

THE FEDERAL RESERVE'S DUAL MANDATE CONFLICT

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ABSTRACT

The purpose of this research is to determine if the US Federal Reserve's decision to implement a dual mandate is the most efficient central bank structure. While most international central banks have a single price stability mandate, the US Federal Reserve has a dual mandate - price stability and maximum employment. This study begins by examining literature regarding the economic theory, development, and controversy of the dual mandate. The debate is far from new, however this paper provides the first analysis involving comparisons of single and dual mandate banks as a group. To measure the efficiency of a bank in reaching its price stability mandate, inflation rate variances and target accuracy were calculated. Similarly, maximum employment was measured by looking at unemployment trends for dual mandate banks and comparing them to the single mandate banks, which have no explicit employment goal in their policy objectives. Overall, the results of this research show that there are no drastic differences in a single or dual mandate bank's ability to reach its stated inflation target and keep unemployment low. Therefore, since the number of mandates a central bank pursues does not hinder its ability to achieve them, it brings into question whether single mandate banks are more efficient overall as they incorporate fewer resources and efforts to achieve the same outcome.

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Introduction

The Federal Reserve (the Fed) is the central bank of the United States. It is responsible for helping to ensure an effective, stable US economy and for promoting the interests of the public. The Federal Reserve has five general functions: conducting the nation's monetary policy, promoting the stability of the financial system, promoting the safety and soundness of individual financial institutions, fostering payment and settlement system safety and efficiency, and promoting consumer protection and community development (Board of Governors of the Federal Reserve System, 2017).

The Federal Reserve has two primary objectives it is responsible for fulfilling, known as its dual mandate. Currently, the Federal Reserve's dual mandate is to achieve stable prices and maximum employment. Monetary policy refers to the Federal Reserve's actions to achieve its dual mandate. Some of the traditional monetary policy tools the Federal Reserve utilizes include open market operations, setting reserve requirements, and setting the discount rate (Board of Governors of the Federal Reserve System, 2017). The Board of Governors is responsible for setting the discount rate and reserve requirements, while the Federal Open Market Committee (FOMC) controls open market operations and is the primary party responsible for fulfilling the dual mandate. The FOMC consists of twelve members – the president of the Federal Reserve Bank of New York, the seven members from the Board of Governors, and four reserve bank presidents. These members meet eight times per year, where they review economic conditions and assess the progress towards reaching the dual mandate objectives (Board of Governors of the Federal Reserve System, 2017).

The history of the Federal Reserve's dual mandate begins during Woodrow Wilson's presidency with the creation of the Federal Reserve Act of 1913. This act was established after a

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series of devastating bank panics, business bankruptcies, and bank failures spread massive concern about the stability of the financial system (Board of Governors of the Federal Reserve System, 2017). The Federal Reserve Act defined the structure, purpose, and functions of the Federal Reserve System and its mission to provide for “the establishment of the Federal Reserve banks, and to furnish an elastic currency” (Zhu 2013). This act initiated the first emphasis on the US central bank’s task to attain stable prices.

The controversy about whether the Federal Reserve can control the unemployment rate began with the original Full Employment Bill of 1945. Economists based the discussion around the underpinnings of economic theory. Supporters of the bill believed in Keynesian economics and the idea that “unemployment results from deficiencies in aggregate demand and requires compensatory spending to combat the cycle” (Goldberg 2013). On the other hand, opponents believed that “cyclical fluctuations in aggregate demand and employment were inevitable, and economic forces would result in full employment eventually without government intervention” (Goldberg 2013).

Eventually, the bill was amended, and the Employment Act of 1946 passed. Pressure to pass the act was also attributable to the large number of American soldiers returning home from World War II and the fear that the post-war economy would not be able attain full employment without the federal government intervening (Steelman 2013). The act stated that:

“it is the continuing policy and responsibility of the federal government to use all practicable means consistent with its needs and obligations...to promote maximum employment, production, and purchasing power” (Board of Governors of the Federal Reserve System, 2017).

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One of the most drastic changes to the dual mandate and the shaping of our modern Federal Reserve system came from the 1977 Federal Reform Act. This act increased transparency and accountability by requiring the Federal Reserve's objectives to be made explicit. It directed the Federal Reserve to focus on employment and stable prices, declared those two objectives coequal, and required some assessment of progress towards those to be released to the public (Reuss 1977).

Similarly, in 1978, the Humphrey-Hawkins Act amended the Employment Act of 1946. It established price stability and full employment as national economic policy objectives as well as specified numerical inflation and unemployment targets (Thornton 2012). The Humphrey-Hawkins Act laid the foundation for the modern dual mandate, as well as initiated debate about the intentions and effectiveness of the US central bank in achieving its objectives.

Clearly, the controversy of the Fed's dual mandate is far from new, as theoretical and political debate has sparked ongoing controversy and division among economists and scholars alike. Examinations of economic theory including Keynesian economics, aggregate supply and demand cycles, and the basis of American ideals have all been challenged. In addition, scholars have researched whether striving for price stability achieves the full employment objective in itself or if unemployment is realistically an attainable goal through traditional monetary policy tools (Schwartz & Todd, 2008, p. 178). A few comparisons have been conducted between the US Federal Reserve and the European Central Bank and the Bank of Japan on a theoretical level.

While there has been much debate as to whether theoretically one mandate is better than two, there is no data analysis determining if single mandate central banks (as a group) are more effective than dual mandate central banks. Although comparing inflation and unemployment rates directly between the world central banks to measure mandate effectiveness would be ideal,

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there are too many variable factors between countries (geographically, politically, economically, etc.). Consequently, these inflation and unemployment rates will be compared by examining the variability of each factor to the individual targets it sets in its mandate. The ability of single mandate banks and dual mandate central banks to hit their mandate objectives will be compared to identify if there is a correlation between the central banks' number of mandates and their relative effectiveness as measured by their ability to reach them.

Identifying the effectiveness of central banks is relevant to many different areas of society. Maximum efficiency is relevant to all governments, businesses, and individuals because as the central bank and economy are functioning at the optimal capacity, almost every part of society benefits. In addition, as the central bank is more effective, specifically at maintaining low rates of inflation and the economy stabilizes, saving, investment, economic growth, and international competitiveness increase (Federal Reserve Bank of St. Louis, 2006).

This paper will seek to answer if the US Federal Reserve should have one mandate or two. By extension, it will answer if central banks with a single mandate are more effective at reaching their objectives than banks with a dual mandate. To measure effectiveness, inflation variance to target inflation rates will be compared, as well as the number of times each central bank was able to hit their mandated target exactly. In addition, unemployment trends between dual and single mandate banks will be analyzed in order to determine if banks with a focus on maximum employment are more efficient at reaching this goal.

Literature Review

The Fed's Dual Mandate: One Too Many?

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Michelle A. L. Goldberg, an economist with a JD from Boston University, explored both sides of the dual mandate debate and its transition from the 20th to 21st century. In *The Review of Banking & Financial Law*, Goldberg's article, "The Fed's Dual Mandate: One Too Many? ", begins the analysis by giving background information on the purpose and history of the Fed's dual mandate. She identifies the key functions of the Fed regarding monetary policy including "promoting the goals of maximum employment, stable prices, and long term interest rates" (Goldberg 2013, p. 344). Specifically, and as noted from the Board of Governors of the Federal Reserve's website:

"In setting monetary policy, the [Federal Open Market] Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate (Goldberg, 2013, p. 345)."

Goldberg analyzes the debate in the 20th century beginning with the Humphrey Hawkins Act. The main questions surrounding the bill were regarding whether the bill sought "more employment than needed or attainable", and whether the creation of public jobs for this purpose would hurt the private sector and would result in inflation (Goldberg, 2013, p. 364). The risk of

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inflation was one of the biggest arguments against a full employment mandate, as opponents insisted that as unemployment dropped, inflation increased.

In addition, opponents of the dual mandate criticized the difficulties posed by “political pressures and market uncertainties in implementing the proper policy” (Goldberg, 2013, p. 365). Similarly, others argued that “increasing the public budget for full employment projects would increase market demand and drive prices and public debt completely out of control” (Goldberg, 2013).

On the other hand, 20th century proponents of maximum employment policies based their argument on American ideals. Prominent figures such as Franklin D. Roosevelt even proposed a “Second Bill of Rights” that included the right to “useful and remunerative jobs for all” (Goldberg 2013, p. 366). Similarly, Martin Luther King called for jobs to those who wanted to work. The concept of economic equality was backed by the negative consequences that resulted from unemployment and low poverty wages in the 1960s such as high depression levels and urban riots. Proponents claimed that “public expenditures would be offset or exceeded in the long run by an increase in the supply of services and goods for consumers, by a saving in welfare payments, unemployment benefits, and the other social costs of unemployment...” (Goldberg, 2013, p. 367).

In the 21st century, the debate was revamped following the recession of 2008. Most notably, the Federal Reserve set a target rate for inflation of 2%, and unemployment rate between 5% and 6%. While the rate of unemployment is accepted by both proponents and opponents of the debate, their views differ on whether the Fed should be the one responsible to reduce unemployment and whether that action would distract from the inflation goal (Goldberg, 2013, p. 368).

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For those opposed to a full employment mandate, the 21st century represented a shift to arguments fixated on whether the Federal Reserve would better serve the economy by focusing on only regulating inflation. Opponents argued that “the long-run levels of output and employment are determined by economic fundamentals (productivity, technology, saving rate, etc.) which are unaffected by monetary policy.” Also, that “an increasing rate of inflation increases the rate of unemployment” based on the theory that inflation decreases purchasing power and spending, which leads to decreased demands, layoffs, and consequently higher unemployment. Goldberg quotes a Stanford University economics professor, John Taylor, as claiming that the increase in unemployment rates since the recession are due to the Fed’s “highly discretionary monetary policy”, such as quantitative easing. Additionally, that “too many goals blur responsibility and accountability” (Goldberg 2013, p. 370).

21st century proponents of a full employment mandate, including previous Federal Reserve Chair of the Board of Governors, Janet Yellen, have supported aggressive stimulus actions and public spending. Similar to the 20th century debate, proponents claim that “long-term unemployment has negative consequences beyond immediate personal economic impact” (Goldberg 2013).

Proponent and CEO of the Federal Reserve Bank of Chicago, Charles Evans, produced a more moderate approach including forgoing a strict inflation cap, but rather as a targeted average over time. Furthermore, he argued that the Federal Reserve could keep the federal funds rate at “extraordinarily low levels, until unemployment fell to an acceptable rate” (Goldberg 2013), indicating that the Federal Reserve’s actions do directly affect the unemployment rate.

After thorough analysis of the debate over the past two centuries, Goldberg concludes that both sides have unique points, but agree on some level of significance regarding achieving a

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certain level of employment over time. From here, Goldberg suggests that the focus of the debate is on the best method to achieving these goals and not whether the goals are admirable to achieve (Goldberg, 2013, p. 376). Goldberg's stance, as described at the end of the review, is to promote both objectives, but not to focus exclusively on the dual mandate, and only "by means which are not more costly than the unemployment itself" (Goldberg, 2013, p. 377). Furthermore, Goldberg states that since "the Fed itself has acknowledged that the unemployment rate is determined in large part by non-monetary factors, that monetary policy may be the wrong lever to promote job creation" (Goldberg 2013).

In summary:

"Congress should maintain the goals with which it has charged the Fed. Then, in seeking to achieve these goals, the Fed should follow a general course of action that focuses on managing the rate of inflation. This singular focus, however, should be qualified by a certain standard of flexible targeting; the Fed should be able to target the unemployment rate so long as the negative effects of doing so do not exceed a certain degree." (Goldberg 2013, p. 378)

The Federal Reserve and European Central Bank: A theoretical comparison of their legislative mandates

Senior Lecturer in Economics at Leeds University Business School, Giuseppe Fontana, compared the US Federal Reserve to the European Central Bank in the *Journal of Post Keynesian Economics* titled: "The Federal Reserve and the European Central Bank: a theoretical comparison of their legislative mandates". Prior to the discussion on the theory behind the central banks' mandates, Fontana highlights the importance of central banks throughout history and compares the institutional features of the Federal Reserve and the European Central Bank

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(ECB). The rise of central banks around the world occurred after the end of World War II, and marked the creation of the ECB and 173 other central banks (Fontana, 2006, p. 435). However, Fontana notes that together, the Federal Reserve and the ECB account for 37% of world output, and thus are a significant force in the global economy and economic trendsetting.

The institutional features of the Federal Reserve and the ECB are similar, especially in their policy approach. However, the one institutional difference between these two banks is that the Federal Reserve has a dual mandate, while the ECB has a single mandate. The Federal Reserve's dual mandate was established from a series of acts, most recently, the Humphrey Hawkins Act, which specified the dual mandate objectives and its associated numerical targets. On the other hand, the European Economic Community (EEC) created the Maastricht Treaty, which was amended in 1998 and gave the ECB the following mandate:

“The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community as laid down in Article 2” (Fontana 2006).

In contrast to the Humphrey Hawkins Act which established price stability and maximum employment as its two objectives, it's clear that the ECB mandates price stability as its sole priority.

Fontana begins the theoretical comparison of a single versus dual mandate by analyzing the “new consensus” economic view. This theory claims that a central bank with target inflation rates should start disinflationary policy when the inflation rate is above the desired level.

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However, the long-run effects of aggregate demand argue that disinflationary policy could produce a permanent lower level of output and employment. More generally, that “changes in aggregate demand caused by central banks’ manipulation of the short-run nominal interest rate may produce significant positive or negative long-run effects on the aggregate supply and, hence, on the growth rate of a country” (Fontana 2006). This theory presents the possibility for “the long-run non-neutrality of monetary policy”, and implies that it doesn’t matter if a central bank has one mandate or two. Fontana suggests that due to this idea, the Federal Reserve should not abandon its dual mandate for the ECB’s single mandate of price stability.

In addition, Fontana claims that the Federal Reserve should not change its dual mandate to a single mandate as the dual mandate is more general and “allows for less restrictive theoretical assumptions”, and can encompass a wide variety of theoretical principles (Fontana 2006). Fontana states “This generality has allowed a margin of flexibility to the Fed...The dual mandate gives the freedom to central banks to interpret empirical data and economic theory in a flexible way, and for this reason, has to be preferred” (Fontana 2006).

Comparison between the European Central Bank as a New Monetary Experiment and other Major Central Banks- US Federal Reserve and Bank of Japan

A comparison between the ECB, the US Federal Reserve, and the Bank of Japan (BOJ) is conducted by economists Tache and Danu, published in the Bulletin of Economic Sciences, at the University of Brasov in Romania. Tache and Danu chose to compare these three central banks for a multitude of reasons. The US Federal Reserve was chosen because it has long been an indirect global policy maker. Additionally, the ECB is responsible for monetary policy of the euro area, while the Bank of Japan has largely taken the role as the source of cheapest funding, and thus a market leader in stock and market trends (Tache and Danu 2014).

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Tache and Danu begin comparing these world central banks by analyzing their main objectives. The Bank of Japan's policy goal is defined as follows: "Currency and monetary control by the Bank of Japan shall be aimed at achieving price stability, thereby contributing to the sound development of the national economy" (Tache & Danu 2014). The single mandate of price control for the Bank of Japan aligns with the ECB's single mandate, but differs from the US Federal Reserve's dual mandate. However, the ECB, BOJ, and US Federal Reserve are all similar in their numerical target for achieving price stability, as they each set a 2% inflation target. Specifically, the BOJ Policy Board stated that "the price stability goal in the medium to long term is in a positive range of 2 percent or lower in terms of the year-on-year rate of change in the consumer price index (CPI)" (Tache & Danu 2014). The BOJ was the last of these three central banks to establish a quantitative price stability target.

Additionally, the strategies of the ECB, BOJ, and US Federal Reserve are all similar in that their main function is to conduct monetary policy to achieve their desired goals. The tools each bank utilizes are also similar. The US Federal Reserve uses open market operations, the discount window, and reserve requirements. The ECB uses open market operations, standing facilities, and reserve requirements, and the BOJ uses open market operations, complementary lending facility, and reserve requirements (Tache & Danu 2014).

Overall, Tache and Danu conclude that the ECB and BOJ mandates are similar except that the BOJ has a broader price stability mandate. They claim that this is largely due to the late adoption of the BOJ's quantitative mandate in 2006 relative to other central banks around the world (Tache & Danu 2014). Additionally, after analysis of the ECB, BOJ and US Federal Reserve's strategies for achieving monetary policy, as well as comparing each bank's internal structure, they claim there are no significant differences. Therefore, the most easily identifiable

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difference between each central bank is the number of mandates each bank is responsible for – the ECB and BOJ one, the US Federal Reserve two.

Research Methodology

The eight, major world central banks were chosen as the sample to analyze the efficiency of single and dual mandate banks in achieving their mandates. While these central banks have similar forms of operation and structure, their mandates and long-term goals differ (Lien 2006). The eight world central banks and their respective mandates are displayed in *Figure 1* below.

World Bank	Mandates	Target	Structure
US Federal Reserve (FED)	Price stability Maximum employment	2% inflation 4.5% unemployment	Dual
European Central Bank (ECB)	Price stability	2% inflation	Single
Bank of England (BOE)	Price stability	2% inflation	Single
Bank of Japan (BOJ)	Price stability	2% inflation	Single
Swiss National Bank (SNB)	Price stability	2% inflation	Single
Bank of Canada (BOC)	Price stability	1-3% inflation	Single
Reserve Bank of Australia (RBA)	Price stability Maximum employment	2-3% inflation	Dual
Reserve Bank of New Zealand (RBNZ)	Price stability	1-3% inflation	Single

Figure 1: Eight major world central banks and their mandates

Note: Unemployment target for Fed from Board of Governors of the Federal Reserve System (2018)

As *Figure 1* outlines, every major world central bank has a single mandate except for the US Federal Reserve and the Reserve Bank of Australia. This fact underlies the foundation of the research and to determine if banks pursuing a dual mandate are as efficient at reaching their objectives as banks centered on achieving a single goal.

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Prior to this research, the hypothesis formed was that there would not be a direct correlation between the number of mandates and bank efficiency. The primary reasoning for this conclusion was that conditions that may affect these mandates were subject to a variety of other economic, political, and geographic factors. Additionally, since there are only a handful of central banks with a dual mandate, it was hypothesized that the data would not be sufficient enough to proclaim whether a single mandate is better than a dual mandate – and that this may be the reason why the debate has stayed at the theoretical level. However, the ongoing controversy regarding the US Federal Reserve's decision to split resources and efforts to achieve two separate goals, despite the clearly more popular single mandate trend, is what prompted this research project and to determine if the data can truly support the Federal Reserve's current dual mandate structure.

To begin the research on which type of central banks' structure was more efficient at reaching its objectives, the price stability mandate was assessed. This mandate was common among all of the major world central banks, and not under scrutiny by any of the economic theorists or proponents and opponents of the debate. The price stability mandate was a clear priority and proven legitimate as an objective.

The world central banks measure the price stability mandate by inflation level. Each bank has a target inflation level based on forecasts of the future path of inflation and the country's projected economic growth (Jahan 2017). The target inflation levels for each major world central bank are shown in *Figure 1* above.

Despite the fact that each bank uses inflation as a measure of price stability, each country has a different index to account for inflation. While the index is not exactly comparable across

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country to country, how inflation is measured and what “basket of goods” are included in its CPI baseline does not affect its ability to reach its stated target. In other words, each central bank’s inflation target reflects the current conditions of the country; therefore, the target is specific to its respective CPI basket (Litra 2009).

The primary source used to gather historic inflation levels for the countries of the eight, major world central banks was through the Federal Reserve of Economic Data (FRED) website (Federal Reserve of Economic Data 2018). The data presented on FRED is conducted through the research department at the Federal Reserve Bank of St. Louis. This specific district of the reserve bank system is responsible for advising the bank president on matters of economic policy and contributes facts and figures to reports such as the Bureau of Economic Analysis, Bureau of Labor Statistics, and Census (Federal Reserve of Economic Data 2018).

In addition, data was included from the Organization for Economic Co-operation and Development (OECD) website. The OECD consists of 35 members dedicated to furthering economic development, sharing experiences, and solving problems. The OECD works closely with the International Monetary Fund, World Bank, European Commission, and individual governments to provide statistics, analysis, and trends of economic conditions (Organization for Economic Co-operation and Development 2018).

Beyond these two primary sources of data, supporting details from each of the individual central banks’ websites were used. All of these sources were cross referenced to ensure the research was accurate and consistent.

To analyze the price stability mandate, inflation levels for each bank were examined over the past twenty years. Although earlier inflation rates were available, this date range was chosen

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to reflect data that was in the context of when the price stability mandate for each bank was established. However, not every central bank established their mandate in the same year, so this was a general time frame intended to incorporate all eight of the major world central banks.

In addition, inflation data was analyzed on a monthly basis and statistical analysis conducted to determine the variance of each country's inflation rate from the individual target it set in its mandate. *Figure 2* below shows an initial comparison of each country's average variance to their target inflation rate. The blue columns represent single mandate banks, and the green columns represent dual mandate banks.

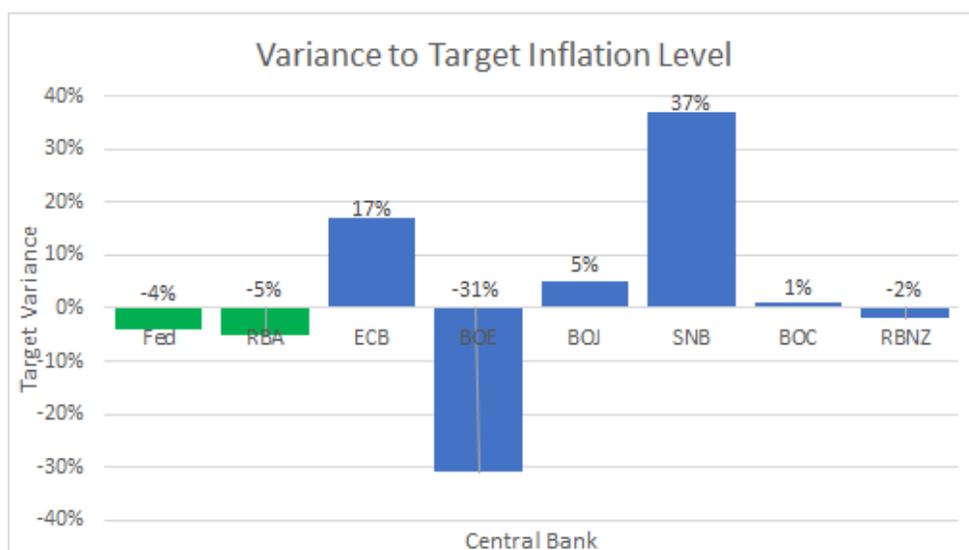


Figure 2: World banks' average inflation variance from mandated target

Based on the data above, the average variance of dual mandate banks as a group is 4.5% below their stated inflation rate. On the other hand, the average variance for single mandate banks is 4.5% above their stated inflation rate. Based on this analysis, both single and dual mandate banks have the same average variance from their target inflation rate, thus there is no

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difference in these two structures' efficiency in reaching their price stability mandate based on this measure.

In addition, price stability mandate efficiency was further analyzed by counting the number of times each country hit their target inflation rate exactly or was within one tenth of the target percentage. *Figure 3* below shows the results of this analysis, with the single mandate banks represented in blue and the dual mandate banks in green.

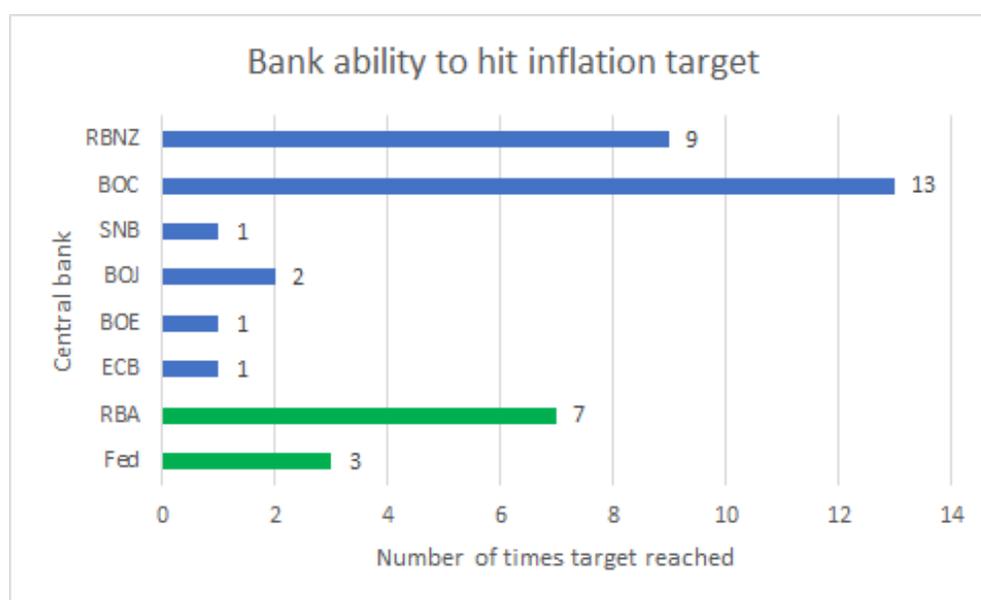


Figure 3: Number of times inflation target was met

Based on the data in *Figure 3*, the dual mandate banks hit their target inflation rate an average of once more than the single mandate banks. Single mandate banks hit their target an average of four times, and dual mandate banks an average of five times. However, this aspect was harder to measure and may not accurately reflect the single or dual group due to the fact that some banks had an inflation target range instead of a single percentage target. The target range takes into consideration a larger variance of rates and thus greater ability to reach the target. This

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is illustrated in *Figure 3*, as the three banks with the most number of target hits all have an imposed inflation range instead of a singular target number.

Overall, the price stability analysis proves that there is little to no difference in a single and dual mandate bank's ability to reach its target inflation rate. The variances were the same, and there was little to no difference based on the number of times they accurately hit their inflation goal. As a result, the study was expanded to determine if banks with the maximum employment mandate were more successful at keeping unemployment low compared to their bank counterparts that did not explicitly state employment as an objective. *Figure 4* below shows the average unemployment rate for single mandate banks in blue and for dual mandate banks in green.

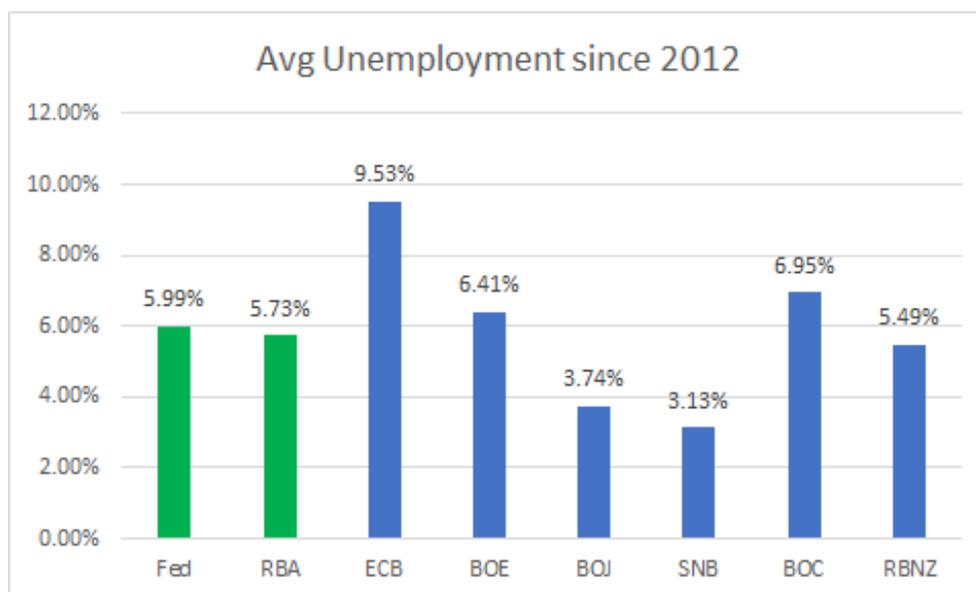


Figure 4: Average unemployment rates since 2012

The unemployment data was analyzed over a shorter time period due to a more limited availability of data. This was largely due to the later adoption of specific numeric employment goals. Additionally, starting the data series after the 2007-2009 financial crisis helps to avoid outliers in unemployment numbers, especially within the dual mandate group, as US

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employment was more far more affected by the financial crisis than Australia employment trends (Bureau of Labor Statistics 2012).

Based on the results shown in *Figure 4*, the average unemployment for the dual mandate banks was 5.85% compared to 5.14% unemployment for single mandate banks. Although these two averages are very similar, the results suggest that the banks that did not explicitly state maximum employment as a mandate were more successful in keeping unemployment low.

Discussion

After analyzing single versus dual mandate banks' inflation levels and unemployment rates, several conclusions regarding a central bank's efficiency can be made. First, there is not a noticeable difference between the variances to the stated inflation target for single and dual mandate banks. Based on the data observed, the single and dual mandate banks have the same inflation rate variance from their stated targets. As a result, single and dual mandate banks are equally efficient at reaching their target inflation rates.

Similarly, unemployment rates in countries with and without the stated unemployment mandate were comparable. However, the dual mandate banks had a slightly higher unemployment rate, despite this being one of their stated goals. This conclusion brings into question whether focusing on and achieving price stability also achieves low unemployment rates without explicitly stating it as a separate mandate.

While the results of the data analysis show no clear trend towards single mandate banks being more efficient than dual mandate banks, there were other factors that may have impacted the data that was collected. For example, major political or economic events that occurred in one country may have had a result on the inflation or unemployment rate for that specific time-

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period. There are many different factors outside of monetary policy that affect inflation rates such as an economic downfall or financial crisis. For example, the 2007-2009 crisis affected each of the different countries analyzed, although it may have affected one country's economic outlook more than another and thus skewed the data in that region.

In addition, the small number of world banks with a dual mandate is a limitation to this study. While there were several single mandate banks to aggregate and collect data averages from, the dual mandate banks did not have as large of a sample. Consequently, there is a greater margin for error for the dual mandate banks, and the confidence level in the accuracy of conclusions made is significantly lower. Small samples make it hard to define and exclude outliers and give more weight to a single bank than if there were numerous banks in a sample.

The small dual mandate sample limitation was one of the most surprising findings of this study. In the past, economic trends and structures in the US are imitated by other nations or very similar to other developed nations around the world. The fact that almost every other major world bank has a single mandate except for the US was surprising and added an extra challenge to drawing clear conclusions.

Furthermore, it was surprising that even though there were more single mandate banks with an inflation target range instead of a specific percentage number, that dual mandate banks hit their target inflation rate more. It would have made sense that the banks with an inflation range would have a better chance of hitting their target due to the built-in buffer for variance and since there were more single mandate banks with a target range, collectively the single mandate group would have hit their target more often than dual mandate banks. However, the data proved otherwise, which brings into question if each bank had an individual target instead of a range, if

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the data would lean even more in favor of dual mandate banks more accurately achieving their price stability mandate.

Despite these few surprises, it can be concluded that single and dual mandate banks both effectively seem to reach their mandates. However, future studies may be done to determine if the single mandate banks are using fewer resources and efforts to reach their goals than dual mandate banks. If both bank structures effectively reach their mandates, but those banks focused on only one use fewer resources, are they being more efficient? Why should a bank use more resources to pursue two goals, if pursuing one goal with fewer efforts is just as effective? Could the resources saved by having a single mandate be put to use elsewhere in order to continue to increase efficiency? All of these questions would be worth answering in a future study to further confirm whether a single or dual mandate structure is more efficient.

Beyond considering future studies, other next steps would be to look at economic theory and the link between unemployment and inflation. This may help to determine if the unemployment problem is naturally met by achieving price stability. If this is the case, it provides even more support in favor of a single mandate. Additionally, it is important to look at other possible benefits to focusing solely on price stability, including whether it encourages faster productivity growth or reduces social welfare losses (Kliesen 1995).

Implications

The results of this study are relevant for people outside of the realm of academia. For example, this analysis determined that single and dual mandate banks equally meet their stated objectives. However, there may be benefits to focusing on just one mandate including re-allocating the saved resources and labor to generate other general economic improvements that

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would prove beneficial for US citizens alike. Increased efficiency at the federal level, especially regarding the deployment of resources such as labor and money will have positive effects for everyone.

In addition, by more effectively reaching the inflation mandate and keeping unemployment low, more people will be able to find jobs, and potentially have better rates on loans. This will encourage an increase in business investment and consumer purchases of durable goods such as houses and cars. Uncertainty about how high prices will be in the future will be diminished and consequently people can be more confident in their purchases and making sound decisions (Bank of Canada 2013).

For those working at the Federal Reserve or in government positions, an increased efficiency within the system yields benefits beyond job stability and increased investment opportunities. If transitioning from a dual to a single mandate structure is more cost effective, attention and resources can be better aligned to new committees or departments looking for funding.

Other advice based on the findings of this research can be directed towards companies and corporate America as a whole. The results of this study can relate to everyday business tasks or a company's mission. As the data proves, there are multiple methods to achieve the same objective. However, sometimes the simpler, more focused method is the most efficient way to achieve the same outcome. Businesses should avoid spreading themselves too thin, when they might be just as productive by finding a narrower focus. Additionally, there are several studies that show that trying to achieve multiple goals or tasks at one time can create confusion as to which goal is the priority. At a study conducted at the School of Communication and Media at

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Korea University in Seoul, researchers found that those focused on multitasking had a lower level of comprehension than those given one clear goal (Jeong & Hwang 2012).

Furthermore, business processes should be checked for redundancy. Based on the research in this study, it appears that central banks solely focused on price stability were also simultaneously able to keep unemployment relatively low. On the other hand, dual mandate banks were focused on low unemployment as a separate task, despite the fact that it may already be resolved through its first mandate. While the economic theory behind this idea is not fully proven, the lesson to be learned is vital for all businesses to consider.

Conclusion

The conflict over the Federal Reserve's dual mandate is far from new. Developments in economic theory and political stances alike have all attempted to explain the US Federal Reserve's decision to maintain two mandates, unlike many of its world bank counterparts. Few comparisons have been made in the past, however this research is the first to isolate single and dual mandate banks as a group, and to draw conclusions about which structure is the most beneficial and effective at reaching its goals.

From the data analyzed, there were no drastic differences between the ability of single and dual mandate banks to reach their stated inflation target. Each group had the same average variance, and similar accuracy efforts in reaching its target. Overall, unemployment rates were generally the same for those who had it as an official mandate, and those banks that did not have it explicitly stated as a goal.

While there is a clear trend in the results, the limited availability of dual mandate bank data may reduce the confidence in these conclusions. This limitation is impossible to avoid,

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unless more major world central banks adopt the dual mandate structure and provide a larger pool to sample. Based on the research and findings of this study, this look improbable, therefore can only be recognized as a limitation, rather than resolved for future studies.

Despite this limitation, the results call us to question whether having a single mandate in the long run is more efficient. This study proves that dual and single mandate banks are remarkably similar in their achievements towards their policy objectives, yet single mandate banks are not required to split resources or use additional resources or efforts. From this, it's obvious that the next step in completing this analysis should involve analyzing exactly which resources central banks are using to achieve their mandates and the quantity used for both single and dual mandate banks compared.

Additionally, as this topic progresses, the ability to factor in the effect of outside economic or political events will become increasingly important as a method to further isolate the central bank structures for equal comparison. Whether unemployment was up during one year because of the central bank structure or an economic event is hard to determine, therefore this development will be vital.

Overall, this study proves that understanding the efficiency of single and dual mandate structures is important to maximize the potential of the US federal system and benefit all of its citizens. While one structure may not necessarily be much more effective than another, its important to see if there is a simpler, less wasteful way to reach the goal and thus continue growing and improving our central banking system.

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