة في عرض المال.

أن هذه الدراسة تنظر أو تحقق في أسباب التضخم من وجهة نظر المدارس الاقتصادية المختلفة. أولاً أن الأسباب المحتملة يمكن أن تكون اقتصادية لها تأثير اجتماعي والثانية أن نظرية المال والتضخم التي وُصفت وعرِّفت من قبل عدة مدارس اقتصادية.

وتحاول الدراسة أن تختبر ميدانياً حجة علماء المال التي تقول أن الزيادة في عرض المال سوف تؤدي إلى التضخم. واستخدمت الدراسة سببية العالم كرانقر لاختبار سبب التضخم في دول معينة. إن نتيجة الاختبار تضمنت تسع أقطار وأن النتيجة تميل لإثبات حجة علماء المال أو فرضية علماء المال في أسباب التضخم. بالإضافة إلى أن النتائج أظهرت أن المدة الزمنية للتضخم تختلف من قطر إلى آخر.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a research paper for the degree of Master of Sciences in Finance.

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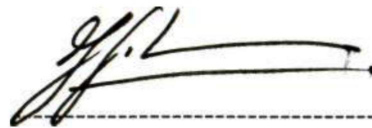

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DECLARATION

I hereby declare that this research paper is the result of my own investigations except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references and a bibliography is appended.

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Signature Date *IX-C?-2D0j*

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CAUSES AND CONSEQUENCES OF INFLATION

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To My Beloved Parents

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CHAPTER ONE

1. INTRODUCTION

Inflation is one of the most widely discussed topics among economists. It is defined as a persistent general increase in the price level of all goods and services. It is a situation where aggregate demand for all goods and services exceeds their aggregate supply in a given economy. The reasons for such excess could be, firstly, due to increased spending by the private and government sectors and, secondly, due to a shortage in output as well as increases in the cost of production. The first case is referred to as demand-pull inflation while the second case is cost-push inflation. However, all these factors explain the initial shock of inflation only. The persistence of inflation, on the other hand, can be explained only by a continuous increase in money supply. This view is held mostly by monetarist economists. According to the monetarists, all inflation stems from increased demand for goods and services that is caused by monetary expansion. Rising costs might lead to rising prices in some markets, but they cannot do so unless the quantity of money in the economy is growing.[1] Therefore, inflation is said to be a fundamentally monetary phenomenon.

Most of the time, governments are blamed for a continuous increase in money supply due to the fact that governments can create new money simply by printing it. For example, a government might print new money to pay its outstanding debt which explains the reason why government issued bonds are considered to have the lowest risk. As another example, the government might decide to print new money in order to

[1] Eamonn Buttler: *Milton Friedman, A Guide to his Economic Thought,* Gower, Aldershot Hants, 1985, p. 44

create the illusion of an economic boom during the pre-election period. An increase in the money supply can lead initially to increased economic activity through an increase in aggregate demand. After a short period of time, output and employment rise and this makes people believe that there is economic growth and prosperity. To sustain that high demand and increased activity, the monetary authorities are forced to continue the rate of monetary growth. However, once a maximum output has been achieved, all the additional money will translate into inflation.

Government is not the only agency which can create money. In fact, the biggest part of money is created by the banking sector and referred to as credit money. Credit money is created whenever a bank makes a loan to a customer and credits his or her checking account with the amount of the loan." If it were not for the legal constraint of the reserve requirement, banks could go on creating money without limit as long as people had confidence in the acceptability of their money. In fact, the law of the reserve requirement was introduced to make sure that the banks are liquid enough to meet the short-term withdrawals of cash by the depositors. The reserve requirement is also a tool for a government to affect the total money supply in the economy. However, it is not very effective because the banks act independently in deciding at what liquidity ratio to operate. For example, monetary authorities might require private banks to keep 10 percent of the total deposits in cash reserves. Banks, however, might decide to keep their liquidity ratio higher than the minimum requirement and will decide on the extension of credit based on the availability of prospective customers and general economic conditions. In other words, banks act independently in their decisions to extend credit and, therefore, the total money supply

[2] Howard J. Sherman, *Stagflation; An Introduction to Traditional and Radical Macroeconomics,* Harper & Row, New York, 1983, p. 32

largely depends on the behavior of banks. Consequently, the reserve requirement policy of monetary authorities becomes ineffective. The fact that banks act independently in determining the amount of credit they extend has a huge effect on inflation and general economic activity. When the banks for any reason decide to give out more loans, the money supply increases in the economy. More money leads to higher prices and consequently higher costs of production. The end result is higher inflation while the production settles back to the original level as is the case when government increases money supply by printing more money.

One of the major effects of inflation is its impact on long-term investment. While future cash flows and prospects of business are difficult enough to predict on their own, uncertainty over the purchasing power of the currency makes future forecasting even more difficult. In the long run, inflation can lead to financial crises that affect the real economy where goods are produced and services are provided. Some additional consequences of inflation include the fact that creditors lose and debtors gain if the lender does not anticipate inflation correctly. People receiving fixed incomes face a decline in the purchasing power of their incomes and consequently their standards of living. During inflation, the economy must bear the costs of re-pricing such as updating price list and menus. If the inflation rate is greater than that of other countries, domestic products become less competitive. In addition, inflation can undermine the concept of economic value, demoralize people, create resentment and pessimism, and cause unethical business behavior.[3] Inflation shifts purchasing power without any economic or political constraints. It normally shifts the purchasing power

[3] Paul Beckman, *The Economics of High Inflation,* St. Martin Press, New York, 1992, p. 25

to the rich by increasing the value of the property they hold, including land and buildings.[4]

Despite these negative consequences, inflation is considered to be natural in the current financial system. In fact, with interest rates deeply rooted in the financial system and a continuous increase of money supply by the government and banking sector, inflation becomes unavoidable. Therefore, there is a general view that a certain rate of inflation shows that an economy is growing. A lower rate of inflation may be an indication that the economy is weakening. To identify and sustain that rate is what the governments do or fail to do. The governments must also look into other important factors of the economy such as the rate of unemployment, income distribution, interest rates and investment. These factors are interrelated to each other positively and sometimes negatively. The job of the government is to identify the right balance that will lead to economic development and a fair distribution of income.

Currency stability is the main prerequisite of long-term investment and economic growth. The ideal situation is to have a rise in money supply that is matched by a similar increase of goods and services produced in the country. If such conditions were met, the country would achieve a zero inflation rate. In fact, throughout the Bretton Woods system, the participating countries experienced an inflation rate close to zero. The world economies were on the gold standard since the US dollar was convertible to gold and all other currencies were convertible to the US dollar at a fixed rate. The price stability allowed businesses to invest in the long term since future cash

[4] Howard J. Sherman, *Stagflation; An Introduction to Traditional and Radical Macroeconomics,* Harper & Row, New York, 1983, p. 75

flows could be anticipated quite precisely. Oil prices, interest rates, exchange rates, and commodity prices were stable and inflation was practically zero.[5]

The demise of the Bretton Woods system brought much volatility to world financial markets. Money was replaced with currency without any underlying value which allowed the governments and banking systems to create it freely. Excess supply of money, however, caused inflation that continued to rise in each country but at different levels. As a result, currency exchange rates among countries became volatile and attracted speculators who started trading currencies in addition to stock, options and interest rate trading. Although speculators create liquidity in currency, futures and options markets, they bring about volatility through abrupt changes. Money is moved quickly into the rising market and moved out as quickly from the falling market. Today's technology has increased even more the speed at which speculators can transfer money. As a result, volatility on all of the world's major money, stock, bond, and futures markets has increased.

Uncertainty and fluctuations in the financial market affect the real economy because of their intersection at a few points like interest rates and exchange rates. For example, high interest rates can reduce the amount of investment and rate of growth, while volatility forces businesses to invest in short-term projects due to uncertainty in the future cost of funds. Fluctuating exchange rates affect businesses through price changes of imports and exports. Today, most goods are not really made in one country anymore. For example, a car or an airplane might have parts made all over the world. Changes of exchange rates will affect the cost of such parts. It will also affect the imports and exports of the final products. Thus, the uncertainty of the financial side of

[5] Joel Kurtzman, *The Death of Money: How the Electronic Economy has Destabilized the World's Markets and Created Financial Chaos,* Simon & Schuster, New York, 1993, page 54

the economy affects the real side of the economy. It also adds additional costs to businesses in trying to protect themselves from financial risks.

The ultimate cause of inflation and volatility in financial markets can be said to be in the nature of the money that we use today.[6] The paper money that we use today has no intrinsic value. Instead, the value of the money is determined by the confidence that people have in its value. The people's confidence, in turn, is determined by the actions of the central bank. To keep inflation low, the central bank must ensure that the growth in demand does not get ahead of the growth in what the economy can produce. The Gold Dinar, as proposed by the Malaysian government, has the potential to become a world currency due to its intrinsic value and acceptability worldwide. In fact, gold and silver have historically proven their ability to play the role of a stable and just medium of exchange. Adapting gold and silver as a medium of exchange would mean a limited money supply due to the scarcity of these precious metals and the high cost involved in extracting these metals. This would effectively reduce and even eliminate inflation. The stability in price level will, in turn, induce long-term planning and investment. Furthermore, the elimination of exchange rate risk will increase international trade and production.

The current study looks into the causes of inflation as explained by different economic schools. First, the possible causes and economic and social effects of inflation are identified. Next, the theory of money and inflation is described from the viewpoint of different economic thought. The last part carries out an empirical study to test the monetarists' argument that excessive money supply leads to inflation. The study is based on the work of Mansor Jusoh, who used Grangers causality test to see the

[6] Ahamed Kameel Mydin Meera, *The Islamic Gold Dinar,* Pelanduk Publications, Kuala Lumpur, 2002, Page 5

direction of causality between money supply and inflation in Malaysia.[7] The current study carries out a similar test for 9 countries, including Malaysia. The results are consistent with the view that excessive money supply causes inflation. In addition, the results show that the time it takes for money supply to translate into higher inflation (or the lag) is different among the countries.

[7] Mansor Jusoh, *Money, Monetary Policy and Inflation in Malaysia in the 70s': A comment,* Journal Ekonomi Malaysia 13 & 14 (December 1986) pp. 87-103

CHAPTER 2

2. UNDERSTANDING INFLATION; ITS CAUSES AND CONSEQUENCES

2.1. Defining Inflation

Inflation is a continuous increase in the general price level in a given economy. Debate about inflation has concerned whether the value of money falls or the value of goods and services rises. However, the prevailing view about inflation today is that it is often due to the fall in the value of money. Consequently, inflation can be defined as a sustained fall of the purchasing power of money in a given economy. Two things are important to emphasize in describing inflation, that is, an increase in prices is continuous and it includes all the prices in the economy. A temporary price increase of a certain product due to shortages will not be called inflation if it does not persist for a long period. Furthermore, inflation means a rise in prices of all goods simultaneously. A rise in prices of a certain market offset by a decline in another market will not be called inflation. Economists generally classify inflation according to the causes ascribed to it and call it cost-push or demand-pull inflation. Cost-push inflation is an inflation caused by an increase in the prices of the factors of production such as labor and raw materials. Businesses that produce and deliver goods and services transfer their increased cost of production to the customers by charging a higher price. On the other hand, a demand-pull inflation appears when there is an increase in the general demand for goods and services, companies will increase prices as well as produce more output to get extra profits. The increase in demand is said to be either due to the

increased velocity of money that is the rate at which money is changing hands or due to the increase in the stock of money.

Alternatively, inflation is classified according to its severity.[8] For example, an inflation of less than 10% p.a. is called creeping inflation, 10% - 50% p.a. is cantering inflation, above 50% p.a. is galloping inflation and above 50% per month is a hyperinflation. Such a classification, however, can be ambiguous. It is unclear, for example, to see at which point precisely cantering inflation becomes galloping inflation. It is unreasonable to say that an inflation rate of 49.9% p.a. is cantering inflation and 50% p.a. is galloping inflation.[9] Therefore, this distinction is imprecise and should rather depend on the symptoms: for instance, whatever the rate, if expectations formation, financial contracting, the price system and the use of the currency unit are breaking down, then the inflation is classified as hyperinflation.

A situation where the prices are set directly by the government, and not set freely by market forces, is referred to as suppressed inflation as opposed to open inflation. The government may intervene, for example, to prevent the prices of basic foodstuffs from rising. Suppressed inflation may also come from the actions of private monopolists when they do not raise prices unless they can refer to increased production costs as public justification for their action. When there is suppressed inflation, official prices are lower than the market clearing equilibrium prices. The effect is long queues, abnormal delivery delays, and vanishing stocks of finished goods.

[8] Carl-Ludwig Holtfrerich: *The German Inflation 1914-1923, Causes and Effects in International Perspective.* Translated by Theo Balderston, Walter de Gruyter, Berlin, 1986, p. 12.
[9] Paul Beckman, *The Economics of High Inflation,* St. Martin Press, New York, 1992, p. 24.

Inflation is also defined as a continuous loss in the purchasing power of money. Such a definition stems from the Neo-classical value theory applied to money, which states that the purchasing power of money is determined by its scarcity relative to goods and services. Thus, the purchasing power of money diminishes whenever money becomes abundant relative to goods. In other words, in a situation where the quantity of money is more than what people want to hold, they start giving less value to the monetary unit by demanding goods in exchange. It is also in harmony with the Monetarists' theory which states that inflation is always due to the rise in the nominal quantity of money supplied to the economy. Increases in the quantity of money produce rising prices, so that each unit of money purchases a smaller quantity of goods. In addition, since money is used to price all the commodities and services in the economy, the loss in purchasing power of money leads to the general increase in prices of all goods and services.

2.2. Measuring Inflation

Various indexes have been devised to measure different aspects of inflation. The Consumer Price Index (CPI) measures inflation as experienced by consumers in their day-to-day living expenses; the Producer Price Index (PPI) measures inflation at earlier stages of the production and marketing process; the Employment Cost Index (ECI) measures it in the labor market; the BLS' International Price Program measures it for imports and exports; and the Gross Domestic Product Deflator (GDP-Deflator) measures the combined inflation experience of governments (Federal, State and local), businesses, and consumers. The "best" measure of inflation for a given application depends on the intended use of the data. The CPI is generally the best measure for

adjusting payments to consumers when the intent is to allow consumers to purchase, at today's prices, a market basket of goods and services equivalent to one that they could purchase in an earlier period. It is also the best measure to translate retail sales and hourly or weekly earnings into real or inflation-free dollars.

The CPI is a weighted average of prices in a basket of goods at a certain period of time. Consequently, inflation is a change in the CPI. The basket of goods used to calculate a typical CPI might include thousands of goods and services with over 200 categories. The changes in prices of these goods and services are given different weightings according to their importance. The reason for giving these different weights is because some price changes have a bigger impact on people than others. For example, a 10 percent increase in the price of bread is likely to affect people much more than a 100 percent increase in the price of matches. Therefore, a change in the price of bread will get a higher weighting than a change in the price of matches.

The CPI is the most widely used economic indicator of inflation. It provides information about the price changes to governments, businesses, labor and other agents of the economy who make their economic decisions based on that information. In addition, economists and government authorities closely analyze trends in the CPI in the process of formulating fiscal and monetary policies. The CPI is also used for price changes adjustment of other economic series such as retail sales, weekly and monthly earnings and other components of National Income. In addition, the CPI is used as a deflator of the value of the consumer's dollar to find its purchasing power.

US Department of Labor, Bureau of Labor Statistics at http://www.bls.gov/cpi/cpifaq.htm

Despite its wide acceptance and use, however, the CPI has a number of weaknesses inherent in the way it is calculated. First of all, the CPI does not capture changes in the quality of products and services. For example, if there is a 10 percent rise in the price of a certain product, it is recorded as an increase in price even though there is a 20 percent improvement in the quality of that product. Next, by taking prices in the urban areas only, the CPI excludes those living on farms or other rural areas. The **CPI** is based on the expenditures of residents of urban areas, including professionals, the self-employed, the unemployed and retired persons as well as urban wage earners and clerical workers. However, the spending patterns of persons living in rural areas, like farm families, are not included in the CPI. In addition, it takes a long time before newly introduced goods and services are included in the basket of goods used to calculate the CPI. Thus, the CPI does not show the true average prices in the country.

2.3. Effects of Inflation

Inflation hurts mostly the lower income group of people because this group lives on fixed incomes such as wages and salaries whose purchasing power is continuously eroded by inflation. The high income people can avoid inflation by investing their savings in various assets such as houses, land and stock. In other words, inflation redistributes income from the poor to the rich. In addition, inflation demoralizes people, creates resentment among people, generates incentives for unethical business behavior and devastates the concept of economic value.

During times of inflation, the future price level becomes more uncertain because the inflation rate itself is not certain. Such price level uncertainty makes economic

planning more difficult than it would otherwise be. Even with stable prices real cash flows are difficult enough to predict because of market uncertainties such as demand for goods. Inflation increases this uncertainty and it becomes even more difficult to predict the future cash flows and profits. For example, producers might find it harder to determine optimal output and employment levels. It becomes even harder to evaluate long-term capital formation projects. Since capital formation is the basis of real economic growth, price stability becomes an important factor in economic growth.

Inflation reduces long-term investment. In any credit market, if the price uncertainty is high, participants would conclude that the long-term market is too risky and withdraw to markets of shorter maturity where the anticipated price level changes would be less uncertain. Shortening of asset and contract terms negatively affects the economy's productive efficiency. Certain economic activities, especially the capital formation that is vital for industrial processes, are more difficult to carry out without long-term financing. Regular financing and contract negotiations can also impose substantial costs on producers.

The relative price dispersion can increase substantially during inflation because some prices might rise faster than others. In a market economy, prices are likely in any case to move at different rates, but inflation magnifies the variations among price movements. The main reason why inflation increases relative-price dispersion is price controls established either by government or institutional relations. The higher relative price dispersion implies that the price system does not correctly reflect the relative scarcities of goods and services and thus provides misleading signals to buyers and