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Jason M. Barsema

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Student Name (print or type): JASON H. BARSEMA

Faculty Supervisor (print or type): DR. CARL CAMPBELL III

Faculty Approval Signature: Carl M. Campbell III

Department of (print or type): ECONOMICS

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Abstract

Inflation has been defined by many great economists such as Milton Friedman as a "monetary phenomenon." Inflation can cause many adverse effects on the global economy, and history has shown central bankers that through the control of inflation, output will steadily increase over time without the risk of overheating. Inflation targeting is a relatively new, yet controversial subject between central bankers, but over the past twenty years, the framework has proven to be successful in countries like the United States, United Kingdom, New Zealand, and Canada. This paper seeks to identify the roots of inflation through an analysis of history, and the effects that inflation targeting has had on the United States and the rest of the world. As the global economy becomes larger and more connected, there is a need for monetary policy to grow equally reliable and transparent. Throughout my research process, I have read multiple books and working papers on the subject, as well as interviewed economists on the costs and benefits of inflation targeting as a framework. I have found that inflation targeting, coupled with other monetary tools provides an efficient method of conducting monetary policy, in which the evidence in this paper supports on both an international and domestic viewpoint. In short, inflation targeting creates accountability, transparency, and quicker response times to unforeseen events, which all lead to a more efficient means of long-term, steady growth.

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The fundamental question of targeting growth of the money supply , as central bankers did in the 1970's, or set inflation targets, as central bankers are now, is still very much apparent in the global debate of monetary policy. Although Monetarists agree on the same broad framework of focusing on interest rates to control output, they have disagreed about this subject for decades. The question that the central bankers have problems answering is which targeting method will lead to the most efficient and steady growth of output, while keeping one's currency relatively strong.

Since about 1990, a large number of industrialized nations have started to use inflation targeting as their framework for monetary policy. In the *Journal of Economic Perspectives*, Ben Bernanke, the United States Federal Reserve Chairman, defines inflation targeting as "the announcement of official target ranges for the inflation rate at one or more horizons, and by the explicit acknowledgement that low and stable inflation is the overriding goal" (Bernanke 97). The early adopters of inflation targeting include New Zealand, Canada, the United Kingdom, and Sweden, which have all seen substantial turnarounds from their lagging economies in the 1980's all the way through the mid-1990's by the use of inflation targeting.

This paper seeks to give a background on the inflation targeting framework, address key issues in the debate between targeting the growth of the money supply or inflation, give both the positives and the negatives of inflation targeting, as well as evidence from practice on an international scale. It is important to note that the author is not biased toward either framework, but yet seeks to identify the most efficient method of sustaining long-term growth in the global economy.

Inflation of the 1970's and the Birth of Inflation Targeting:

As the Vietnam conflict was winding down, the 1970's brought along a time of rapid inflation to the rest of the world. In the 1960's America enjoyed prolonged business cycles which lead to great economic expansion. President Nixon, already faced with politically troubled times, was not willing to sacrifice the extraordinary low unemployment rate of 3.3% for lower inflation in wage growth. Arthur Burns, the Federal Reserve Chairman appointed by Nixon in 1970, knew that the expansionary business cycles would compound inflation, but had a hard time deviating from the President's wishes (Bartlett).

The political pressure mounted from the political defeat that Vice President Nixon faced in the 1959-1960 election, where he blamed tight credit conditions and slow growth created by the Federal Reserve for the loss of the election. Once Nixon appointed Burns in 1970, the President called for loose credit conditions and low unemployment, in order for him to win re-election in 1972. Nixon believed that wage and price controls were the most efficient way to fight inflation, while allowing Burns to use expansionary monetary policy.

Once in office, Burns started to witness the highest global inflation the modern world had witnessed, and attempted to turn his attention to fighting inflation, but succumbed to fulfilling the needs of Congress. Paul McCracken, then a Member of the President's Council of Economic Advisors told Burns in a conversation, "That President Nixon is opposed to an income policy and is upset with your advocacy of it would be irrelevant, because the alternatives to an income policy are things that the President would dislike even more" (DeLong). Burns believed that an income policy would fight

inflation more efficiently than controls or contractionary monetary policy which would inevitably allow the unemployment rate to creep up to 6%, a situation that the people of the United States would certainly not tolerate. A rising unemployment rate was not only something that the people would not tolerate, but something that Nixon wouldn't allow. The fact the Burns supported an income policy also meant that he and his Board of Governors believed that it should not be the Fed's responsibility alone to fight inflation.

Income policies can take the form of "voluntary" wage and price guidelines to extreme cases of actual price freezes, which usually occur in times of war due to high inflation pressures and a shortage in the labor supply. This then results in firms having to pay more for labor, as the labor supply curve shifts right. An income policy, mandated by a bureaucratic institution[1], creates wage ceilings for employers to cap salaries in order to combat inflation, but with some serious side effects. Many economists agree that these policies successfully fight inflation, but at the same time, the policies can distort price signals sent to firms, which can eventually lead a decrease in quality of goods produced or the actual quantity of output. Further, any form of policy that engages the government leads to higher compliance costs for the corporation, and another barrier in reaching economic efficiency.

On August 15th, 1971, President Nixon imposed the first peacetime wage freeze in United States history to combat the 6% inflation the nation experienced in 1970[2]. The policy consisted of four phases, which were subsequently ended in 1974 due to the

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[1] These include institutions such as the Office of Price Stabilization created by President Nixon in 1971 or the Office of Price Administration by President Roosevelt in 1941.

[2] August 15th, 1971 was also the day that President Nixon abandoned the Bretton Woods System that linked the dollar to the price of gold, which would lead to an inflationary impulse, while boosting exports, and thus GDP.

inability of controlling inflation, while at the same time dampening output creating a time of stagflation. With this, the controls were primarily aimed at large corporations that contained labor unions, due to the relative ease of negotiating wage contracts with union heavy industries as opposed to industries which are not.

The wage-freezes were not supported by Burns alone. Many politicians on both sides jumped aboard the policy as early as 1969-1970. These included Senator Barry Goldwater (R-AZ) and Congressman Henry Reuss (D-WI) saying, "We should now have learned that tight money and tight fisicality alone are not enough." Even former Fed Chief William Martin who notoriously opposed controls stated "under present circumstances, fiscal and monetary policy isn't enough to fight inflation" (Nelson 14). However, Burns abandonment of monetarist theories with the acceptance of cost-push[3] inflation into the economy by late 1970 took many economists by surprise, especially Milton Friedman who often stated his disagreement with the Fed Chair publicly.

By 1971, The Nixon Administration was openly against any form of income policy, but soon adopted wage-price freezes due to political pressure to ease inflation. Indeed, inflation without the controls was falling from about 6.6% in 1970, to about 5% in 1971, however the rise in the output gap is what was concerning Capitol Hill[4]. It is true that inflation was still well above the target level of 2%, but Burns was facing a commodity impact of a sharp increase in the price of gasoline and crude oil, as well as a dry spell in agricultural commodities, coupled with the continued expectation of rising inflation, something that the Phillips Curve in its previous state could not predict.

[3] Cost-push inflation can be defined as inflation caused by a continually decreasing short-run aggregate supply curve, leading to reduced output and higher prices (Miller 259).
[4] In 1971, GDP was roughly at 3%, however the output gap was estimated to be at 6% (Nelson 18).

The supply shocks emphasized the validity of the cost-push theory, and the impending movement of upward prices went against the classic monetarist theory. Hobart Rowan of the Washington Post noted, "Higher gasoline, fuel oil and electricity prices will have a 'cost-push' effect, making other products more expensive" (*WP*, 11/08/73). The monetarists believed that price shocks would lead to the prices of "core" items to fall, theorizing that higher oil leads to lower profits, which in result lead to lower wages. In fact, the opposite was true as the higher prices were set into workers' wage contracts, thus a lag in wage policy would lead to "catch-up" wage contracts, spiraling inflation ever higher. Federal Reserve Governor Andrew Bimmer argued that if the Fed would increase the growth of the money supply, the increase in aggregate demand would drive down both wages and inflation, but the accommodations would not be seen until 1975 (Nelson 19).

It was not until 1974 when President Ford's Administration, and the admittance of Alan Greenspan onto the Council of Economic Advisors, that the monetarists regained control of economic policy. In a speech to Congress, Ford stated: "the real weapons against inflation are the old-time virtues—a sound budget and a sound monetary policy". Given in a speech to the House of Representatives in 1974, Burns retracted his belief in controls, and suggested that the only way to moderate inflation was through the control of the deficit, but yet the control of interest rates would not have any long-term effect for the fight on inflation. Nonetheless, confidence in monetary policy was still low at the beginning of the year, as Leontief said, "The long-standing claim of economists that they know how to control inflation is an empty premise" (Nelson 20).

With the help of several outside economists and the people of the United States, the Ford Administration created the WIN (Whip Inflation Now) program, which was a series of coupons that were signed to promote wage increases, and was then coupled with a tax-*cut* in order to boost aggregate demand and combat cost-push inflation. This type of policy was first implemented in Britain in 1973, and appeared to be very beneficial. Indeed, inflation retracted in 1974 and mid-1975, due to large amounts of unemployment and lower commodity prices, but then trended back upwards in fear of further commodity spikes once again.

The second cause for prolonged inflation during the late-1970's was trade-union contracts, which led to industries such as the steel and automobile industries to raise prices on weakening demand, seeming to skew the fundamental laws of supply and demand. This clearly shows how important *expected* inflation is on the actual inflation rate, as just the proposal of an oil price tax, rekindled thoughts that there must be inflation in commodity prices, leading to higher inflation for the remainder of the decade.

In 1977, the Carter Administration entered into office, and Carter argued that the major cause of inflation was the declining dollar which could inevitable lead to serious consequences, such as the re-pricing of oil into another form of currency, and away from the dollar. With this, as the Carter Administration entered into office, so did the new Chairman of the Federal Reserve, G. William Miller, serving the shortest term in Federal Reserve history[5].

Although many people do not recall the term of Miller, he was the first Chairman to recognize the dramatic impact that the declining dollar was having on the U.S.

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[5] Miller's term lasted only from March 8, 1978 to August 6, 1979. In 1979, Miller willingly resigned from his post, and replaced Michael Blumenthal as the Secretary of the U.S. Treasury. He was subsequently replaced by Paul Volcker.

economy, and started raising the Federal Funds Rate (FFR) to curb depreciation and thus inflation. It also during Miller's tenure that both Carter and Miller said that recession "should be risked as part of the fight against inflation," changing their opinions from earlier beliefs. The rise to double-digit interest rates that occurred in 1978-1979, are commonly mistaken as the action of Paul Volcker, but for the first time during the decade, the FFR stood above both the anticipated rate of inflation and headline CPI.

1978 was a break-through year for monetary policy, but still, both Miller and the Carter Administration, believed that wage-price controls and oil taxes should be coupled with the rising interest rates, a theme that was prominent in the early 1970's, but failed. Interest rates were rising, but seemed to have no real impact on inflation. Even prominent economists such as James Tobin, published articles titled, "Why the Fed's Cure Won't Work," citing that if 8% unemployment will lead to a decline in inflation by four points, "we will be lucky." Other economists shared this view, arguing that inflation was interest-rate proof, and America was interest rate prone.

As Paul Volcker came in to office in 1979, inflation was at an astounding rate, while unemployment was high. It is true that the interest rate cuts of 1978 were slightly effective, but they were not enough. Volcker and the Federal Reserve decided to deemphasize the FFR as a target by widening its range by more than 5 times Miller's previous range. This subsequently led to huge fluctuations in the FFR, while the Fed focused its attention non-borrowed reserves, which the Fed would set after it determined the demand at the discount window. Curiously, this led to a greater *lack* of control of monetary policy as the money supply growth increased instead of decreasing. The new

policy of focusing on money aggregates and less on the interest rate target proved to be a smoke-screen that allowed Volcker to focus on driving up the interest rate[6].

In March 1980, the Fed raised interest rates to 15% to "break the back of inflation," causing the U.S. economy to fall into recession, in which Volcker then started to ease, allowing interest rates to fall sharply. By 1981, inflation came back, rising to over 10%, in which Volcker shot up the interest rate again to 15%, causing the U.S. economy to once again fall into recession, but for this time, the country would be in it for two years. This extreme action seemed to be the answer, because as interest rates rose, the growth of the money supply fell, and reduced expected inflation by reducing actual inflation (Mishkin 425).

In the end, it is important to realize that inflation targeting was not formally introduced into the United States as a policy until the early 1990's under the stewardship of Alan Greenspan. The countries that took the first steps include New Zealand, Canada, and the United Kingdom after failing to control inflation while targeting monetary aggregates, which will be discussed further on in the paper. The 1970's had a tremendous impact on the global economy, and left inflation in the global structure until about 1990, in which a new financial crisis came about. It is important to understand the history of inflation to understand the actual framework, but one can see that one particular policy does not work in every circumstance. It takes the right tools as the right time to successfully control monetary policy. In the following sections, I will focus my attention solely on inflation targeting, and the costs and benefits of using the framework.

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[6] Volcker targeted money growth to basically control the short-term interest rate.

Inflation Targeting as a Framework:

Inflation targeting is known as a monetary policy that explicitly targets a country's rate of inflation by "the announcement of official target ranges for the inflation rate at one or more horizons, and by the explicit acknowledgement that low and stable inflation is the overriding goal of monetary policy" (Bernanke/Mishkin 97). Inflation targeting involves several elements such as the public announcement of medium-term targets, an institutional commitment to price stability as the primary, long-run goal, an information-inclusive strategy which many aggregates are examined, increased transparency with the public and Capitol Hill, and increased accountability of the Fed (Mishkin 501).

Inflation targeting has been mandated by many foreign institutions such as Canada, New Zealand, and the United Kingdom, but legislation for the policy has also been adopted here in the United States. Former Senator Connie Mack III (R-FL) introduced a bill in 1995 that would establish price stability as the primary goal of monetary policy, and had been vocally supported by many economic pundits such as Fed Reserve Chairman Ben Bernanke. Unlike the foreign nations mentioned above, the United States used the policy as a *framework*, rather than a rule, in the attempt to achieve long-run economic growth that is sustainable.

Inflation targets always occur as an announcement of an actual range, rather than single numbers, as was attempted in the 1970's, in which today's target is 1-2% inflation. This is thought of to be the most economically efficient range, due to the fact that an inflation rate of 0 is almost impossible to achieve while maintaining growth within the economy. Also, 0% inflation means that it is harder for firms to cut wages when reducing

costs. If you keep inflation moderate, real wages drop without firms having to actually cut nominal wages due to inflation erosion on real wages. With this, the initial announcement of the range generally allows for gradual transition from the current rate of inflation to the target steady-state level deemed consistent with price stability. This transition usually allows anywhere from two to four years, with a time horizon for the actual target to last anywhere from one year to an ongoing target. In practice, central banks tend to rather overcompensate for misses, particularly in the short-run, as to not overshoot and send the economy into recession (Bernanke/Mishkin 99).

Accompanied with the announcement of the targets, there is a statement that accompanies the announcement that controlling inflation is the primary goal, and that the central bank will be held accountable for meeting those targets. New Zealand, for example, implemented the Reserve Bank of New Zealand Act of 1989 that inflation targeting will be not only be the primary goal, but the only goal, with no other mention of competing goals within the legislature (Bernanke/Mishkin 100). Clearly, this is an extreme case that most central bankers do not live by, as most central bankers have the targets embodied within statements rather than formulating it into actual law. The philosophy of setting medium to long-run horizons for inflation targets is that monetary policy can only affect real output and production in the short-run.

In regards to accountability, the central banks have varying degrees of accountability in the framework as well. For example, New Zealand created an incentive contract for its governors, having one's tenure being based upon his or her ability to meet the implied targets. In most countries, no such laws exist, but as Bernanke and Mishkin point out, missing the targets come with personal costs such as reputational damage or a

lack of prestige and credibility (100). The accountability is an extremely important issue when it comes to inflation targets, because the Fed has to remain strong and consistent, as to focus on Main Street, and not be a servant to Wall Street. Some economists argue that former Federal Reserve Chairman, Alan Greenspan became a "slave" to Wall Street by lowering the FFR down to practically 0% in the wake of the September 11 attacks on the United States. The easy credit can lead to an increased amount of risk-taking or the creation of "bubbles" within industries, which is being played out in the current financial markets, when investors were pricing "junk" bonds near extremely similar to Aaa rated bonds.

The framework states that controlling inflation remains the primary goal within this policy, but it is important to note that most central bankers make room for short-run stabilization effects, much like those of Mr. Greenspan's, particularly in regards to output and exchange rates, thus financial stability. These actions are accomplished through focusing on core-CPI, as to exclude the drag from "supply-shocks," such as the OPEC debacle of the 1970's, or any other volatile agricultural product or commodity. Another accommodation is the use of ranges, which allow policy makers to maneuver within the range, while depressing or boosting economic growth. Lastly, many countries, including the United States, have "escape clauses" which allows an inflation target to be suspended or modified immediately due to an adverse economic condition[7].

Another attribute of inflation targeting is the use of forward-looking indicators, such as the producers price index (PPI), the employment cost index, and prices of basic materials. Consisting of many different forward-looking prices, these indicators have

[7] An example of this was the Bundesbank, which in 1979, announced a one-year "unavoidable" inflation rate of 4%, and then moved its target gradually lower to 2% over a six-year period due to the oil supply shocks.

shown predictive power of inflation in the past, but at times can be hard to gauge. For example, the central bank of Sweden and Canada created a "monetary conditions index," which contains a weighted combination of the exchange rate and short-term interest rates, coupled with standard indicators such as money and credit aggregates, commodities, capacity utilization, and wage developments, though most will argue that the MCI is an over-simplified indicator (Freedman 465). In most countries, however, the central bank uses detailed industrial and credit reports presented by regional governors and senior loan officers to provide inflation conditions.

In most inflation targeting countries, the central bankers publish frequent reports on the state of the economy and on inflation, including current forecasts, and the necessary policy that will be necessary to keep inflation in line. For example, the Bank of England publishes a report called the *Inflation Report* quarterly, which gives a detailed analysis of what factors are in the economy that are likely to influence inflation and therefore, policy. New Zealand's central bank publishes a similar report, but publishes it every six months. The United States Federal Reserve takes a different approach, where the Fed governor is required to give a detailed analysis to Congress twice a year, and meets with the Federal Open Market Committee every six weeks to decide whether or not to raise the FFR, as well as give a detailed public report on inflation and the economy. This emphasizes one of the key points of inflation targeting: transparency. The improved communication that this framework provides is extremely beneficial to the long-run stability and growth of the global financial markets and economy (Bernanke/Mishkin 102).

With this, inflation targeting is essentially a move toward greater independence between the national government and the central bank. In most countries, the central bank's decisions are completely of its own, and have no influence from the national government such as the United States. This is in order to provide not only efficient, but ethical means of monetary policy within the country. For example, the central government does not have the means, mind power, or the resources to effectively dictate monetary policy due to their lack of experience. The central government's role is to make rules and regulations for the people, and not to govern economic policy. More importantly, the federal government might steer away from policies that are good for the long-run economy, and toward policies could hurt the economy in the short-run in fear of a decrease in popularity or if it is an election year. This is not true for all countries, however, such as the United Kingdom where the Bank of England requires the Chancellor of Exchequer to ultimately dictate monetary policy, no matter what conclusion the Governor has reached.

In addition, the first implementation of the framework occurred internationally during the collapse of the exchange rate peg that led to monetary authorities to search for an alternative "nominal anchor" for monetary policy. In other cases, such as Canada, countries came about to inflation targeting because of the failed attempts of implementing money-targeting approaches. In other cases, such as the United States, countries adopted inflation targets after successfully reducing inflation through interest rate hikes, and wanted to "lock-in" gains (Bernanke 104).

The Disadvantages of Inflation Targeting:

Critics of inflation targeting usually cite four disadvantages of inflation targeting, which include delayed signaling, an increase in rigidity, the potential for increased output fluctuations, and low economic growth. These critics usually stem from the belief that inflation targeting is not being used as a framework, but as a rule, which allows for no complimentary policy implementation.

First, many critics point out that inflation targeting leads to delayed signals to the public markets because of the lag of the economic policy. In contrast to exchange rates and monetary aggregates, critics argue that inflation is not easily controlled by the monetary authorities because of the long lags in the effects of monetary policy, which lead to delayed outcomes in policy, via its effect on the short real interest rate[8]. This leads to inflation targets sending inaccurate signals to both the public and private markets about the position of monetary policy. The delayed signals can also lead to inadvertent consequences by the time the interest rate cut or hike takes place.

A second criticism of the policy is the excess rigidity on monetary policymakers, limiting their discretion to respond to unforeseen events such as supply-shocks. In fear of losing credibility, policymakers might be forced to make moves that could severely impact the economy, or not be able to accommodate a supply-shock that could potentially send the economy into recession. In reality, this criticism does not hold very credible, due to the fact that every country uses escape clauses for this exact reason. Secondly, inflation targeting implements ranges of long-run acceptable inflation, which allows policy makers to have room to maneuver in case of an unforeseen event.

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[8] The lag in the monetary policy usually takes three to four quarters to take effect, thus having potentially dangerous consequences.

Probably the most important critique of inflation targeting is that the sole focus on inflation may lead to monetary policy that is too tight when inflation is above the target range, which could increase output fluctuations. Frequent output fluctuations can lead to serious economic consequences, as businesses will have a difficult time gauging how much to produce, which could lead to output shortages (which leads to higher prices, thus inflation), or it could lead to a surplus in inventories, in which many laborers could be terminated, creating a multiplier effect. This again, is a weak argument towards inflation targeting, because all of the central banks who target inflation have set their range above 0%, which implies a concern for output, employment, and the ability to accommodate short run stabilization measures. The central bankers set a range instead of a constant number, allowing the central bank leeway for expansionary policy in downturns.

Lastly, another common concern about the framework is that it will lead to slower growth and unemployment. This too, leads to an inadequate conclusion because research has shown that once the desired level of inflation is achieved, output and employment returned to levels that were higher than they originally were. This can be seen in countries like New Zealand, which has seen tremendous growth after their desired level of inflation had been achieved in 1992 (Mishkin 503).

Advantages of Inflation Targets:

There are many advantages to inflation targets when comparing them to other monetary policies such as exchange-rate and monetary aggregate targeting, as long as a central bank keeps inflation targeting as framework, and not as a rule. These advantages include quicker response times to unforeseen events, greater transparency, increases in

accountability of the central bank, as well as acting as the most efficient method of long-term growth.

First, inflation targeting, much like monetary targeting, allows the policy makers to focus on domestic considerations and to respond to supply shocks with ease. Due to the inherent nature of the policy, the targets allow the central bank to move within the targets to face the underlying conditions of the economy, while sill allowing the central bank to focus on other variables such as output and employment. Controlling the money supply allows you to do this as well, but also requires a lot more maintenance, while at the same time showing inconsistent results, such as the situation in 1980 under Volcker when he lowered the money supply, but inflation kept rising. Shifts in money demand, and in turn velocity, can effect short-run output as seen in the IS/LM model, leading to another drawback of targeting monetary growth. This leads to Lars Svensson's conclusion that intermediate inflation targets could help control money velocity, as is the case for the United Kingdom, which has a history of unstable velocity (Svensson, 2000)

This leads to the second advantage of targeting the inflation rate, which is an increase in credibility in the Fed. Many economists overlook the importance of this quality, but I believe that it is one of the most important. First, accountability leads to greater independence of the central banks which is essential in maintaining a small output-gap. Governments will allow central banks greater independence if the central bank is credible and accountable. In many cases, bureaucracy just puts one more hurdle in the way of economic efficiency, and data has proven that independence of central banks, has led to a tremendous boost in output, such as Canada for example. Secondly, increased accountability also leads to decreased expected inflation, a phenomenon that

plagued the early 1970's. If inflation does creep up, a credible central bank will lead people to believe that the inflation will be quickly contained, and thus unnecessary for businesses to increase prices. Also, if workers have a better view about inflation, the wage-setting process becomes more efficient, giving workers a clearer expectation of real disposable income.

Another advantage of the framework is an increase in transparency, which ultimately leads to greater credibility. Greater transparency with the public and Wall Street leads to greater overall output within the economy as businesses worry less on what future interest rates, inflation rates, and exchange rates, and focus more on increasing efficiency and output because steady inflation rates usually lead to steady interest rates. In turn, this leads to greater profitability within the firms, which means higher returns on equity (stock prices go up), making consumers wealthier. While this would tend to lead to inflation, the rise in output would negate most of the inflation in the system, while the monetary policy tools would couple that effect. Also greater transparency makes the central bank's actions more sensitive the bank's actions, and "increases the cost of deviation from the announced policy" (Svensson, 2000). As discussed earlier, transparency comes mandatory in some countries, and moderately voluntary in others, but nonetheless, inflation targeting does promote increased output in the long-run, making people wealthier.

With this, inflation targeting is superior to the other forms of monetary policy because its ability to control the real exchange rate within an open economy. Svensson argues that real exchange rates will affect the relative price between domestic and foreign goods, which will affect the both foreign and domestic demand for domestic goods.

Exchange rates also affect domestic currency prices, which then affect the price of imported goods, which directly raises CPI inflation with a much shorter lag. Finally, a fluctuating exchange rate affects imported inputs into final products, thus driving up the marginal cost of production, which could lead to a substitution effect within the labor force, leading to many layoffs[9]. Nevertheless, inflation targeting can directly control exchange rate fluctuations without the adverse consequences that would be seen if a money-supply framework existed (158)[10].

Lastly, due to the fact that inflation targeting creates greater accountability, it also creates greater *responsibility* by policy makers, so as to not fall into the time-consistency trap, where the attempt to expand output and employment creates overly expansionary monetary policy. The inflation range would have to be recognized and maintained, thus almost creating a ceiling on how much economic growth can take place. The time-consistency problem can be defined as monetary policy conducted on a discretionary day-to-day basis leads to poor long-run outcomes. This problem arises on the belief that people's expectations are assumed to be unchanged, so policymakers attempt to boost output (or lower unemployment) by using great discretionary monetary policy than expected. Since firms determine wages and prices that reflect expectations about policy, firms and workers will raise their expectations not only on inflation, but on wages and prices. Under this discretionary policy, output tends to stay constant, while inflation rises,

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[9] Layoffs could be the result of two different consequences or a combination of both. First, higher input prices leads to higher production costs, thus leaving the manufacturer in a position to cut jobs to save on costs. Secondly, higher input prices means higher final goods prices, which would have to be compensated through higher wages, thus leading to a substitution effect once again.

[10] It is important to note that inflation can be imported through foreign supply or demand shocks, which raises the level of inflation domestically and lowers domestic demand. This is another argument for using inflation-targets.

creating negative externalities (pecuniary and non-pecuniary) on the economy (Mishkin 488).

A key advantage to accountability and thus inflation targeting, is that it can help focus the political debate on what a central bank can do in the long-run, rather than what it cannot do. Thus, inflation targeting relieves political pressures on the central bank to pursue inflationary monetary policy and thereby reduces the likelihood of time-consistent policymaking.

Conclusion:

In conclusion, inflation targeting is the most efficient method of monetary policy that the Federal Reserve has its disposal. Inflation targeting allows the Federal Reserve to be both pro-active and re-active during times of economic turmoil and uncertain times. It is especially useful at times like the present when the entire FOMC has declared that not only is their outlook on the economy dire, but hard to forecast. This framework has allowed the Federal Reserve to accurately maneuver the credit market turmoil through rate cuts, while still keeping inflation within their range[11]. The Fed has cut 75 basis points, or 0.75% off the Federal Funds Rate, as well as slashing the rate at which companies can borrow from the discount window, while keeping inflation within its bounds, thus bailing the economy out of potential recession, while keeping inflation tight.

Throughout the paper, I have discussed the cost/benefit analysis of the use of inflation targeting. It is important to note that I, nor does the Federal Reserve, support using *any* policy as a rule, but rather as a framework. When used as a framework,

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[11] This can be shown through the November core PCE data, an important inflation gauge for the Fed, where the year-over-year growth is 1.8%, within the Fed's target of 1-2%. Further, unemployment is still at 4.7%, which is relatively low, which means that the low inflation/low unemployment environment somewhat contradicts the fundamental view of the Phillips Curve.

inflation targeting allows the Federal Reserve to be more transparent with Wall Street, Main Street, as well as foreign central banks. Transparency, as we have seen through the credit crisis, is the most important weapon a company or central bank can have at its disposal.

As I have discussed, there are many other advantages to inflation targeting such as quicker response times to unforeseen events, greater accountability for policy makers, and allowing the central bankers not to be continually questioned by Capitol Hill. It is even more important to address the rebuttals against the framework. I have shown that most of the rebuttals are not valid, as they typically refer to inflation-targeting as a rule, and not a framework. The fact is that the framework does not cause more rigidity within monetary policy, but less, as it is the purpose of creating a range to do so, and that transparency through frequent updates, speeches, and publications takes the lag-time of implementing the policy out of the economic outcomes.

In the end, I believe that creating inflation targets has benefited many nations besides the United States, and helps establish precedent for incoming officials. One of the hardest inflation obstacles to over come is expected inflation, thus the use of inflation targets extinguishes lofty expectations, and keeps prices, wages, and output at a controlled, but sustainable pace. Although inflation-targeting has been used for over twenty-years now, there has not been much published on the subject from economists outside of Federal Reserve Chairman Ben Bernanke, and New York's Federal Reserve Governor Fred Mishkin. As the policy progresses, it would not be surprising to see more light brought onto the subject after seeing the great success that the framework has had in countries such as England, New Zealand, and Canada.

Appendix:

Figure 1: **A history of inflation**

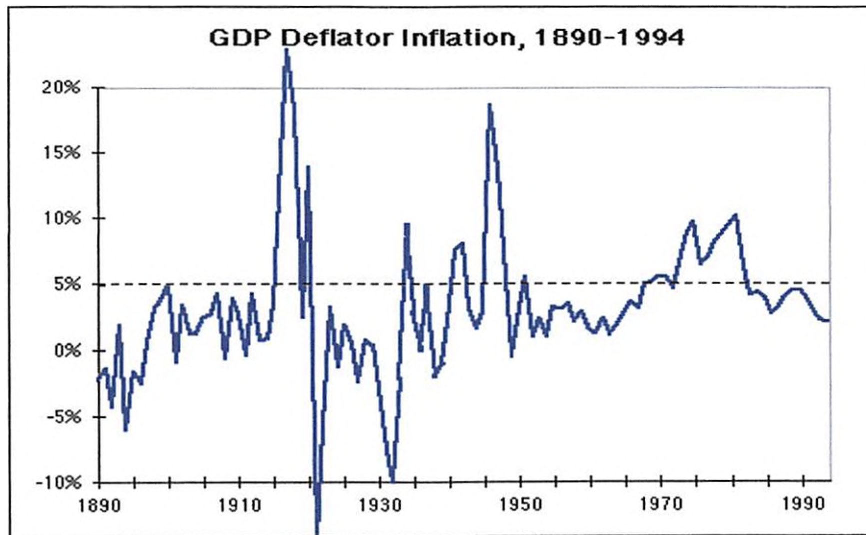


Figure 2: **Inflation rising faster than wages in the 1970's**

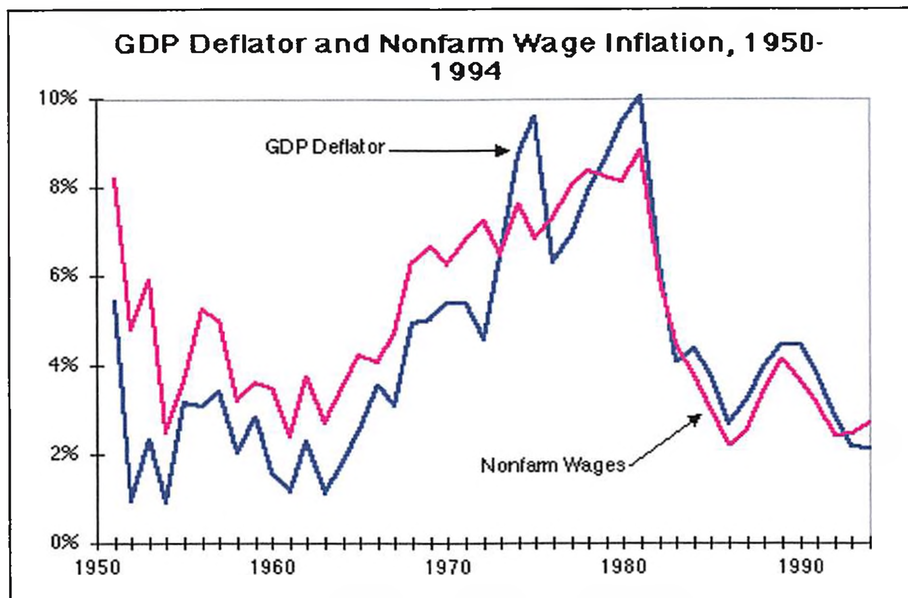


Figure 3: **Global inflation elevated in the 1970's**

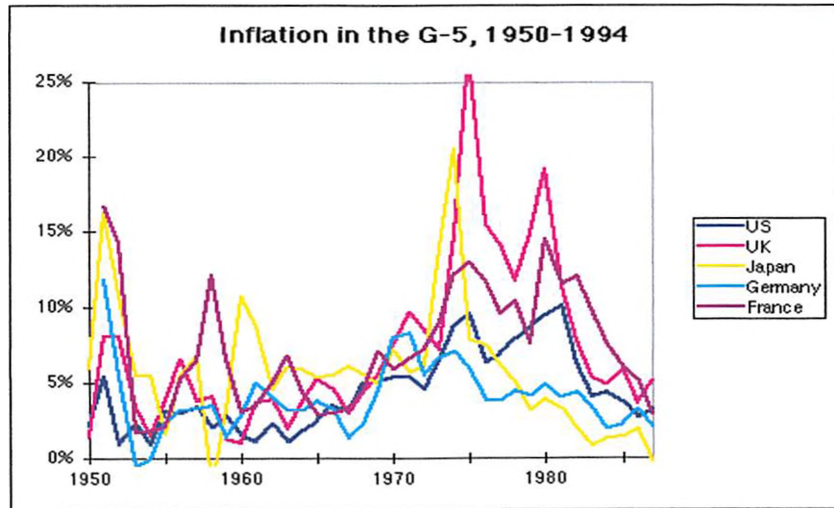


Figure 4: **Inflation Expectations vs. Actual Inflation**

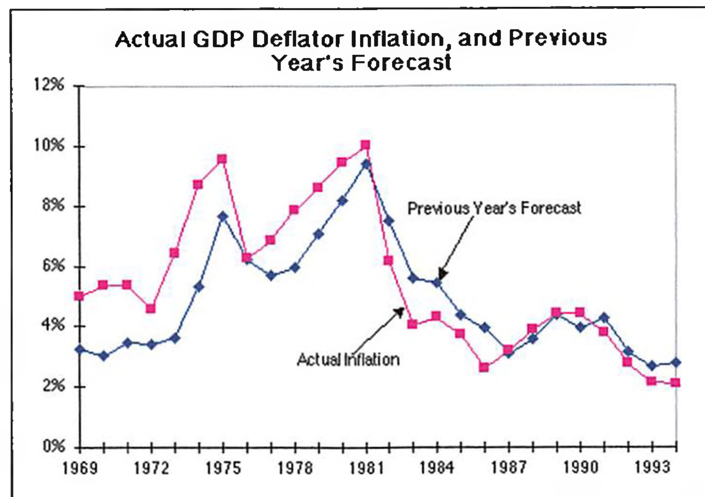


Figure 5: **The short-run effect of stable aggregate supply and a decrease in aggregate demand**

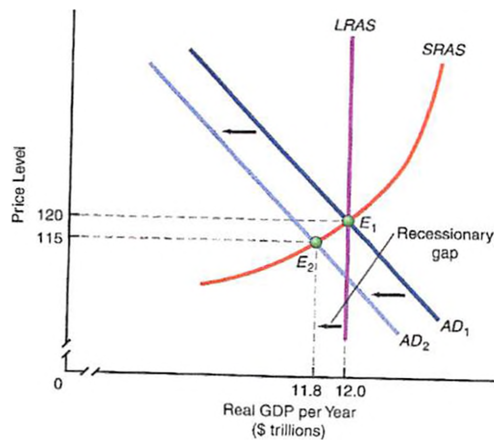


Figure 6: **Decrease in Aggregate Supply leads to inflation**

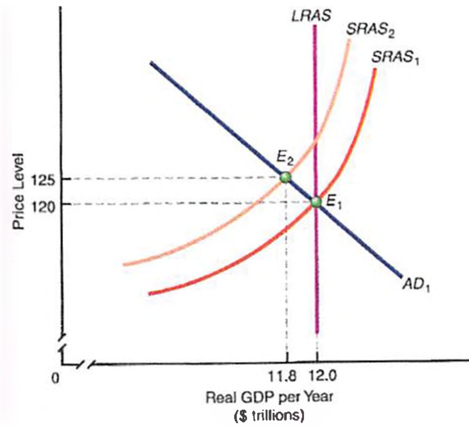


Figure 7: **Cost-push inflation with an Activist Policy to promote high employment**

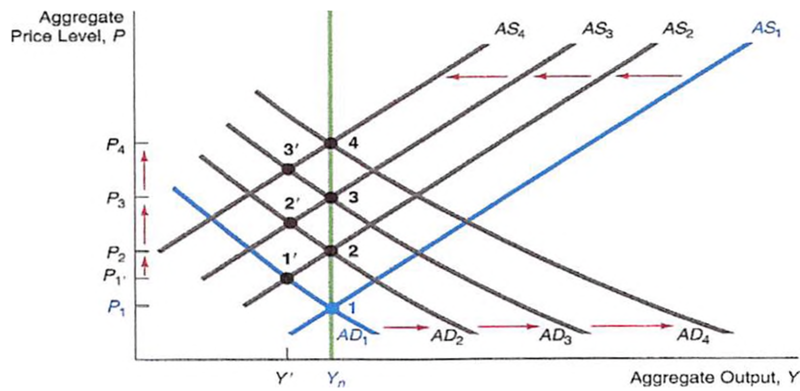


Figure 8: **History of the Federal Funds Rate**

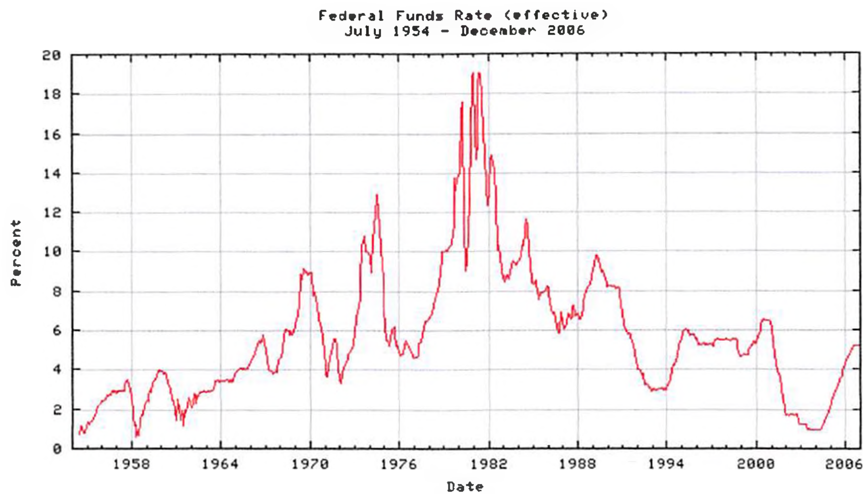


Figure 9: **Unemployment remains elevated throughout the 70's**

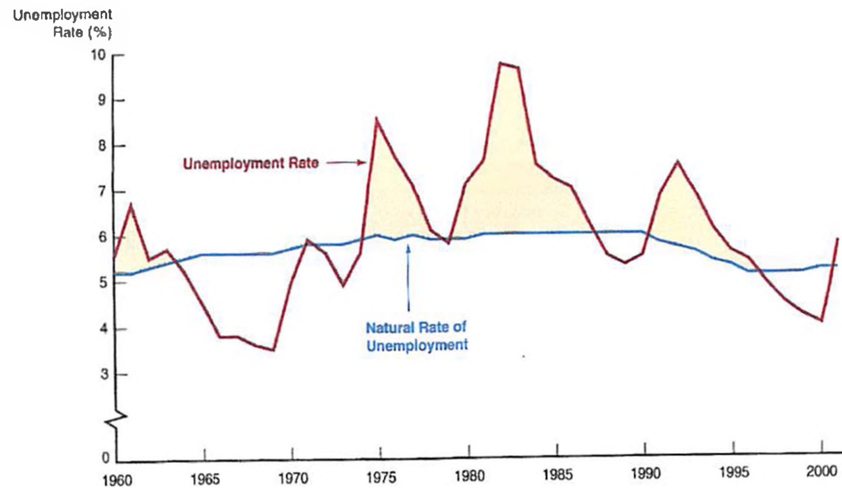


Figure 10: **Unemployment has positive correlation with oil prices**

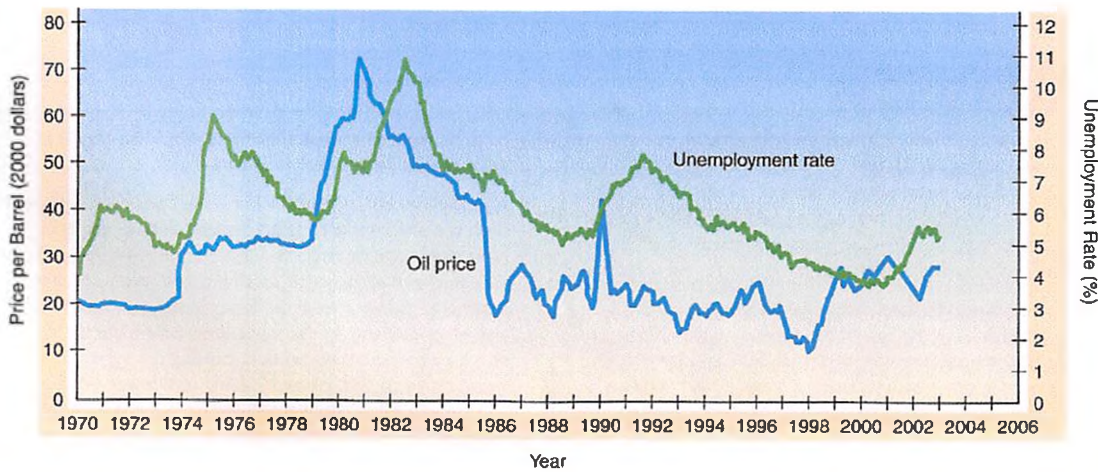


Figure 11: **Supply Shocks lead to lower output and higher inflation**

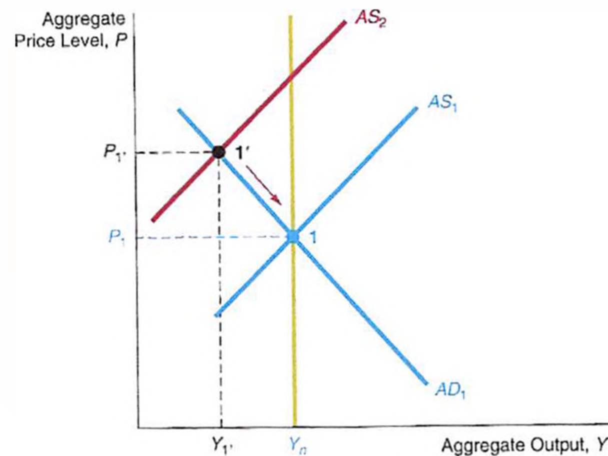


Figure 12: **Money growth vs. inflation**

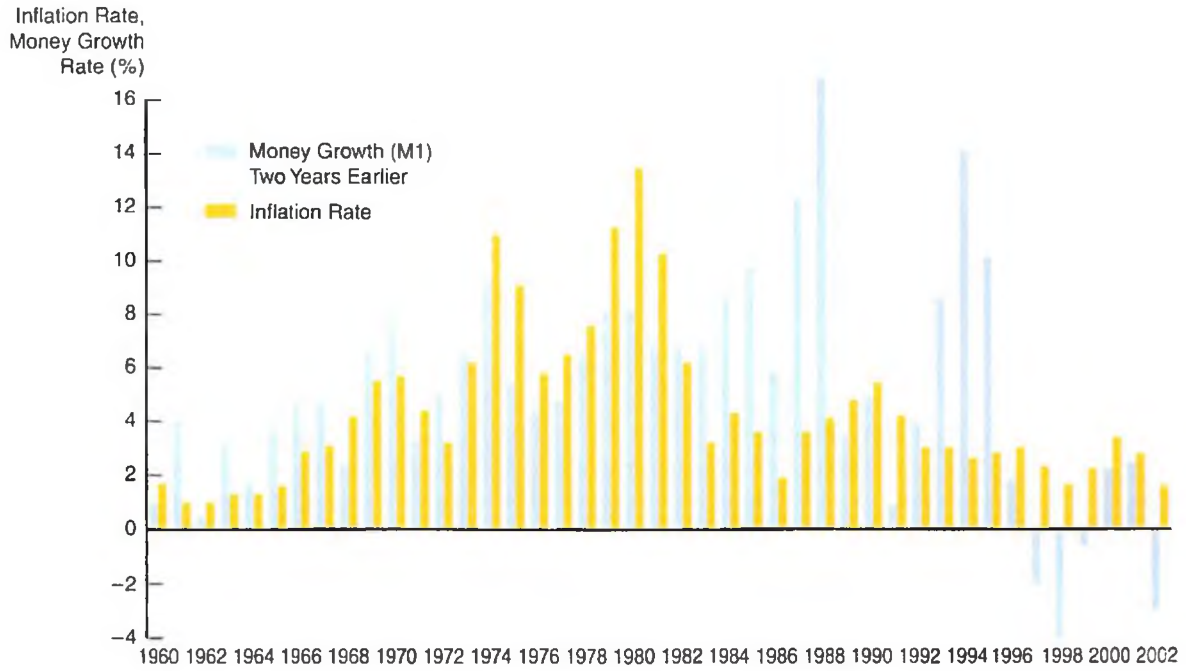
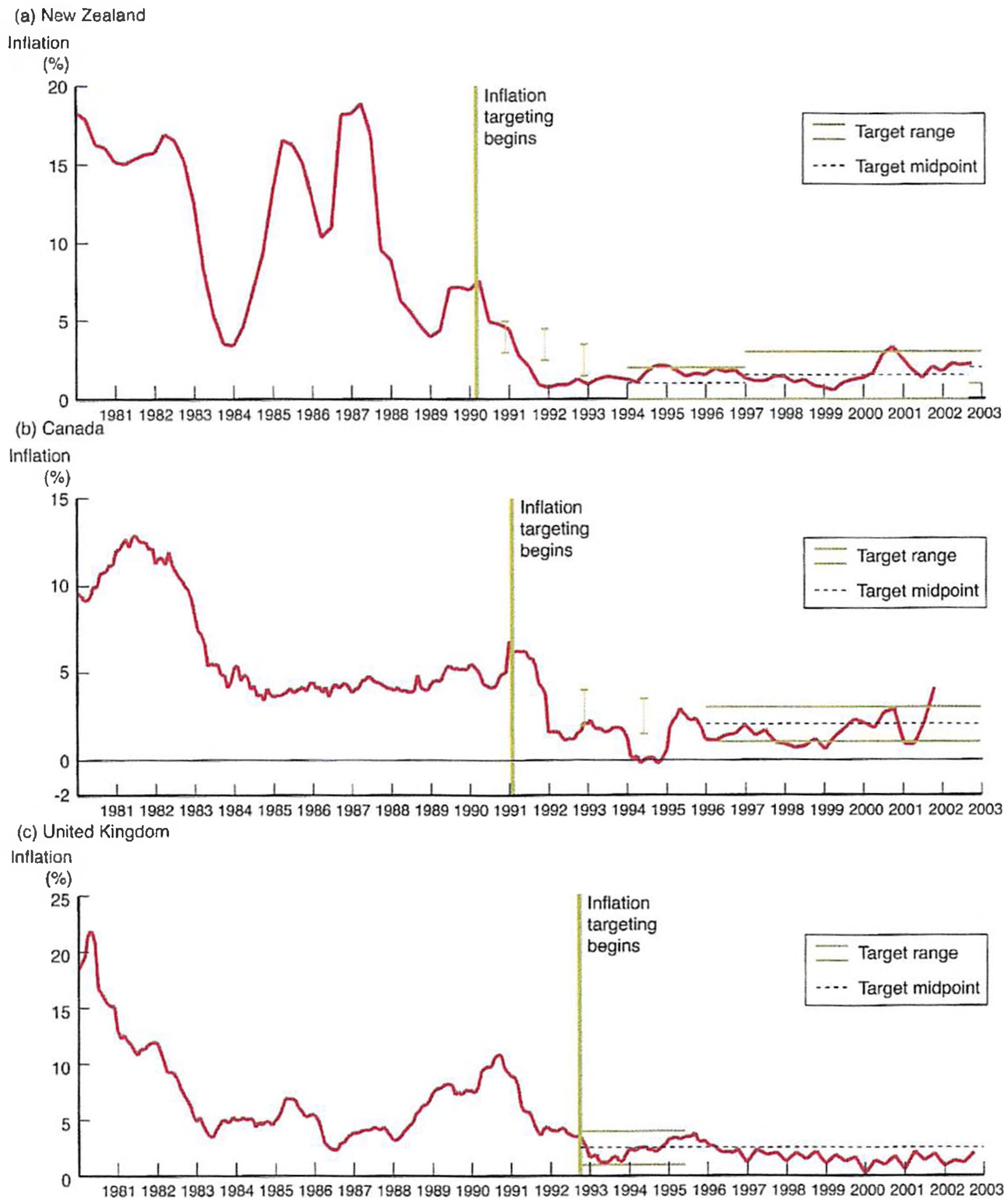


Figure 13: Empirical Evidence of the success of inflation targeting on a global basis



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