

Extended essay cover

Diploma Programme subject in which this extended essay is registered
(For an extended essay in the area of languages, state the language and whether it is group 1 or group 2.)
Title of the extended essay: Will The United States Effectively Control Inflation Through the Use of Monetary Policy P
Candidate's declaration
If this declaration is not signed by the candidate the extended essay will not be assessed.
The extended essay I am submitting is my own work (apart from guidance allowed by the International Baccalaureate).
I have acknowledged each use of the words, graphics or ideas of another person, whether written, oral or visual.
I am aware that the word limit for all extended essays is 4000 words and that examiners are not required to read beyond this limit.
This is the final version of my extended essay.
Candidate's signature: Date: feb.19,2009

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Supervisor's report

The supervisor must complete the report below and then give the final version of the extended essay, with this cover attached, to the Diploma Programme coordinator. The supervisor must sign this report; otherwise the extended essay will not be assessed and may be returned to the school.

Name of supervisor (CAPITAL letters)			
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Comments

Please comment, as appropriate, on the candidate's performance, the context in which the candidate undertook the research for the extended essay, any difficulties encountered and how these were overcome (see page 13 of the extended essay guide). The concluding interview (viva voce) may provide useful information. These comments can help the examiner award a level for criterion K (holistic judgment). Do not comment on any adverse personal circumstances that may have affected the candidate. If the amount of time spent with the candidate was zero, you must explain this, in particular how it was then possible to authenticate the essay as the candidate's own work. You may attach an additional sheet if there is insufficient space here.

while I was not kelvin's regular advisor, I was able to authenticate his work through a viva voce ad an extensive review of his essay.

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Table of Content

Introduction	Pg.2
Theory	Pg.2 - 6
What is Inflation?	Pg.2
How is inflation calculated?	Pg. 3
What inflation can lead to	Pg. 3
The US Federal Reserve (FED)	Pg.4
Money Supply	Pg.4
Monetary Policies	Pg.5
Analysis	Pg.7 - 9
Current Situation in the US economy	Pg. 7
The US Economy (2007-2008)	Pg. 8
Conclusion	Pg. 9

Will the US effectively control inflation through the use of monetary policies?



Introduction:

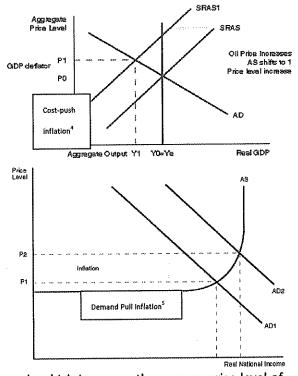
All countries in the world fight to keep inflation low; some are more successful than others. In the United State of America for example, its current inflation rate during September of 2008 is around 4.94% while a developing country like china has a relatively high inflation rate of 7.7 (May of 2008)². Usually inflation is something government tries to avoid because it can lead to unemployment, poverty and other inefficiencies in the economy but a slow anticipated inflation is actually a sign of economic growth. This is why it is in a country like US's best interest to control inflation. The following essay will talk about in inflation and how it is controlled by monetary policies in the US.

Theory

What is Inflation?

In order to know why all countries try very hard to control inflation, we must understand what inflation actually is and how it is measured and calculated. Inflation: assuming ceteris paribus or

all other things being equal, "A persistent increase in the level of consumer prices or a persistent decline in the purchasing power(both consumption and investment) of money, caused by an increase in available currency and credit beyond the proportion of available goods and services"3. This means more of it than before but the amount of goods available are still the same thus a decrease in spending power. There are two general types of inflation, there is the push inflation which that it is like a devalue in money as there is levels, price of raw materials...) for the producer (there is a supply shock or decrease in supply) thus increasing the price of the good sold. It can be seen in the diagram as



there is a decrease in the short run aggregate supply which increases the average price level of goods (thus inflation). The other type of inflation is the demand pull inflation, a demand pull inflation has to do with the consumers and their ability to consume, if due to reasons such as new monetary and fiscal policies then there will be an excess in demand and in the short-run, suppliers cannot immediately increase their output thus to compensate with the excess in demand, they increase the price. It can be seen in the second diagram as the aggregate demand

- http://inflationdata.com/inflation/Inflation_Rate/CurrentInflation.asp (US Inflation) 1.
- http://edition.cnn.com/2008/BUSINESS/06/11/china.inflation.ap/index.html (China Inflation)
- The Penguin Dictionary of Economics (definition of inflation)
- http://www.bized.co.uk/cgi-bin/glossarydb/browse.pl?diagtopic=0&glostopic=0&browsediag=201 (diagram)
- http://www.bized.co.uk/glossary/big/dpull_infl.gif (demand pull inflation graph)

increases, the average price level increases due to the natural curve of the short run of the aggregate supply curve (an inverse L).

How is Inflation calculated (in the US)?

Inflation is calculated in most countries in same way or under a similar guide line, there will be a team of surveyors out to check the prices of goods and produce a Consumer Price Index. Through the Consumer Price Index (CPI), inflation can be found, it is found by setting a base year for CPI and that will be 100 base units(a starting line) then every year or month, the CPI is compared to the original or the base CPI to see if there is an increase or decrease and that percentage is inflation. In the US the Bureau of Labor Statistics (BLS) takes surveys and generates a CPI every month to compare it with their base in 1982 to find the inflation. There are also many different types of CPI, but the most popular one is CPI-U which is Consumer Price Index Urban (in cities) and this is the inflation information I used in this essay, but here are other types of CPI such as CPI-X which excludes housing and many more terms.

What inflation can lead to? (Costs)

The main reason why governments try to keep inflation low is because of the number of negative consequences at high levels.

There is the loss of purchasing power which means that if there is a 2% increase in the cost of goods due to inflation and if your income stays the same then this means that you are able to buy less goods and services compared to before (reduce in purchasing power).

Inflation can also effect on savings in banks because if the person which saves gets a interest rate less than the rate if inflation then it would mean that he or she is better off spending all that money the year before than saving it.

There would also be an effect on the bank loan interest rates because if there is a high inflation rate, then the bank has to have a higher interest rate in order to make profit.

Inflation can also cause the goods and services produced in that country to be less competitive on the international market. This is because other countries with low and stable inflation would not want the expensive goods and services which country A (the one with high inflation) is producing. This can also cause negative trade balance since country A would find it much cheaper to import their goods and services from other countries because it is cheaper. A negative trade balance is never good for a country because this means that there are more leakages (money "leaking" out of the local economy) than injections (money "injecting" into the economy).

There will also be a fall in investment from firms and people partly because of the high interest rates but also because they might not trust the economy right now to invest and take risks. This can result in negative economic growth and if it continues it can lead the country into recession.

Increase in unemployment can also be a cost of inflation because there might be workers or laborers who are unsatisfied with their salaries, or companies downsizing due to the increase in the cost of the factors of production.

None the less, there is also good inflation. One of the main reasons why some people say that inflation is good is because a low steady anticipated inflation can indicate a healthy economy which is growing. There is inflation because as the economy is growing, companies are trying to invest and expand which means that more factors of production is required, so in the short-run they might be able to increase the amount of labor required but not the land which means that

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1. http://inflationdata.com/inflation/Inflation Articles/CalculateInflation.asp (calculation of inflation)

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there are more people with money than enough goods to satisfy them with in the short run.

The US Federal Reserves (FED)

Since inflation has a major role in a country's development, it is in the government's best interest to control it so that they can use it to work with them to achieve their goal (to develop). Most countries have a slightly different system of controlling and dealing with inflation so this essay will mainly focus on the United State and their indirect system of controlling inflation rates (monetary policies). Inflation rates in the US are controlled by the Central Bank which is part of the Federal Reserve. The central bank is part of the US Federal Reserve system but this organization does not have a direct link to the US government in the sense that the president cannot force the Federal Reserve (Fed) to pass down any monetary policies that they do not approve. The Federal Reserve has its own chairman (currently Ben Bernanke) and they have a lot of power since they control most of the US economy. The central bank has its own analysts and advisers to decide what monetary policies to apply which would benefit the economy and one big part of it is controlling inflation rates through monetary policies. Monetary Policies are what the Central Bank uses to control the size and the rate of growth of the money supply. In the US the Central Bank (part of the Federal Reserve) usually uses monetary policies to control short-term interest rate. The central bank uses a few ways to control the inflation rate on the market.

Money Supply Supply is the total stock of liquid assets in an economy that can freely be exchanged into goods or services. The money supply is directly linked to inflation because when there is a high inflation rate on the market, it means that there is more money compared to the amount of goods and services available (sold on the market), in other words there is a relatively large money supply. This is the same with a low inflation rate which indicates that there is a relatively smaller amount of money supply currently on the market relatively to the amount of goods and services available. The central bank can use monetary policies to control the money supply indirectly but only the MO or physical currency (includes cash and liquid assets only) that are stored in the banks. M0 is very narrow money while M1, M2 and M3 are wider (the higher the number the wider the currency), wider currency means that it is harder to liquidize the asset into money. Since the central bank can only deal with M0 using monetary policies the result is that their target is short-term. Money supply has a direct relationship to inflation as if there is a large money supply, there would be high inflation while a relatively lower money supply would bring in a lower inflation. The Central Bank can use this to their advantage by controlling all the other banks' interest rate, they can raise the interest rate when there is high inflation so that people would have more incentive to save rather than spending and creating a vicious cycle and they can decrease the interest rate when they think people should spend more money in order for economic growth to appear.

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Monetary Policies

In order to control the money supply in more discrete ways (which in turn is controlling interest rates), the central bank must apply monetary policies. The main goal of monetary policies is to increase or decrease the aggregate demand to what is needed. Since the money supply is made up of consumption and investment, monetary policies have two effects: to control the opportunity cost of consumption and the cost of service loans (interests). In the United States, the Federal Open Market Committee (FOMC) (the FOMC sets all the monetary policies) sets all the policies when dealing with the money supply and inflation.

There are many types of monetary policies which the FOMC can use and they are¹:

One way is through Open Market Operations. Open Market Operations is a way the Central Bank controls the money supply by selling and buying government securities. Securities work similar to bank interest rates as they are provided by the government which some people think are much safer, government will use securities in the same way as banks use interest rates. When there is an excess of money on the market (or high inflation) then the Open Market Operations can try to sell people securities which is basically the people lending their money to the government with a guaranteed decent return (compared to banks). When the market needs more money to grow the government can charge a generous price to buy the securities back from the people so what they will have more money to spend (increase in money supply). These policies tend to work together which means that the FED can sell securities to get money supply of the market and out of banks which means that the banks have to borrow money from the Central Bank in order keep enough money in the bank to meet Federal Reserve regulations.

Controlling the Federal Funds Rate is another example; the Federal Funds Rate is the interest rate at bank lend out their reserves money to other banks. This is similar to discount rates as it controls the interest rate of one bank lending money to another.

The FED can also use discount rates to control monetary supply. The discount rate is the interest rate that the central bank is willing to lend out to the other commercial or smaller banks in case they don't have enough money to meet the federal required amount in their reserves (go over the limit to how much money needs to be in the bank at all times) and it is usually short-term day loans or overnight loans. The central bank can do the same to banks as banks do to consumers which is to increase the discount rate when the Central Bank want more people to save, this will gives banks less incentive to borrow from the Central Bank so they would want to loan out less money to keep enough money for the required reserves. This also works the other way around as the Central Bank decreases the discount rate, the other private banks would want to loan out more because if they do go under the required reserves, then they just borrow from the Central Bank at a cheap interest rate or cost.

Adjusting Required Reserves is another monetary policy tool which the FED can use to control the money supply. The required reserves is called Reserve Requirements, this is what the central bank tells all banks that they must have a certain percent of the total money they get from people saving which cannot be lent out in case someone wants to make a withdraw. The central bank can increase the amount of money required in the reserves so that the bank would increase

1. http://www.federalreserve.gov/monetarypolicy/fomc.htm

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the interest rate to get more people to save money (decrease money supply). The bank would ask increase interest rates when there is a high reserve requirement because more money is needed to be kept and less money lent out. This means that in order lend out more money, the bank must take in more money (hence the high interest rate). The central bank can also decrease the required amount to encourage banks to give out loans and this is the opposite to increasing the reserve requirements which means that banks would have more money which they can then lend out and keep less in the bank than before. To create incentive for consumers and firms to take loans and invest or consume, the bank has to decrease the interest rates (eg: mortgage rates...).

Just recently, a new method was introduced and it is through Term Auction Facility (TAF) which was established in 2007. The TAF works by 'auctioning' out the government loans, and the way its bid is by increasing the interest rate which the bidder is willing to pay. This way, it gives more incentive for depository institution take loans as the interest rates can be altered and is usually lower than the discount rate.

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The Central Bank usually uses more than one method at a time to control inflation. The Central bank can use discount rates and reserve requirements together to control inflation more effectively. If the Central Bank wanted to decrease the money supply on the market, they can increase the discount rate can give banks more incentive for consumers to save their money (banks can increase their interest rates) and increase reserves requirements to further decrease the money supply (the banks would have less money to loan out plus a high interest rate to borrow from the central bank). The central bank can do it the other way around to increase the money supply on the market which would be to decrease both the discount rate and the reserves rate. The Federal Reserve can also include Open Market Operations depending on the situation.

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Analysis

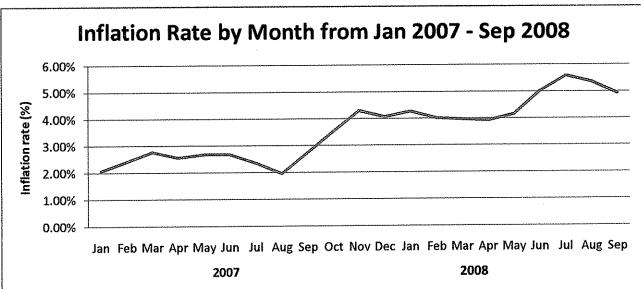
Current Situation in the US Economy

The current situation in the US economically is not very hopeful as it is going through a recession. There is indication of a steep increase in commodity prices which boosted consumer price inflation, the housing market still continues to contract, and banks and other financial institutions faced liquidity problems. The oil price now per barrel is only around \$70 and the highest oil prices within the last 2 years has been over \$140 per barrel and this is a sign of recession because firms are decreasing in production because they do not trust the market thus they invest less and use less oil to transport goods and services. There was a bailout bill worth 700bn proposed and passed by the government which includes the buying of troubled assets (mainly subprime mortgages), temporary raising the FDIC insurance cap, tax breaks, loosening accounting rules and many more aspect which all give the banks more liquidity and consumer and firms more confidence to reinvest into or consume from the market 1. The sudden increase in inflation rates were caused by shortage of food supplies due to natural hazards (Floods), record high prices of energy prices (especially oil) and an unstable housing market (poor mortgages).

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The US Economy 2007-2008

US Inflation by Months 2007-2008												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	4.28%	4.03%	3.98%	3.94%	4.18%	5.02%	5.60%	5.37%	4.94%	NA	NA 、	NA
2007	2.08%	2.42%	2.78%	2.57%	2.69%	2.69%	2.36%	1.97%	2.76%	3.54%	4.31%	4.08%



To focus on the actual monetary policies in the US at work, we must first look at a period of time where there was a fluctuation in inflation rates and looking at the US Inflation Rate by Month in 2007 graph, it is quite clear that there is an increase in inflation rates from august of 2007 to November of that year followed by a slight decrease and a stable inflation rate for seven months (Nov 2007 – May 2008). I am interested to explore what kinds of monetary policies were used to stabilize inflation rates for those seven months. In the beginning of 2007, the US economy was

1. http://money.cnn.com/2008/10/03/news/economy/house bill summary/index.htm

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doing well in the first half with signs of economic growth as more jobs are available due to the sizable increase in service producing industries but there was a problem with a large increase in the energy and food prices. On the graph, it is quite clear that inflation is fairly low (at around 2-3 %) and quite steady as fluctuation is kept within 1 percent. At that time, the Federal Reserve did not worry about the US economy going into recession but the economy does seem to be running at a very high capacity (reaching max potential or the product possibility frontier). This problem can lead to a demand pull inflation which can be seen on the demand pull inflation graph in the beginning of the essay and maxing out all the resources available can sustain inflationary pressures. Even though there were some signs of inflation in the first half of 2007, the Federal Reserve did not choose to do anything and left the federal funds rate unchanged at 5.25%¹.

Starting July of 2007(, the US economy began to weaken especially in the housing sector (due to subprime mortgages) and inflation started to rise. It is very clear that there is a steady steep increase in inflation from August to November of 2007 and when the Federal Open Market Committee (FOMC) met on August 7th, they discussed whether the Federal Funds Rate should be changed but they agreed on keeping it the same at 5.25%². The FOMC met again on the 16th of the same month because of the rapid slow down in financial conditions and in that meeting it was agreed that changes in discount window policies would be made which means that it gives benefits to short-term credit markets. From both the graph and the table, it is clear that none of the monetary policy changes worked to slow down inflation.

In the September FOMC meeting, it was decided to lower the target for the federal funds rate by 50 basis points, which lowers it to 4.75%². The FOMC's decision in September was not quite effective as inflation kept rising steadily.

This is why in the October FOMC meeting, the committee decided to lower the federal funds rate by another 25 basis points which lowers it to 4.5%. On the report, it stated that any further decrease in the fed fund rate can cause a higher downside risk to growth compared to the upside risk to inflation². Again in the same month, 25 basis points was lowered which makes the federal funds rate 4.25% After the federal fund rate change in October, it is evident that inflation has slow down and is at a steady rate of around 4%.

In December of 2007, Term Auction Facility was introduced and as explained before it gives legible borrowers a better deal to borrow money than the discount rate. As shown on the graph, there was a bit of inflation fluctuation upwards (increasing) but not enough to prove or disprove of anything.

On January 21st, the federal funds rate was decreased again by 75 basis points which make the rate 3.5%. This seems to be working as there was a slight decrease in the inflation rate from January to February but not significant. Soon after, the rate was decreased by 50 basis points which make the fed fund rate 3%³.

The meeting on March 10 of 2008, there was a agreement to expand the currency exchange between the European Central Bank to \$30Bn and Swiss National Bank to \$6Bn. A currency exchange is a form of borrowing as the foreign countries exchange their USD in their stock with the foreign money in the US vault and after a while they switch back. This is useful when a country wants to increase its money supply for liquidity. There is a sign of the inflation rate decreasing but not by a lot. On March 18th the 75 basis points was decreased from the federal

- 1. http://www.federalreserve.gov/boarddocs/hh/2007/july/0707mpr_sec1.htm
- 2. http://www.federalreserve.gov/boarddocs/hh/2008/february/0208mpr part3.htm
- 3. http://www.federalreserve.gov/boarddocs/hh/2008/july/0708mpr_part3.htm

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funds rate which makes it 2.25%. From the graph, these policies did not increase or decrease inflation rate as it stayed close to 4% the whole time.

The last change in monetary policy on the Federal Reserve's report was in April, where the federal funds rate was lowered by 25 basis points which decrease it to 2%. It is again ineffective because there was no significant change in the inflation rate of that month.

Conclusion

Inflation is a very hard to control as there are too many variables to take into account. Controlling the monetary supply by monetary policies is just one part of what makes up the control of inflation. From the data and the analysis above, it was clear that monetary policies was not able to control inflation but maybe slow it down and stabilize it. This one situation in time could not prove that monetary policies are ineffective because there are times in history where monetary policies did work but his time it is because of the variable such as the record high increase in oil prices, unstable housing markets and high food prices which made monetary policies ineffective on inflation. I believe that monetary policies in this case was effective in some ways as it stabilized inflation to around 4% which gave the government time to apply more desperate measures such as the \$700Bn bailout bill and with both monetary and fiscal policy at work together (indirect and direct) there is hope for the US economy to go on recovery very soon.

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Assessment form (for examiner use only)

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