WORKING paper

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# Perceived FOMC: The Making of Hawks, Doves and Swingers

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## ABSTRACT

Narrative records in US newspapers reveal that about 70 percent of Federal Open Market Committee (FOMC) members who served during the last 55 years are perceived to have had persistent policy preferences over time, as either inflation-fighting hawks or growth-promoting doves. The rest are perceived as swingers, switching between types, or remained an unknown quantity to markets. What makes a member a hawk or a dove? What moulds those who change their tune? We highlight ideology by education and early life economic experiences of members of the FOMC from 1960s to 2015. This research is based on an original dataset.

Keywords: Monetary Policy Committees; Federal Reserve; Policy Preferences

JEL classification: E03; E50; E61

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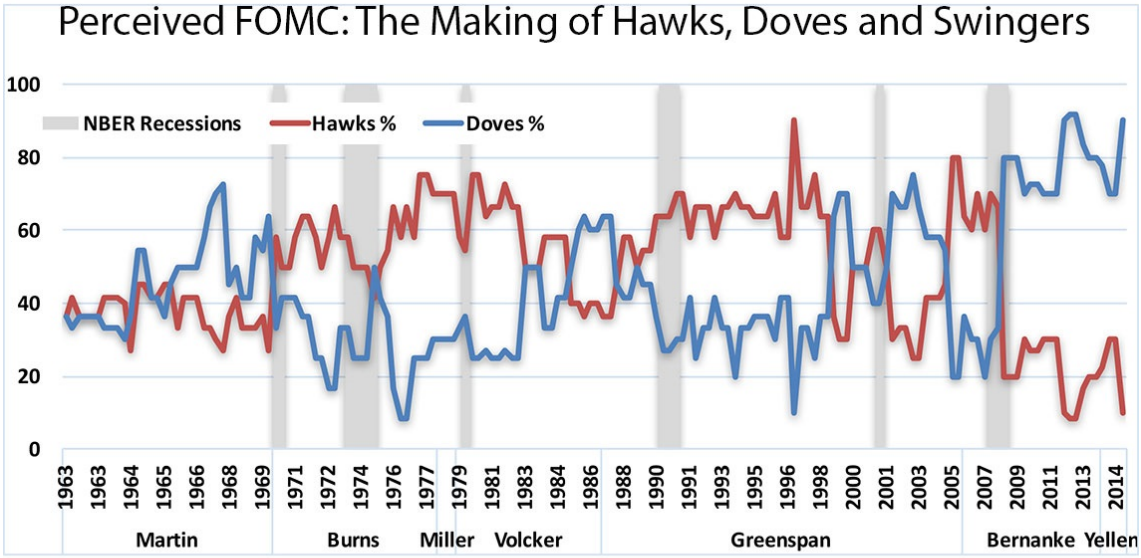
## NON-TECHNICAL SUMMARY

Commentators on monetary policy and market participants often refer to central bankers with labels hawk and dove, where a hawk is thought of assigning a higher priority to fighting inflation and a dove to supporting more output growth and employment. In this paper we ask what moulds the central banker's type as a hawk or a dove? We investigate this question, highlighting sources of heterogeneity amongst different types of central bankers within a monetary policy committee, focusing on the Federal Open Market Committee (FOMC) of the Federal Reserve. The central banker's type (which is not observable otherwise) is proxied by a hawk-dove measure of Istrefi (2017) that is built based on narrative records in U.S newspapers regarding the policy leanings of each FOMC member, serving from the early 1960s to 2015. Policy leaning of each FOMC member is checked with respect to the dual objectives of the Federal Reserve: maximum employment and stable prices.

Istrefi (2017) identified three policymaker's types: all time hawks (39 percent of the sample), all time doves (30 percent) and swingers, those who switched type over their tenure (24 percent). In this paper we investigate the sources of heterogeneity between the three types of central bankers primarily using insights from political science and social psychology, highlighting the formation of core economic and political beliefs during the early stages of life of a person. Based on this literature, we use the historical-economic background when FOMC members grew up and the ideas or 'theories' in fashion at places where they studied as source for some clues. In addition, we explore the match of our types with the political or/and institutional philosophies of those who appointed them and also investigate the FOMC years to understand the conditions (either economic or political) under which some FOMC members (swingers) changed their tune. The period under investigation covers 130 FOMC members and comprises the FOMC under seven Federal Reserve chairpersons, from William McChesney Martin to Janet Yellen.




Notes: The share of perceived hawks and doves for each FOMC (beginning and end of year), from 1963 to 2015. Perceived preferences are followed in "real time", where the assigned preference of FOMC members in a meeting m, year t is based on perceptions before meeting m. In the chart, the share does not always add up to 100, as it can be that the policy preference of one or more members is not known yet. Source: Istrefi (2017).

We find that the odds of being a hawk are higher when a member is born during a period of high inflation, graduated from a university linked to the Chicago school of economics ('freshwater'), and was appointed by a Republican president or by the board of a regional Federal Reserve Bank with established institutional philosophies. A dove is most likely born during a period of high unemployment, like the Great Depression, graduated in a university with strong Keynesian beliefs ('saltwater'), and was appointed by a Democrat president. Swingers share several background characteristics of the doves, but not always.
In addition we show that, hawks dissent predominantly for tighter policy, doves for looser policy and swingers dissent on both sides. The odds of dissenting for a tighter policy are higher when a member graduated from a university linked to the Chicago school of economics ('freshwater'). In turn, we observe that FOMC members born during the Great Depression have dissented more on the side of easer policy than FOMC members born before or post Great Depression.

# Pourquoi un décideur est-il un « faucon » ou une « colombe » ?

## RÉSUMÉ

Les archives de journaux américains révèlent qu'environ 70 % des membres du FOMC, en poste durant la période 1960-2015, sont perçus comme ayant des préférences persistantes en matières de politiques monétaires, que ce soit des faucons qui combattent l'inflation ou des colombes qui favorisent la croissance. Le reste bascule d'un camp à un autre au fil du temps. Qu'est-ce qui fait d'un membre un faucon ou une colombe ? Notre recherche souligne le rôle de la philosophie économique des départements d'économie où les membres du FOMC ont fait leurs études et les grands événements économiques qui ont marqué leur jeunesse.

Mots-clés : Comité de politique monétaire; Reserve Fédérale Américaine; préférences

## Introduction

Monetary policy decisions in recent years typically arise from the deliberation and vote of a committee.[1] The setting of policy in a committee involves the aggregation of diverse individual member preferences and views into a collective decision. Given the importance for monetary policy outcomes, the heterogeneity of these preferences and views is a constant interest for academics, financial markets and commentators on monetary policy.[2] To classify the diversity of preferences, the literature and financial markets use a traditional distinction, summarized in labels like hawk and dove, where a hawk is thought of assigning a higher priority to fighting inflation and a dove to supporting more output growth and employment. Dividing central bankers into inflation-fighting hawks or growth-promoting doves can be too simplistic. We agree. Yet, commentators on monetary policy, academics, even central bankers themselves, use these labels as convenient shorthand to summarize or communicate complex information on central bank governance and the setting of monetary policy.

What moulds the central banker's type as a hawk or a dove? We investigate this question, highlighting sources of heterogeneity amongst different types of central bankers within a monetary policy committee, focusing on the Federal Open Market Committee (FOMC) of the Federal Reserve. The novelty of this paper relies on two original elements: i) the measure characterizing the policymaker's type and, ii) the source of heterogeneity among types. In this paper, the central banker's type (which is not observable otherwise) is proxied by a hawk-dove measure that is informed from all the relevant information coming from the policymaker's backgrounds (origins, education, political interests and supporters), their economic beliefs (expressed in writings, testimonies, speeches) and actions (votes and dissents), as quantified in Istrefi (2017). This measure is based on narrative records in U.S newspapers regarding the policy leanings of each FOMC member, serving from the early 1960s to 2015, with respect to the dual objectives of the Federal Reserve: maximum employment and stable prices. Looking at perceptions for each member over their FOMC tenure, Istrefi (2017) identified three policymaker's types which will be part of our investigation: all time hawks (39 percent of the sample), all time doves (30 percent) and swingers, those who switched type over their tenure (24 percent). The rest remained an unknown quantity to markets.

[1] Well-designed committees are thought to be superior to individual decision-making because of the pooling of knowledge, the diversity of views or the checks it provides against extreme preferences or autocratic power (Blinder, 2004). Because monetary policy committees are important for policy outcomes, a considerable literature is dedicated to their optimal design (see, for example, Sibert 2006 and Reis 2013).

[2] For instance, with respect to Federal Reserve's FOMC, see among others, Belden (1989), Havrilesky and Gildea (1991), Chappell et al. (2005), Eijffinger et al. (2015), Malmendier et al. (2017). With respect to the Bank of England, see for example, Gerlach-Kristen (2009) and Harris et al. (2011).

In this paper we investigate the sources of heterogeneity between hawks, doves and swingers primarily using insights from the literature on political science and social psychology. This literature suggests that people form their core economic and political beliefs during early stages of life, and keep them mainly unaltered thereafter. In this context, we use the historical-economic background when FOMC members grew up and the ideas or 'theories' in fashion at places where they studied as source for some clues. In addition, as FOMC members are appointed to their positions, we explore the match of our types with the political or/and institutional philosophies of those who appointed them. While our focus is on determinants before joining the FOMC, we investigate the FOMC years to understand the conditions (either economic or political) under which some FOMC members changed their tune. The period under investigation covers 130 FOMC members and comprises the FOMC under seven Federal Reserve chairpersons, from William McChesney Martin to Janet Yellen.

There are no clear-cut answers as to what makes a hawk, a dove or a swinger. However, some tendencies are clear. We find that the odds of being a hawk are higher when a member is born during a period of high inflation, graduated from a university linked to the Chicago school of economics ('freshwater'), and was appointed by a Republican president or by the board of a regional Federal Reserve Bank with established institutional philosophies. A dove is most likely born during a period of high unemployment, like the Great Depression, graduated in a university with strong Keynesian beliefs ('saltwater'), and was appointed by a Democrat president. Swingers share several background characteristics of the doves, but not always. Although swingers often follow the majority view, three main reasons seem to have sparkled the swing waves in the FOMC during 1960 to 2015: i) serious economic issues facing the central bank (i.e. the Great Inflation of the 1970s), ii) intensified discussions about optimal monetary policy framework (i.e the discussion on price stability and inflation targets in the early 1990s), and iii) a new understanding of the economy (i.e following Greenspan's view in the late 1990s). The hawkish swing waves of the early 1970s and 1990s match well with the majority of dissents from swingers casted for tighter policy.

These results contribute primarily to the literature that studies central bankers' policy preferences and their determinants, focusing on the Federal Reserve. In relation to the existing literature, not only on the FOMC but on other monetary policy committees as well, we look at this question with a tailor-made measure on policy preferences of each individual committee member that is based on real-time, time-varying and rich information set. Traditionally policy preferences and diversity of views in the literature are proxied with voting patterns of central bankers, more specifically with dissents for easier or tighter policy. However, as already discussed in the literature, the information content of individual votes and dissents is rather limited with respect to diversity, especially for committees that favor consensus, like the

FOMC.[3] Dissents are rare (only 7 percent of the total votes during period 1960-2015) and they are casted by few members (only 37 percent of the members have dissented at least twice). Differently, the hawk-dove preference measure of Istrefi (2017) is based on a larger information set than votes, therefore being able to assign a unique policy preference to each FOMC member (93 percent of the 130 FOMC members in our sample), what is missing in existing studies.[4] In addition, novel to the literature, this measure allows studying the persistence of the policy preference, where three types emerge: the persistent hawk, the persistent dove and those that switched camps over time, i.e. the swingers.

Furthermore, while several papers have studied the determinants of central bankers' diversity in voting patterns, none of them presents an explicit theory of the formation of central banker's preferences, i.e. how these preferences are molded. The existing literature has examined differences in the voting patterns across different groups (externals vs internals, Board vs Presidents), educational degree and career characteristics of the individual (years of experience in business, law, Fed, government, academia), characteristics of the appointment which placed the individual on the FOMC or regional economic developments (see among others, Belden (1989), Havrilesky and Gildea (1991), Chappell et al. (2005), Eijffinger et al. (2015) for the FOMC and Gerlach-Kristen (2009) and Harris et al (2011) for the Bank of England).

Taking a different approach, we use insights from political science and social psychology, highlighting the formation of core economic and political beliefs during the early stages of life of a person.[5] In this context, we link and contribute also to these two strands of literature, by stressing two factors as shaping the preferences of a technocratie central banker, the ideology by education (i.e. 'freshwater' versus 'saltwater' school) and great events and macroeconomic experiences during the early years (from birth to mid-20s). The latter goes in line with the findings of Malmendier et al. (2017), who use life-time inflation experience of FOMC members to explain heterogeneity in voting behavior. Instead, in line with insights from social psychology, we focus on great events that happened only in forming, the early-stage years of life of FOMC members, with important consequences not only for inflation but for unemployment as well. This is crucial, since the Fed has a dual objective of maximum employment and stable prices.

[3] For instance, Meade (2005) found that during the Greenspan's time as chairman dissents accounted for only 7.5 percent of the votes, while the internal disagreement was estimated to be about 30 percent. Therefore internal disagreement does not always show up in a dissent.

[4] Eijffinger et al. (2015) use internal information from FOMC transcripts to build a dataset of hypothetical votes (preferences for interest rate relative to the chairman's interest rate proposal) for the period 1989-2007 as in Meade (2005). This information is fed into a Bayesian ideal points model, from which ideal points for each FOMC member are derived and interpreted in a dove-hawk scale. The estimated ideal points are not pure measures of the personal preference but a mix of different influences and the latent personal preference.

[5] Some examples in the literature that tie personalities to early-life experiences and highlight ideas are Elder (1998), Giuliano and Spilimbergo 2014) and Rodrick (2014).

In a robustness check exercise with FOMC voting patterns and dissents, we confirm that hawks dissent predominantly for tighter policy, doves for looser policy and swingers dissent on both sides. Furthermore, we show that the odds of dissenting for a tighter policy are higher when a member graduated from a university linked to the Chicago school of economics ('freshwater'). In turn, we observe that FOMC members born during the Great Depression have dissented more on the side of easer policy than FOMC members born before or post Great Depression.

The paper is organized as follows: Section 1 describes how the individual FOMC member's type is quantified and some summary statistics. Section 2 discusses the sources of heterogeneity between types and Section 3 provides a comparison with voting patterns. Finally, Section 4 concludes.

## 1 Who are the Hawks, Doves and Swingers?

In revising the lessons from history in choosing a Federal Reserve chair, Romer and Romer (2004) suggested that certain background characteristics like education, job experience and political partisanship can be informative on the economic views that a future Fed chair might have. More informative, they stressed, are narrative records of their economic beliefs, as expressed in their writings, testimonies and speeches before joining the Fed. Unsurprisingly, this approach is the daily business of financial analysts and other people who do the watching of not only the Fed chair but of all the FOMC members, with the aim to forecast future policy moves. To summarize the economic beliefs and policy leanings of the policymaker, Fed watchers often use labels 'hawk' and 'dove', where a hawkish central banker is assumed to assign more priority to fighting inflation and the dovish one to supporting more output and employment.

Istrefi (2017) collects the perceptions of Fed watchers and other analysts as reflected in the US media and builds a measure of policy preferences (a hawk–dove index) of the FOMC. The narrative record in the media is used as a public source and a filter of all relevant information about these policymaker's backgrounds, their political interests and supporters and their economic beliefs. These beliefs are expressed in their writings, testimonies and speeches before joining and during their time at the Fed and in their policy actions (votes and dissents). To build the Hawk-Dove measure, about 20,000 articles or reports, from more than 30 newspapers and business reports of Fed watchers, referencing to 130 FOMC members were consulted. [6]

The hawk-dove index is quantified at the individual level for 130 FOMC members serving between 1960 to 2015, comprising the FOMC under seven Federal Reserve Chair persons: William McChesney Martin, Arthur Burns, William G Miller, Paul Volcker, Alan Greenspan, Ben

[6] Due to the particularity of the exercise the process involved human reading rather than text mining/reading algorithms.

Bernanke and Janet Yellen. At each point in time, for each member, the observation is based mainly on a common definition, which is the policy leaning with respect to the dual objective of the Fed: maximum employment and stable prices. As such, within an FOMC, for the same objective and same economic conditions, some members are perceived to be on the hawkish side and some on the dovish side, i.e. some worrying about inflation while others about the possibility of a recession. For example, the New York Times in 2015 writes: "*In the language of monetary policy, hawks are policy makers like Mr. Plosser and Mr. Fisher who are constantly urging a war on inflation, while doves are those who see less threat from inflation and more opportunity to stimulate economic growth. Hawk is a label that Mr. Fisher, in particular, once publicly embraced […] In their final years at the Fed, both Mr. Plosser and Mr. Fisher abandoned warnings that faster inflation was imminent, arguing instead that the Fed was risking a future surge in inflation.*"[7]

Even though the index is expressed in terms of hawks and doves, its measurement takes into account that perceptions of FOMC member's preferences have been summarized in different words over time (i.e. conservative, liberal, easy money guy, tight money guy, inflation dove or inflation hawk, among others) and that perceptions are also expressed indirectly whenever FOMC members are cited about their positions with respect to the actual or future inflation and economic growth (unemployment, recession risks) or their preferred direction of policy. For instance, in 1987, at the time of the nomination of Greenspan by President Reagan to replace Volcker, the New York Times described him as: *"[] like Mr. Volcker, [he] is an avowed inflation-fighter who believes that excessive growth of the nation's money supply is the primary cause of inflation."*[8] One example on the dovish side relates to Janet Yellen. In expectation of her joining the Board and the FOMC in 1994, the Financial Times wrote: "*And the balance of power within the Fed is already shifting toward the 'inflation doves'. Mr Blinder and Ms Yellen are competent macro-economists. But as self-proclaimed 'pragmatists' in the Keynesian tradition, they are certain to be less hawkish than the Republican appointees they replace. And as future Fed vacancies arise, the tilt towards 'growth-oriented' policies will become more pronounced.*"

Istrefi's (2017) perceived hawk–dove index for the FOMC serving during the period 1963-2015 is presented in Figure 1. This measure varies considerably over time, featuring hawkish and dovish majorities.[9] The time dimension of the index captures changes in the preference composition of the FOMC due to the annual rotation scheme of the FOMC, to the turnover of members or

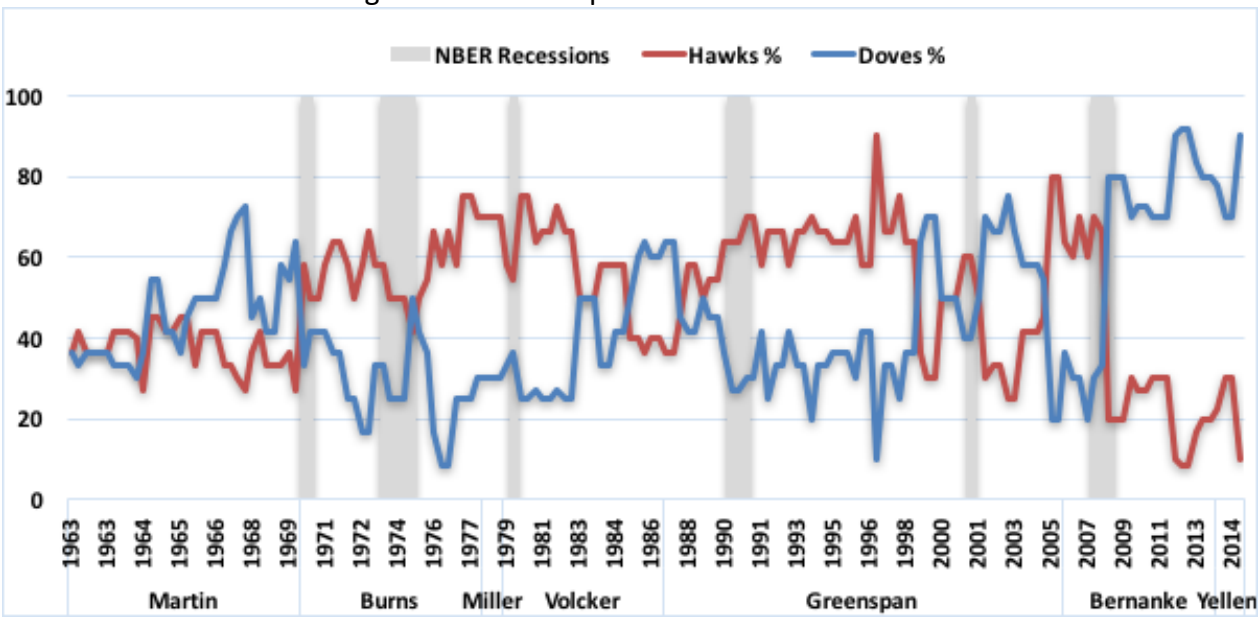
[7] "Playful Parting Gifts Show Heads Aren't Inflated at the Fed", New York Times, 21 March 2015.

8 "Man in the news; A Laissez-Faire Pragmatist: Alan Greenspan", New York Times, 1987.

[9] The hawk/dove categorization is relative to the FOMC on which the member sits. For example, *The Washington Post* in 1989 writes: "Of the seven Federal Reserve Board members, some are less tolerant of inflation than others, notably Wayne Angell and possibly Chairman Greenspan and the newest member, John P. La Ware, the only Democrat. Martha R. Seger, Manuel Johnson, H. Robert Heller and Edward W. Kelley Jr. have shown little or no commitment to reducing inflation to a negligible rate." ("Ridding America of Chronic Inflation", 10 February 1989).

swings in preferences (the perception that a member swung from a hawk to a dove or vice versa). Overall, hawkish majorities in the FOMC are perceived predominantly during Arthur Burns', Paul Volcker's and Alan Greenspan's years as chairman. Furthermore, dovish majorities are mainly perceived during the last years of several chairmen, i.e. the second part of the 1960s under Martin, the early 2000s under Greenspan and the late years of Ben Bernanke. Janet Yellen joined in 2014 an FOMC that was predominantly perceived as dovish.

Figure 1 Perceived preferences of the FOMC




Notes: The share of perceived hawks and doves for each FOMC (beginning and end of year), from 1963 to 2015. Perceived preferences are followed in "real time", where the assigned preference of FOMC members in a meeting *m*, year *t* is based on perceptions before meeting *m*. In the chart, the share does not always add up to 100, as it can be that the policy preference of one or more members is not known yet. Source: Istrefi (2017).

The hawk-dove index of the FOMC is a subjective measure, and is not necessarily a true reflection of the balance of opinion on the FOMC, which is not observable. However, Istrefi (2017) shows that the evolution of this measure matches well with narratives on monetary policy in the US, with voting patterns (dissents) of the FOMC and with preferred interest rates as measured by Chappell et al. (2005).[10]

[10]Particularly interesting is the evolution of the measure during mid-1960 to 1990, corresponding with the rise of inflation and ending with Volker's disinflation. Istrefi (2017) provides a detailed discussion on how Martin's, Burns' and Miller's FOMCs were perceived in this period. For instance, during 1970s the FOMC is perceived to be hawkish, which might sound surprising ex-post knowing the evolution of inflation during these years. The perceived inflation-averse FOMC during the 1970s goes in line with the policymakers' misperceptions' hypothesis (see Orphanides 2000, DeLong 1997, Romer and Romer, 2002 and Primiceri 2006). This literature argues that bad inflation outcomes

The hawk-dove measure of 130 FOMC members reveals that about 69 percent of them are perceived to have had persistent preferences over their FOMC tenure, as either hawks (39 percent) or doves (30 percent). The rest are perceived as swinging camps (24 percent), or remained unknown (see Table 1).[11] Within the FOMC composition, Reserve Bank presidents are systematically perceived as more hawkish and the Board of Governors members as more dovish. In terms of gender, men in the FOMC are perceived slightly more on the hawkish side. Female FOMC members have been perceived mostly on the dovish side.[12]

In terms of education, about 60 percent of FOMC members have a doctorate degree (either a PhD in Economics or a JD Law). On relative terms, hawks form a slightly larger share among the members with a PhD in Economics, in contrast to those with a law degree where doves and swingers dominate (although the sample is too small for strong conclusions). When looking at education by subject, again hawks are in the majority among economists but not among members with an education in law, banking or management. Looking at religion (data only for the 48 percent of the sample), we observe that Protestants tend to be hawkish, Jewish slightly dovish and Catholics in the middle.[13] In the following we discuss in more detail how some of these characteristics relate to the preference perceptions of FOMC members.

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of the 1970s reflect mistakes of well-meaning, optimally behaving central bankers, given what they knew about the economy in real time.

[11]The group of swingers comprises FOMC members who often are considered as 'middle-of the-roaders' or 'centrists', switching camps either for some years or as having a complete 'change of heart'. The most recent example of a swing is that of Narayana Kocherlakota (FRB of Minneapolis, 2009-2015), who in 2011 made a (highly publicised) shift from being a noted hawk to becoming a dove.

[12]The majority of women in the FOMC (11 of 14 of them) started their tenure after the 1990s, a period that is characterised by a dovish trend in male members as well. For instance, for the period 1991 to 2015, out of 35 new male members, 12 were perceived as hawks, 13 as doves and 9 as swingers. Almost all women perceived as doves are from the Board of Governors, studied in universities with Keynesian beliefs, like Harvard or Yale, and were nominated to their position by a democrat president, like Clinton and Obama. The three hawkish women in the sample have represented the regional Feds that are known for a higher inflation-fighting appetite like the Cleveland Fed with two hawkish women as Fed presidents (Horn and Mester).

[13]This categorisation lines up with voting in US presidential elections. The subtleties of denomination would give a more nuanced picture.

Table 1 Summary statistics: persistent hawks, persistent doves and swingers

| | HAWK | DOVE | SWINGER | UNKNOWN | PERCENT TOTAL |
|---|---|---|---|---|---|
| **Gender** | | | | | |
| Male | 48 | 31 | 28 | 9 | 89.2 |
| Female | 3 | 8 | 3 | 0 | 10.8 |
| **Position in FOMC** | | | | | |
| Board of Governors | 14 | 31 | 12 | 0 | 43.8 |
| Regional Fed President | 37 | 8 | 19 | 9 | 56.2 |
| **Education, highest degree** | | | | | |
| Ph.D. | 28 | 23 | 17 | 1 | 53.1 |
| J.D. Law | 1 | 4 | 3 | 1 | 7.7 |
| **Education, Subject** | | | | | |
| Econ./Pol. Economy | 35 | 29 | 19 | 1 | 65.6 |
| Other | 15 | 9 | 12 | 8 | 34.4 |
| **Religion** | | | | | |
| Mainline Protestants | 16 | 5 | 9 | 4 | 26.2 |
| Catholics | 3 | 0 | 3 | 1 | 5.4 |
| Jewish | 8 | 9 | 4 | - | 16.2 |
| Mormon | 1 | 0 | 0 | 0 | 0.8 |
| **Last job prior FOMC** | | | | | |
| Federal Reserve | 17 | 10 | 12 | 5 | 34.1 |
| Government/public sector | 15 | 12 | 8 | 1 | 27.9 |
| Banking | 6 | 9 | 5 | 2 | 17.1 |
| Academia | 4 | 5 | 3 | | 9.3 |
| Other (Industry, Army) | 9 | 3 | 3 | | 11.6 |
| **Tenure (in years)** | | | | | |
| Min | 1.3 | 1.4 | 3.8 | 1.1 | |
| Median | 6.7 | 5.3 | 10.8 | 2.3 | |
| Max | 24.5 | 23.0 | 20.3 | 8.1 | |
| **All ( percent)** | **39.2** | **30.0** | **23.8** | **6.9** | |

Notes: Summary statistics for a total of 130 members serving in the FOMC during the period of 1960 to 2015. Data on background mainly from: https://www.federalreservehistory.org/people. Data on religion are collected from different sources, like Wikipedia, newspapers, obituaries (where memorial ceremony took place), biography websites, in what church they got married, if they were members of religious group or from their charity supports.

## 2 What Factors Could Mould the Type?

We start by investigating two main factors that might have moulded our FOMC members in the early years of their lives: ideology by education and life experience. In a next step, we look at the ideology (political and institutional philosophies) of those who appointed these members, which brings into discussion partisanship in monetary policy. Finally, for swingers especially, we explore in detail some background characteristics and the economic environment during FOMC to understand when swings occur.

### 2.1 Ideology by education

As Rodrick (2014) puts it, "the role of ideas in determining preferences has crept into various strands of research in economics". In many of these works, preferences are not determined exogenously but through exposure to societal outcomes, media or early childhood experiences.[14] Importantly, such influence is believed to happen during the early stages of life, further suggesting that as people grow up they become inflexible in their core beliefs. Given that FOMC members are considered as technocrats, the institutions where these people studied (including the influence of teachers/mentors they had) could be natural habitats where their core economic ideas are formed.[15] Indeed, several interviews with Nobel Laureates in Economics show that it was the time during their university or graduate studies that marked their paths as an economist. For instance, in a summary of these interviews, Horn (2009) refers among others to James M. Buchanan and Gary S. Becker stating that it was studying at the University of Chicago that "turned them around" from their initial (socialist) beliefs.

Along these lines, one can think that FOMC members, and especially those that received a PhD in Economics, by training, hold certain assumptions about how the world works, that might be influenced by the economic thinking of the institution they graduated from. Since graduate studies are usually done around the mid-twenties of age, one can think of beliefs formed in these institutions as persisting for a long time.[16,17] We look at the ideology by education in

[14] See Rodrick (2014) for a discussion.

[15] Interview with Milton Friedman in Snowdon and Vane (1997): "When you were a graduate student at Chicago, what interpretation did your teachers put forward to explain *the Great Depression?* Well that's a very interesting question because I have believed for a long time that the fundamental difference between my approach to Keynes and Abba Lerner's approach to Keynes, to take a particular example, is due to what our professors taught us. I started graduate school in the fall of 1932 when the Depression wasn't over by any means. My teachers, who were Jacob Viner, Frank Knight and Lloyd Mints, taught us that what was going on was a disastrous mistake by the Federal Reserve in reducing the money supply." Abba Lerner (1903–1982) was a Russian-born British economist who was taught by John R. Hicks, Lionel Robbins, and F. A. Hayek at London School of Economics. He was considered an avowed Keynesian.

[16] The average age at entry to a US PhD programme is 25-27 years (Stock and Siegfried 2001, Stock et al. 2011).

[17] Keynes (1936: 383-384) on ideas and age: "There are not many who are influenced by new theories after they are twenty-five or thirty-years of age".

relation to 'freshwater' and 'saltwater' schools of thought, over which there is a long debate in macroeconomics.[18] The debate was especially heated during the 1970s following an even older division between the monetarists and the Keynesians.[19] In the 'freshwater' group we have universities like Chicago, Carnegie Mellon University, UCLA and Johns Hopkins University while in the 'saltwater' group we have Harvard, Yale, MIT, and Berkeley, among others in each group.[20] About half of the FOMC members in our sample (53 percent) hold a Ph.D. in Economics, all being graduated between 1928 to 1990, years when the divide between the two schools was certainly more important than today.[21]

Figure 2 shows a good match between the types and the economic thinking of the institution they graduated from. Most 'freshwater'- PhD graduates are perceived as hawks, in line with the ideology of the Chicago school and its "off shoots" where Milton Friedman, Robert Lucas, Karl Brunner, Allan Meltzer and many others taught. The 'saltwater' PhD graduates appear rather balanced in type compared with 'freshwater' graduates. Nevertheless, we notice a clear dovish and swinging bias, in line with the thinking of this school of thought where Paul Samuelson, Robert Solow, James Tobin and Arthur Okun, among many others, taught. The proportions of hawks and doves under the 'freshwater' and the 'saltwater' PhD graduates are statistically different from each other (p-value of 0.008 and 0.08, respectively). These matches are not as striking for the non-PhD group (bachelor's, master's, MBA), where most are perceived as hawks irrespective of the school type. Nevertheless, doves have a larger share within the 'saltwater' schools, and swingers within the 'other' universities group. However, these proportions are not statistically different from each other.

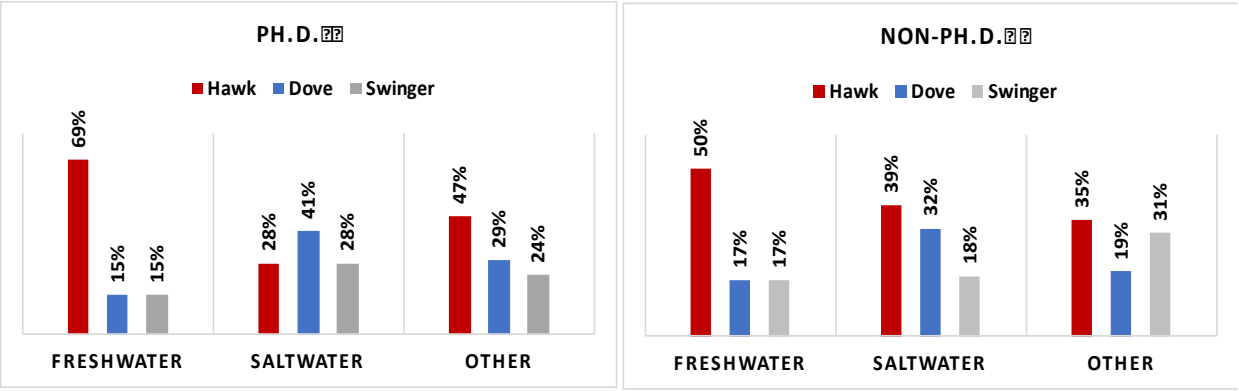
[18] These categories relate to the geographical location of universities with different views in macroeconomics ('freshwater' being closer to the Great Lakes in the US than to an ocean, and 'saltwater' being closer to an ocean).

[19] Hall (1976) was first to refer to the divide between 'freshwater' and 'saltwater' macroeconomists. As he wrote at the time: "As a gross oversimplification, current thought can be divided into two schools. The freshwater view holds that fluctuations are largely attributable to supply shifts and that the government is essentially incapable of affecting the level of economic activity. The salt water view holds shifts in demand responsible for fluctuations and thinks government policies (at least monetary policy) is capable of affecting demand."

[20] The geography of some schools has shifted over time, as there are several exports from one school to another.

[21] The majority graduated at a 'saltwater' university, owing to the high number of graduates from Harvard University (true for the non-PhDs too).

Figure 2 Ideology by education/schools of thought




## 2.2 Life experience: Great Depression and Great Inflation memories run deep

The role of one's environment on subsequent intellectual development is hardly any surprise. Great events leave great marks on people. For instance, it was the traumatic impact of the Great Depression that led several Nobel Laureates to pursue economics. In this regard, Friedman said: "Put yourself in 1932 with a quarter of the population unemployed. What was the important urgent problem? It was obviously economics and so there was never any hesitation on my part to study economics."[22] Along these lines, Samuelson, Phelps, Solow and many others considered the Great Depression as the most serious economic catastrophe they experienced (Horn, 2009). Unsurprisingly, times of economic hardship also influence preferences for social and economic policy. Research shows that growing up in a recession affects people's preferences towards more government redistribution and support for left-wing parties (Giuliano and Spilimbergo, 2014). Importantly, Greider (1987) argues that the memories of the Great Depression pushed policy-makers towards pursuing economic expansion and accepting the risk of inflation. Similarly, De-Long (2000) concludes that the Great Depression memories are the "truest" cause for the great inflation.[23]

Likewise, the Great Inflation of the 1970s had its own influence on central bankers who lived through it. Janet Yellen in an interview in 2009 told how just about every member of the FOMC

[22] Interview with Milton Friedman in 1996 in Snowdon and Vane (1997).

[23] The shadows of the Great Depression are also observed in the discussions of FOMC members. An article in the *Wall Street Journal* in 1974 cites a speech by Fed Governor John E. Sheehan as he refers to Friedman blaming the Federal Reserve for inflation. "Mr. Sheehan didn't argue with this [the economists'] analysis. "There isn't any lack of understanding on our board, nor lack of courage either," he said heatedly. But he added that a sharp cutback in money expansion would stall the economy and "would result in 15 to 20 percent unemployment by year-end, with 35 to 40 percent black unemployment and zero employment for black teen-agers. 'Milton could go to his farm (in Vermont) and sit this out but when he comes back he will find the cities burned down and the University of Chicago along with them," said Mr. Sheehan." ("Fed's Sheehan Warns Against Big Effort to Squeeze Inflation*", Wall Street Journal*, 29 March 1974).

committee was schooled on the experience of the Great Inflation. This was a formative event for her and for most of her colleagues that made them want to go into the field of central banking.[24] Beyond the intellectual choice, inflation experiences are found to also influence monetary policy views and the stated beliefs of these central bankers about future inflation (Malmendier et al. 2017). Using an estimated adaptive learning rule based on the lifetime inflation data of FOMC members since 1951, Malmendier et al. (2017) show that experience-based inflation forecasts have significant predictive power for members' FOMC voting decisions, the hawkishness of the tone of their speeches, as well as the heterogeneity in their semi-annual inflation projections.

How does life experience prior to serving on the FOMC square with the hawkish and dovish preferences of our FOMC members? In our sample, birth years of FOMC members fall between 1892 and 1970. This period includes four great events: World War I, World War II, the Great Depression and the Great Inflation of the 70s. To begin, we take the Great Depression as the main reference point and examine members with birth dates before, during and after this event. Several studies have shown that the life pattern of children born during the Great Depression differed significantly from those born one or two decades earlier. For instance, Elder (1998) compares the lives of American children participating in two longitudinal studies, the Oakland Growth Study (birth years 1920-1921) and Berkeley Guidance study (birth years 1928-1929), finding that Berkeley children were more adversely influenced by the economic collapse of the Great Depression than were the Oakland adolescents. This literature emphasises the role of time, place and linked or interdependent lives in explaining their life experience. Regarding linked lives, Elder (1998) argues that the influence of Great Depression on children born during these years could be only understood through the hardship adaptations of people who were important in their lives.[25] In this regard, Fed Governor Martha R. Seger (1984-1991), a baby of the Great Depression, recalls her memories as a child making deliveries with her mother and sister and listening to the difficult stories of defeat and destruction during the Great Depression.[26]

Figure 3 (left panel) displays the share of hawks, doves and swingers born before, during and after the Great Depression (corresponding to 59, 14 and 55 members, respectively). Indeed, the share of hawks dropped significantly within the cohorts that were born during the Great Depression and after it, compared with the pre-Great Depression period (p-value of 0.036 and 0.08, respectively).[27] The share of doves rose within the Great Depression and more significantly

[24] "Inflation memories run deep at central banks", Reuters, 29 July, 2009.

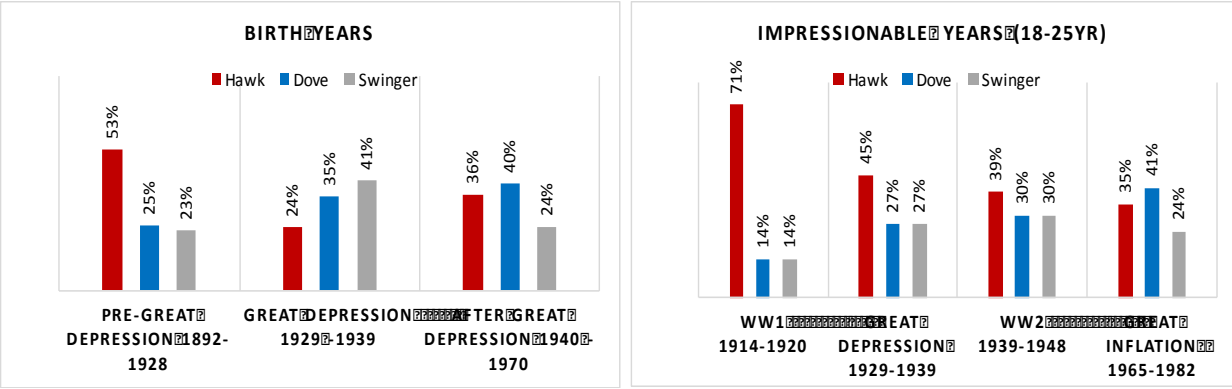
[25] Elder (1998) argues that indebtedness, income loss and unstable work increased the felt economic pressure of families, in turn affecting the quality of marriages and parenting.

[26] "Family Tradition", *Contact Magazine*, alumni magazine of Adrian College, Fall 2013, p. 31.

[27] Pre-Depression children as Federal Reserve chairs: Martin (hawk), Burns (hawk), Miller (dove), Volker (hawk) and Greenspan (swinger). Post-Great Depression children as Federal Reserve chairs: Bernanke (dove) and Yellen (dove).

after it (p-value of 0.42 and of 0.10, respectively). Swingers had the largest rise within the Great Depression (p-value of 0.07). Some of the Great Depression-born children are the Fed Governors Nancy Teeters, Martha R. Seger, John E. Sheehan and Jeffrey Bucher, all perceived as doves. In addition, there is Governor Philip C. Jackson and Theodore H. Roberts of the St. Louis Fed who are perceived as hawks and several swingers like, Fed Governor Wayne D. Angell, Edward W. Kelley and Silas Keehn of the Chicago Fed.

Figure 3 Great Inflation and Great Depression memories run deep




Note: WWI (1914-1924) and WWII (1939-1949), each period includes the years of the war plus post-war inflation years. Left panel: all FOMC members (n=119, excluding the unknown types); right panel: only FOMC members with impressionable years in the defined periods (n=89). The impressionable years are defined as ages of 18 to 25.

Next, we look at FOMC members with 'impressionable years' in one of the four great events: WWI, the Great Depression, WWII and the Great Inflation.[28] This investigation is once more motivated by the literature in political science and social psychology which suggests that people form their core economic and political beliefs mostly during the early stages of life (age 18 to 25), which then remain fairly unaltered for the rest of their lives.[29] Figure 3 (right panel) shows that the share of hawks is highest within cohorts with impressionable years during WWI (1914-1924). Further, the share of hawks drops while there is a build-up in the share of doves and swingers within the Great Depression, WWII and the Great Inflation cohorts.

Table 2 shows that the WWI period corresponds to years when the inflation rate reached 23.7 percent, the highest rate of the 20th century, while during the Great Depression the unemployment rate escalated to 25.2 percent. The WWII and Great Inflation periods both displayed a combination of high inflation and unemployment, raising the importance of

[28] Some members have impressionable years both during WWI and the Great Depression. This calculation includes only those that have unique impressionable years during the Great Depression.

[29] Among others, see Newcomb et al. (1967), Sears (1975) and Krosnick and Alwin (1989) for documentation on how political preferences formed during impressionable years are long lasting and difficult to change later in life.

inflation-unemployment trade-offs.[30] However, the rates of inflation and unemployment reached during these events were lower than experienced before.

Table 2 Inflation rate and unemployment rate over the four great events

| in percent | WWI 1914-1920 | Great Depression 1929-1939 | WWII 1939-1948 | Great Inflation 1965-1982 |
|---|---|---|---|---|
| **Inflation rate** | | | | |
| **mean** | 11,6 | -1,9 | 6,2 | 6,6 |
| **max** | 23,7 | 5,6 | 19,7 | 14,8 |
| **Unemployment rate** | | | | |
| **mean** | 4,8 | 18,1 | 5,5 | 5,9 |
| **max** | 11,7 | 25,2 | 17,2 | 10,8 |

Note: WWI (1914-1924) and WWII (1939-1949), each include the years of the war plus post-war inflation years.

### 2.3 The ideology of the party or the bank which appointed the FOMC member

FOMC members are appointed in their positions. Governors are appointed by the US president, with the approval of the US Senate, for 14-year terms. Each Reserve Bank president is appointed for a five-year term by his/her Bank's board of directors, with the approval of the Board of Governors. The appointment procedures of FOMC members are designed to minimize the influence of politics. However, those commenting on monetary policy always look at the ideology of the appointer to guess the policy leanings of their appointees. After all, at least with respect to politics and macroeconomic policies, there is a large literature on partisanship of monetary policy that might justify looking for clues in this direction. The perception of partisanship would suggest that Republican administrations prefer tighter monetary policy and place more emphasis on fighting inflation, while Democrats prefer easier monetary policy to support economic growth.[31]

Narrative records in the media show that partisanship perceptions are applied particularly to FOMC members who have not yet signaled their views on monetary policy through previous speeches or academic work, as this example from Reuters shows: “The Federal Open Market Committee meeting next month is unlikely to be influenced much by its two new members, Alice Rivlin and Laurence Meyer, monetary experts said. But many expect that in the long run

[30]Schuman and Scott (1989) conducted a study on generations and collective memories of American citizens in 1985. In a survey, a sample of 1,410 Americans were asked to report some important events in the last 50 years. The most recalled event was WWII, followed by the Vietnam War. The Great Depression ranked in the 8th position while inflation ranked in the 15th position. They also show that these memories are structured by age, with WWII or the Great Depression being more recalled by those that experienced them in their teens or early 20s.

[31] This view is known as the ‘Partisan theory’ of monetary policy. It was first formulated by Hibbs (1977), who argued that leftist parties in Europe and the Democratic Party in the U.S. have been more likely to choose a point on the Phillips curve with higher inflation and less unemployment than conservative parties in Europe and the Republican Party in the US. This view has found empirical support in Beck (1982), Stein (1985) and Alesina and Sachs (1988), among others.

the two Clinton appointees may shift the focus of the Fed more toward economic growth."[32] Therefore, as a first guess, the preference of the corresponding FOMC appointee is expected to be aligned with that of the appointer. However, initial perceptions can be further updated as more information on the actions of specific FOMC member becomes publicly known. Often, the additional information confirms first perceptions (the case of Rivlin). However, the opposite is also true (the case of Meyer) suggesting that hawk-dove labels do not always correlate with the members' party affiliations or party's preferences.[33]

FOMC members themselves never fail to stress that political or institutional philosophies get checked at the door and that their views on interest rates bear little if any relation to their politics. For instance, Greider (1987: pg 73-74) refers to Nancy Teeters (1978-1984), a Board Governor nominated by Jimmy Carter, recalling a conversation with Arthur Burns at a dinner party: "I said, "Arthur, you don't want someone like me on the Board of Governors with my liberal background." Arthur said, "Don't worry Nancy, within six months, you will think just like a central banker."[34] Edward W. Kelley (Board of Governors, 1987–2001) also points toward no political partisanship inside the Federal Reserve, as below:[35]

> **REGION**: *You and Chairman Greenspan are the two remaining Reagan appointees. Any significance?*
> **KELLEY**: At the Federal Reserve I am happy to say it has no significance whatsoever. There is a long tradition here—that is in my experience scrupulously observed—that there is no politically partisan component that interjects itself into the work of this central bank. We all either arrive with or very quickly adopt the viewpoint that our sole and only constituent is the American people and their economy. You will never be able to identify a partisan consideration in the discussions around this building.
> **REGION**: *Political philosophies get checked at the door?*
> **KELLEY**: Political philosophies get checked at the door. People maintain their own personal convictions and interests and networks. That's fine and that's appropriate, but in terms of the work of the Federal Reserve, I have never seen it emerge as a factor.

With these considerations in mind, in the following we examine the types of FOMC members (hawk, dove or swinger) in relation to the ideology of who appointed them, i.e. Board governors versus the party of the US presidents and at Regional Fed presidents versus the Regional Federal Reserve bank they represent. In our sample, we have 57 Board governors, 54 percent of whom are nominated by Republican presidents and 46 percent by Democratic presidents. The

[32] "Little impact seen on July FOMC from new members", 20 June 1996*, Reuters News*.

[33] In 1975, Burns wrote a letter to President Ford presenting his recommendation for Philip C. Jackson as the leading candidate to replace Sheehan who was resigning. Burns wrote that "the principal criteria I have been using in evaluating candidates are knowledge of the fields of finance and housing, managerial competence, strength of character and reputation, and broad economic understanding." A CV of Jackson is attached to the letter. In the CV it is written that Mr. Jackson is a Democrat. The Burns memorandum was returned in the President's outbox with the following notation from Jerry Jones to Bill Walker: "Arthur Burns gave me the attached. I told him to find out if Jackson is a working Dem or just a Dem by registration". Jackson was later confirmed as a Board Governor. He served for about three years and was perceived as a persistent hawk.

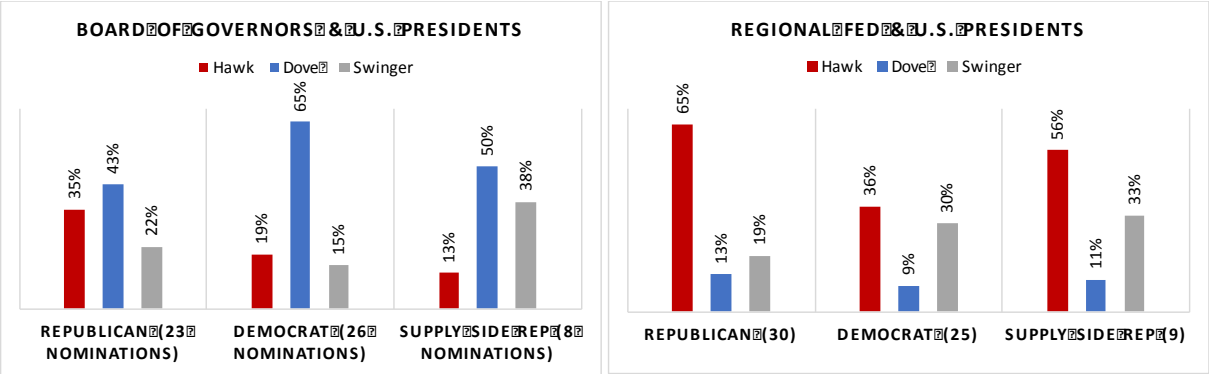
[34] Nancy Teeters (Board Governor, 1978-1984) was a persistent dove.

[35] *The Region*, September 1999 Issue, Minneapolis Fed.

Republican nominees can be further divided in two groups, the traditional Republicans and the supply-side Republicans, the latter corresponding to the Reagan presidency, which nominated about 14 percent of total Board members.[36]

What types have the Republican and Democrat presidents picked for the Board? Indeed, Democratic nominees have been mostly perceived as doves (p-value of 0.06) and very few as hawks. The share of hawks does appear higher within Republican nominees (p-value of 0.10) but a slightly higher share of them is also perceived as doves (left panel of Figure 4).[37] For instance, President Bush nominated eight Board members, four of which are perceived as doves, two as hawks and two as swingers. Furthermore, the supply side Republican nominations (President Reagan nominations) were perceived mostly as swingers and doves. In contrast, when looking at Regional Fed presidents (Figure 4, right panel), we observe a high share of hawks irrespective of the president's party. Nevertheless, even within the regional Fed president nominations, the share of hawks is higher under the Republican than Democrat Presidents (p-value of 0.07) and the share of swingers increases under a Democrat or supply side President (p-value of 0.05 and 0.20).[38]

Figure 4 Political or institutional philosophies get checked at the door?




Note: We consider only regional Fed presidents for which a policy preference is known (perceived).

Regional Fed presidents are appointed by their Bank's board of directors, and as such these appointments are not followed closely in relation to politics. Given that the Board of Governors approves these nominations, political influence on the choice could be transmitted indirectly

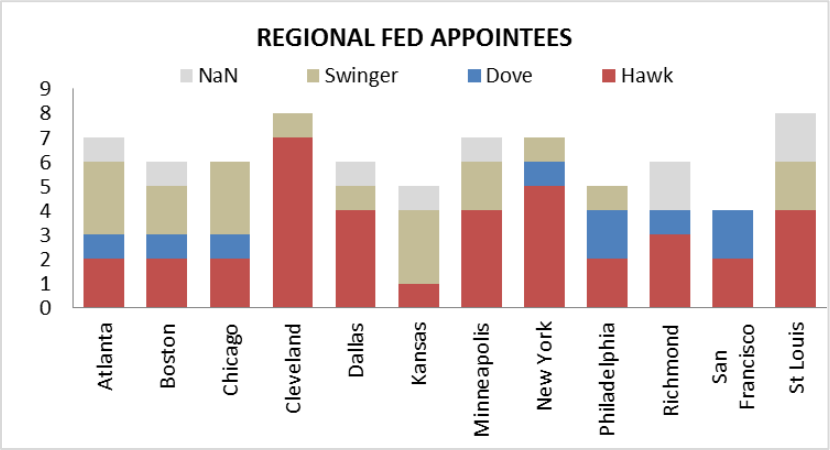
[36] Havrilesky and Gildea (1991, 1992) divided the Republican nominees into these two groups. Looking at FOMC dissents they have found the 'supply side' nominees of Reagan to lean towards easier monetary policies.

[37] Blinder and Reis (2005) argue that "a generation ago, monetary policy decisions had a clearly partisan cast: Democrats were typically softer on inflation than Republicans, who in turn seemed less concerned than Democrats about growth and employment. Those days are long gone now—and good riddance. While the FOMC has had its 'hawks' and 'doves' these labels have not correlated with the members' party affiliations in recent decades."

[38] The sample of supply side nominated FOMC members is small for meaningful conclusions.

through this link. However, this link could be weak, especially for regional Feds that have a long tradition of institutional ideology that they follow. For instance, the Federal Reserve Bank of St. Louis is often cited as the 'symbol of the monetarist school of economics' or the Cleveland Fed as having 'outspoken, inflation-fighting roots'.[39] In this respect, Fed presidents are often discussed as being picked for having beliefs that go in line with those of the regional Fed they represent. When the beliefs of Fed presidents are hard to pin down *ex ante*, the first guess is that they might follow the line of ideology or the tradition of the appointer. For instance, the New York Times in 1985 writes, "Robert P. Forrestal of the Atlanta Fed is too new to peg, but the bank he runs leans toward monetarism."[40]

Figure 5 Ideology in the regional Fed presidents




Note: A total of 74 Fed regional presidents, including those that moved from a Fed president to a Board of Governor position like Volcker, Coldwell and Yellen.

Figure 5 shows that several regional Feds have had presidents predominantly perceived as hawks: the Cleveland Fed (i.e. Winn, Jordan, Hoskins, Mester), the Dallas Fed (i.e. Coldwell, Boykin, Fisher), the New York Fed (i.e. Hayes, Corrigan, Volcker, Geithner) or the St. Louis Fed (i.e. Roberts, Roos, Poole, Bullard). Swingers, the most common type after hawks, are mainly perceived in the Atlanta Fed (Forrestal, Guynn, Patterson) and the Kansas City Fed (Clay, Guffey, Hoenig). Doves are mostly perceived in Philadelphia Fed (Boehne, Bopp) and San Francisco Fed (Swan, Yellen).

Beyond the institutional memory and ideology, several other factors could explain this distribution of types, such as the ties of the regional Fed with the Board of Governors (which is

[39]Back in the 1960s, the St. Louis Fed was considered the research arm of the University of Chicago. Milton Friedman was a student of Homer Jones, who was the research director and later senior vice president at the St. Louis Fed during 1958-1986.

[40]Monetarists Gain Influence, *New York Times*, 25 February 1985.

believed to have become more influential over time in choosing Fed presidents), how strong the ties of the regional Fed with the commercial banks of the region are, or the conservative versus liberal tendencies of regions.

### 2.4 Swingers: Education, tenure and experience in FOMC

> "*J Dewey Daane, an avowed "swinger" in policy [...] In policy matters, Mr. Daane is rather representative of the new breed's pragmatic approach, though he is sometimes criticized from the liberal side as not fully in tune with the "neo-Keynesian" economics of Gardner Ackley or of Walter Heller (the present and past chairman of the President's Council of Economic Advisors). "I am a neo-Keynesian", he protests." Wall Street Journal, 1967*[41]

An interesting breed of central bankers comprises those perceived to be in the swinging camp. Does the swing reflect a healthier approach to monetary policy, where members behave pragmatically and give different weights to the dual objective of the Fed as the economy evolves? Or do swingers go with the flow, following the camp that convinces them more? Further, 'a change of heart' takes time; have swingers spent longer in the FOMC than persistent hawks and doves? We discuss some of these questions below.

#### 2.4.1 Training/education and tenure

> *"In contrast, Robert Forrestal, president of the Atlanta Fed, has emerged as the lonesome dove among the presidents. Quiet and unassuming, a lawyer rather than an economist, Mr. Forrestal has made few waves during most of his seven years as a Fed policy maker. But in the past year, he has launched a muted rebellion against the anti-inflation group". Wall Street Journal, 1991*[42]

In relation to economic training, one could argue that non-economists have less strong views on how the economy works, and therefore side more often with the majority view (the '*go with the flow*' hypothesis). The non-economist group includes FOMC members with education in law (mostly doves and swingers), business management (equally shared among the three types), banking (mostly hawks), agriculture and public administration (swingers). Indeed, in our sample the share of swingers within the non-economist group is higher (33 percent) than within the economist group (23 percent). Thus, by training, being a non-economist and having graduated

[41] The Wall Street Journal article refers to J Dewey Daane who served in the Board of Governors during 1963-1974. He received a doctorate in public administration in 1949 from Harvard University. Source: "The Changing Fed: New Board Members Bring Liberal, Activist Approach", *Wall Street Journal*, 8 March, 1967.

[42] Robert Forrestal was the President of the FRB Atlanta during 1983–1996. Source: "Inflation Hawks: Fed Banks' Presidents Hold Private Positions but Major Public Role", *Wall Street Journal*, 1 August, 1991.

from universities with no immediate relation to 'freshwater'/'saltwater' schools increases the odds, albeit slightly, of being a swinger (see also Figure 2). Several articles in the press also point in this direction. For instance, Reuters in 1991 writes: "*The heads of the Cleveland and Chicago Fed, two major industrial cities, rotate every year. Hoskins will thus be replaced by Keehn, viewed as a more of a pragmatist and in touch with regional business. "Keehn is not an economist and that is paying him a compliment," said one economist. Both Keehn and Forrestal (a lawyer) are expected to go along with the consensus, said Kim Rupert, an economist at MMS International."*

A simple check of the '*go with the flow'* hypothesis is to look at policy votes and particularly who is dissenting (going against the majority and the Fed chair). For the period from 1960 to 2015 there have been 432 dissents, of which 426 belong to FOMC members for whom we have information on their education. Around 73 percent of these dissents come from the economist group (this also reflecting that the economists are in majority in our sample). Furthermore, the share of those that always agree with the majority on monetary policy decisions is higher for the non-economists group, 60 percent, than the economists group, 34 percent, (p-value of 0.005). Generally, non-economists seem to favour consensus, although within this group there are also 'rebels' with 13 to 25 dissents, a rate of dissent comparable to the most rebellious economist (26). Regarding tenure, it is true that swingers have spent more years at the FOMC (in terms of minimum and median years). Nevertheless, we also observe that the hawk or dove perception is persistent even for those that had more than 20 years in the FOMC (see Table 1).

### 2.4.2 Economic developments during the time spent at the FOMC

Figure 6 shows the distribution of swingers over time within the FOMC (the share of members who were perceived to shift from doves to hawks is in red, and the share of members who were perceived to shift from being hawks to doves in blue). While the 'true' swing of an FOMC member might have happened earlier, Figure 6 reports the time when the switch is generally perceived and considered. Overall, we observe regular swings of one or two members in both camps, but also several periods when over 20 percent of the FOMC comprises swingers. Most striking are the perceived swings during the early to mid-1970s and during the 1990s to the mid-2000s.

The hawkish swing perceived in late 1969 to 1974 corresponds with a period where inflation increased from an average of 1.3 percent during the first part of 1960s to 6 percent in 1970, and to 12 percent by 1974. Three Board members stand out as swinging from dove to hawk camps: Robertson, Brimmer and Daane. Until 1967, Robertson (Board of Governors, 1952–1973) was

considered as leading the block favoring liberal policy, in contrast to Chairman Martin's block favoring a harder money policy.[43] Daane (Board of Governors, 1963–1974) was expected to be a 'conservative' appointee of President Kennedy but then by 1965 was seen as switching camps, "sometimes voting with Martin, Balderston and Shepardson, who usually vote together on board policies and sometimes with Robertson, Mitchell and Maisel, who usually vote as a bloc".[44]

Lastly, Brimmer (Board of Governors, 1966–1974), when appointed by President Johnson, was also expected to weaken the control of Chairman Martin. At the time of his nomination in 1966, Los Angeles Times writes: "President Johnson's surprise appointment of Andrew F. Brimmer as a member of the Fed board will weaken the control of Chairman Martin has exerted for many years. On the other hand by appointing a middle-of-a-roader instead of a flaming liberal, Mr Johnson has probably averted the possibility that Martin will quit. [...] Brimmer and J. Dewey are expected to constitute a pair of swing votes. Liberal Democrats were generally pleased. "Brimer may be a middle -roader," one close to the White House said. "But you can bet it's Lyndon's kind of middle road." [45]

Nevertheless by 1970, with inflation rising, the three of them, Robertson, Brimmer and Daane, were seen more often on the anti-inflation side of Martin. They were perceived to keep this stance even after Martin's chairmanship ended. In 1969, the Chicago Tribune refers to Robertson as "J. L. Robertson, setting out a hard-line anti-inflation policy, underlined the split within the powerful and independent credit-controlling Board between advocates of easing now and a majority determined to hold credit tight."[46]

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[43] "But now there are two general groups - one headed by Fed chairman, Martin, and the other by Robertson. In general Martin tends toward a harder money policy [...] Robertson on the other hand, is more inclined towards an easier monetary policy [...]. Joined with Martin in this loose grouping are vice Chairman Balderson and Shepardson. With Robertson are Mitchell and the new member Maisel. Somewhere in the middle is Daane." ("Robertson Shakes Some of the Reserve Out of Federal Reserve Board", *Los Angeles Times*, 26 September 1965).

[44] "The most interesting testimony however may come from J Dewey Daane, an appointee of President Kennedy and a former assistant secretary of the treasury who believes in the "new economics" of the Kennedy-Johnson era that Martin mistrusts but who cast the key vote in the 4 to 3 decision. Daane is referred to as the board's swing man, sometimes voting with Martin, Balderston and Charles N Shepardson, who usually vote together on board policies and sometimes with Robertson, Mitchell and Maisel, who usually vote as a bloc." ("Rep. Patman Orders Interest Hike Quiz", *Chicago Tribune*, 8 December 1965).

[45]"Federal Reserve Chief's Control Seen Weaker: Brimmer, New Member, Will Probably Vote Occasionally with Liberal Bloc", *Los Angeles Times*, 27 February 1966.

[46] "Fed Aid: No Easy Credit in Inflation", *Chicago Tribune*, 11 December 1969.

By 1975, with inflation still at double double-digit levels, a dovish swing is perceived for some outspoken anti-inflation hardliners, like Eastburn (FRB Philadelphia, 1970–1981) and Wallich (Board of Governors, 1974–1986). During this period, their actions did not match their words, as they supported an easier monetary stance than the majority. There are several newspaper articles quoting Eastburn talking about the worst peacetime inflation and if inflation is to be moderated, the growth in money must also be moderated.[47] However, in deciding interest rates, Eastburn dissented three times (once in 1973 and two times in 1975) in support of an easier monetary stance than the majority.[48] Similarly, Wallich dissented twice, in 1974 and 1977, in support of easier monetary policy.[49, 50] Wallich was a member of the Board until 1986. From 1978 onwards he was perceived as one of the strongest hawks on inflation.

The second wave of hawkish swingers is perceived during the 1990s. There are several observations regarding this period. First, by late 1980s there was a surge of inflation, which reached up to 6 percent in 1990. Second, the early 1990s saw intensified discussions on the importance of price stability and aiming for zero inflation. The Reserve Bank of New Zealand introduced inflation targeting in 1989, with annual inflation target of 0 to 2% and in 1991 the Bank of Canada and the federal government agreed on an inflation-targeting regime, with initial targets for the inflation rate of the midpoint of 2%-4%. In 1989, a congressional bill (H.J. Res. 409) called on the Federal Reserve "to adopt and pursue monetary policies leading to, and then maintaining, zero inflation."

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[47] "Eastburn said if inflation is to be moderated, the growth in money must also be moderated. "Translated into current policy, these lessons mean that the recent 7% growth in money (the narrow money supply) must be moderated over a period of time, and the time could be quite long," he said." ("Fed Presidents Urge Moderate Money Supply*", Los Angeles Times*, 18 July, 1974).

[48] "Minutes of the committee's November 18 meeting, released yesterday after the customary 45-day lag, showed that the panel voted nine-to-three to allow the federal funds rate to decline to 4.5% if necessary in the two-month period, down from the 5.25% rate prevailing at the time. Dissenting from the majority were Reserve Board members Philip C. Jackson Jr., Paul Volcker, president of the New York Federal Reserve Bank and David P. Eastburn, president of The Reserve Bank at Philadelphia. Messrs. Volcker and Jackson said that then-prevailing money-market conditions should be maintained for the time being. Mr. Eastburn sought an easier monetary stance than did the majority." ("Open Market Unit of Fed Voted Nov. 18 to Spur Money Supply"*, Wall Street Journal*, 6 January, 1976).

[49] "Within the seven-man board of governors itself, the last-published FOMC minutes (dated Feb. 5 for the Dec. 16-17 meeting) showed that governors George Mitchell and Henry Wallich dissented from the majority decision calling for "a more stimulative policy." ("Fed's Open Market Committee conducts an annual reorganization", *The Washington Post*, 19 March, 1975).

[50] "But the meeting records—released as usual, a little over a month after the session —also disclose that two of the Fed's own governors, David Lilly and Henry Wallich, thought the tightening was going too far. [...] But Governors Lilly and Wallich dissented from the decision regarding it as "more firming" than they considered "appropriate" in light of their judgment that "the economic situation wasn't very strong." Two other committee members dissented for the opposite reason, arguing that the tightening was "an inadequate response to the rapid rates of monetary growth over recent months." ("Plan to Tighten Credit Divided Members Of Fed Policy Committee, Records Show"*, Wall Street Journal*, 24 October, 1977).

The view on price stability received wide support from the Federal Reserve. However there were expressed differences on exactly how low inflation should be and on the possible negative effects of a zero-inflation plan. For instance, in 1989 the New York Times quotes Greenspan with respect to this debate as follows: "*I have emphasized the importance of reducing the rate of inflation to a level at which it no longer has economic significance - that is, one so low that people no longer feel the need to make any allowance for inflation in their decisions about purchasing real or financial assets. ''I'm not sure what, in terms of our conventional price indexes, that translates into quantitatively, but I think we must at this point take as your working assumption that it is a number approximating zero*." [51] The view on "removing inflation from the economic equation" was endorsed by many FOMC members, including several doves, who constitute the hawkish swings during this period, like Board governors Angell and Kelley.[52,53] For instance, Reuters writes in 1988 as follows: "*Federal Reserve board governor Wayne Angell said that he will not be satisfied during his tenure with the Fed unless the central bank reduces U.S. inflation to zero. […] He said the Fed would "take steps designed to bring the inflation rate down to zero.*"[54]

The hawkish swing of the early 1990s was soon followed by a dovish swing in the late 1990s and early 2000s. These years correspond with Greenspan maintaining the line that the observed productivity trend in the 1990s had increased the potential for non-inflationary growth. This view was soon endorsed by some previously hawkish members in the FOMC. A noted swinger in this period was Robert D. McTeer, President of the Dallas Fed since 1991. Given his previous background at the Richmond Fed, many observers expected him to have 'a fairly conservative hand' on monetary policy. In line with these expectations, by 1996 McTeer was emphasizing the aim of zero inflation for the Fed. However, by 2001 he was considered as 'the lonesome dove', ranking in the other side of the hawk-dove spectrum.[55]

[51] "Greenspan Willing to Wait For Years for 'Zero' Inflation", *New York Times*, 28 March 1989.

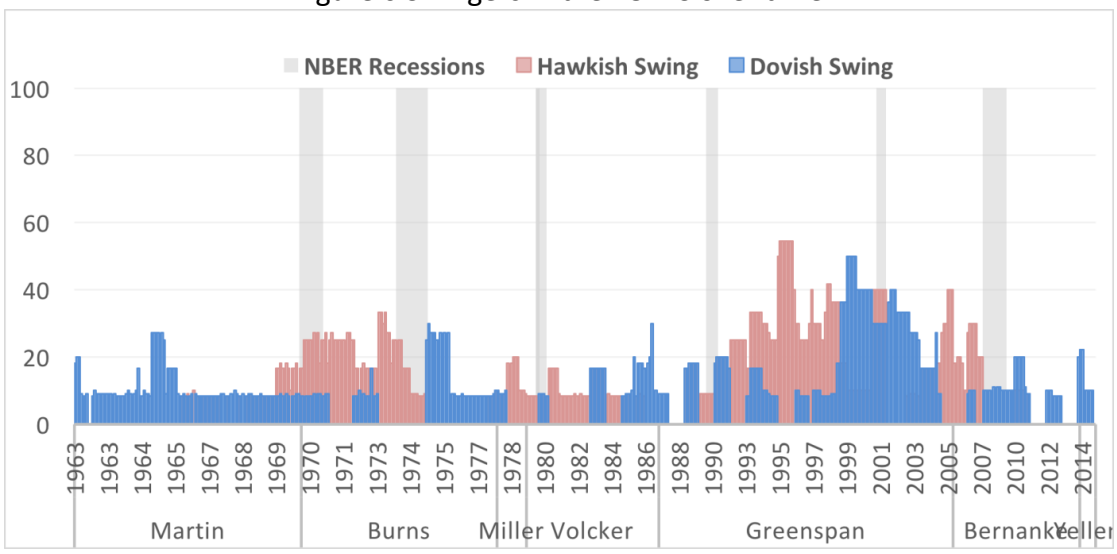
[52] "Fed's Angell says he seeks to eliminate inflation." *Reuters News*, 15 June 1988.

[53] "Fed board member Edward Kelley said Thursday that the inflation rate, 4.6 pct last year as measured by the Consumer Price Index, has to be brought down. "It's definitely too high and we definitely need to bring it down over time," Kelley told reporters. "We do need to get inflation out of the economic equation," he said." ("Fed seen resisting lowering interest rates." Reuters News, 2 February 1990).

[54] "Several Fed presidents like Corrigan, Hoskins, Parry and Black, all known as hawks, testified before Congress in support of a House resolution that calls for zero inflation." ("Fed Presidents Support Zero-Inflation Proposal", *The Region*, 1 February 1990).

[55] "Some Fed members have sounded increasingly optimistic on productivity, yet the only policy maker to vote against either of the Fed's last two rate increases - on the grounds that productivity has increased the potential for non-inflationary growth - is Dallas Fed chief Robert McTeer." ("Fed's McDonough Says Productivity Will Slow, But Timing Uncertain", *Dow Jones Business News,* 11 November 1999).

Figure 6 Swingers in the FOMC over time




During this period Greenspan too was part of the swingers, perceived to have switched from a hawk to a dove.[56] For instance , in 2002 Wall Street Journal writes: "Former Fed officials said Mr. Kohn's views are close to those of Mr. Greenspan, who has been labeled a dove in recent years for his willingness to see how fast the economy could grow without fueling inflation. Mr. Kohn puts more stock than Mr. Greenspan in standard economic models that associate inflation pressure with very low levels of unemployment and high capacity utilization, those officials said."[57]

## 3 Matching the Perceived FOMC with Votes on Policy

The common way in the literature to judge the diversity of views within the FOMC has been by reviewing trends in dissent, that is, the number of FOMC members who voted against the majority policy stance. Although dissents are very rare (only 7 percent of the total votes during 1960-2015) they are usually part of the information set of Fed observers when they become public and certainly inform the perception on the type and are incorporated in the measure of Istrefi (2017). For instance in 1978, the Wall Street Journal refers to Mark H. Willes (FRB Minneapolis, 1977–1980) as follows, "*His campaign for a stronger anti-inflation policy became public knowledge when minutes of the May committee meeting were published. He alone dissented because, according to the minutes, "he favored more-vigorous measures to reduce the*

[56] Blinder and Reis (2005) discuss also the case of Greenspan: "Of course, Greenspan's initial image was not that of an inflation 'dove.' In fact, he was typically portrayed by the media as an inflation 'hawk' in the early years of his chairmanship. It took the media almost a decade to catch on to the fact that, relative to the center of gravity of the FOMC, Greenspan was actually a dove—which became crystal clear when he repeatedly restrained a committee that was eager to raise rates in 1996- 1997. But it should have been evident earlier."

[57] "Bush Chooses Two to Fill Fed Vacancies", *Wall Street Journal*, 9 May 2002.

*rate of monetary growth, given the acceleration of the rate of inflation and its adverse effect on consumer and business confidence." He also dissented in June, July and August."*[58] Discussions of this dissent in the media are used as supporting information (among others) that Willes is perceived as a hawk in this particular time of his tenure.

However, not all dissents are as informative on the type of the central banker, as the example from the Wall Street Journal in 1982 with respect to Anthony Solomon shows: "*The committee voted to target the federal funds rate in the 10%-to-14% range for the November-March period, compared with a 11%-to-15% range target set for the October through December period at the November meeting. The vote on the December action was 10 to 2. Anthony Solomon, president of the New York Federal Reserve Bank, and Robert Boykin, president of the Dallas Federal Reserve Bank, dissented. Mr. Solomon said he opposed the action because it conveyed "an unrealistic sense of precision," according to minutes of the meeting."*[59]

During the period 1960 to January 2015 there have been about 432 dissents, 63 percent of which in favor of tighter policy and 47 percent in favor of easier policy.[60] As discussed before, many of the FOMC members never dissented during their tenure. In our sample, only 62 percent of FOMC members have dissented at least once and only 37 percent dissented more than twice. From those that dissented more than twice, about half of the dissents are on both the hawkish and the dovish side, therefore not very informative on the type of the member.[61] Instead, Istrefi's (2017) hawk-dove index of assigns a unique type to 93 percent of FOMC members (Fed chair persons included as usually they do not dissent).

When matching central banker's type with respective dissents (reducing the sample to 63 percent of the FOMC members) we find a good match between the overall perceptions on the type with voting trends (Table 3). Hawks have a higher rate of dissents compared to the other types and the majority of their dissents is for tighter policy (about 92 percent, p-value of 0.00). Furthermore, doves dissent for ease (or easier) policy (94 percent, p-value of 0.00) while swingers dissent on both sides, however leaning towards tighter dissents. Hawks and doves have also a higher dissent rate per member, for tighter and easer policy, respectively.[62]

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[58] "Fed Friction: Reserve Panel Splits As a Minority Urges Tighter Money", Wall Street Journal, 27 September 1978.

[59] Fed Panel Voted To Tighten Growth In Money and Credit, Wall Street Journal, 8 February 1982.

[60] The total number is 436 dissents, corresponding only to dissents from scheduled meetings (excluding conference calls). Four dissents that are not included in these calculations belong to William Treiber (vice president of the New York Fed) that was not a regular member of the FOMC but voted as an alternate.

61 These calculations exclude four Fed chairs that were only in the position of the Fed chair (Martin, Burns, Miller and Greenspan).

[62] Istrefi (2017) observes a good match between perceptions on the type and dissents at each FOMC meeting, where perceptions are based on information prior to meeting, thus prior to the vote.

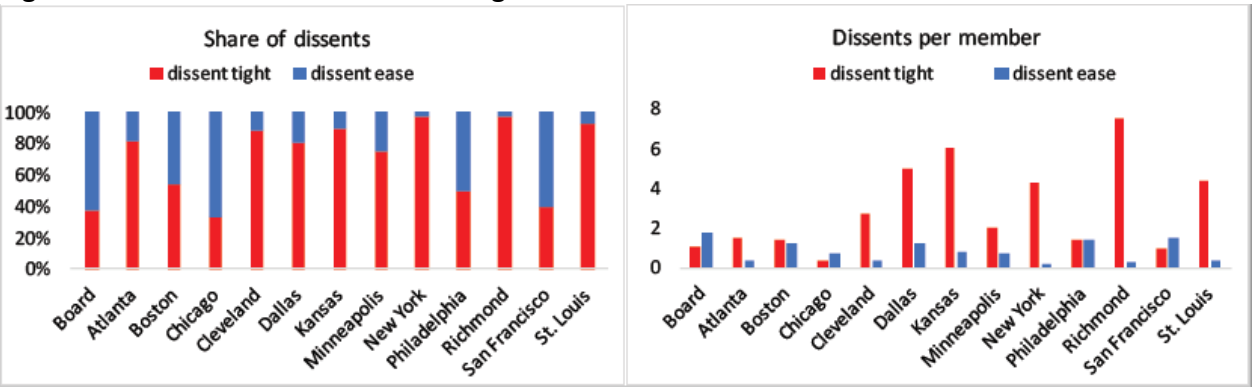
Table 3 Distribution of dissents per FOMC member characteristics

| Dissents | Dissents Total | Tighter % | Easier % | Tighter per member | Easier per member |
|---|---|---|---|---|---|
| **Preference type** | | | | | |
| Hawk | 191 | 91,6 | 8,4 | 3,4 | 0,3 |
| Dove | 112 | 6,3 | 93,8 | 0,2 | 2,7 |
| Swinger | 127 | 66,1 | 33,9 | 2,7 | 1,4 |
| Unknown | 2 | 100 | 0 | 0,2 | 0 |
| **Ideology by education (PhD)** | | | | | |
| Saltwater | 126 | 60,3 | 39,7 | 1,9 | 1,3 |
| Freshwater | 63 | 85,7 | 14,3 | 4,2 | 0,7 |
| Other | 43 | 58,1 | 41,9 | 1,5 | 1,1 |
| **Life experience (birth)** | | | | | |
| Before Great Depression | 271 | 59,8 | 40,2 | 2,6 | 1,8 |
| During Great Depression | 55 | 34,5 | 65,5 | 1,1 | 2,1 |
| After Great Depression | 101 | 81,2 | 18,8 | 1,6 | 0,4 |
| **Ideology by appointment (Board)** | | | | | |
| Republican nomination | 62 | 64,5 | 35,5 | 1,7 | 1,0 |
| Democrat nomination | 88 | 18,2 | 81,8 | 0,6 | 2,8 |
| Supply Side nomination | 39 | 35,9 | 64,1 | 1,8 | 3,1 |
| **Ideology by appointment (Regional Feds)** | | | | | |
| Republican nomination | 137 | 86,1 | 13,9 | 1,4 | 0,2 |
| Democrat nomination | 82 | 73,2 | 26,8 | 1,8 | 0,7 |
| Supply Side nomination | 24 | 83,3 | 16,7 | 2,2 | 0,4 |

Looking at ideology by education specific to PhD graduates, we observe that dissents are on the tighter side for all the three categories while the previous analysis with the three types showed more variety (i.e the majority of 'saltwater" graduates were doves). However, Table 1 also shows that 'freshwater'-PhDs dissent in a larger proportion for tighter policy than the two other groups (p-value of 0.000) and have also a higher share of dissents per member (about 4.2 dissents per member). In turn, we observe that members born during the Great Depression have dissented more on the side of easer policy than FOMC members born before or post the Great Depression, in line with results on the types (p-value of 0.000).

As previously shown in the literature, we confirm that dovish dissents are the highest for Board Governors appointed by a Democrat or supply side President (Reagan) (2.8 and 3.1 dissents per member, respectively). The match of dissents for the ideology by appointment category suggests a 'partisanship' vote for the Board of Governors but not for regional Fed presidents.[63] In contrast, the regional Fed presidents exhibit a higher share of hawkish dissents irrespective of the president's party. The tendency of dissenting more often in favor of a tighter policy is observed for almost all the regional Feds, except the Chicago Fed, Philadelphia Fed and San Francisco Fed. In terms of hawkish dissents per member, the Richmond Fed (with Lacker and Black), the Kansas City Fed (with Hoenig) and the Dallas Fed (with Coldwell) take the lead. Instead, the Board of Governors and Chicago Fed take the lead for dissenting in favor of looser monetary policy than the majority.

Figure 7 Distribution of dissents for regional Feds




## 4 Conclusions

In this paper, we highlight two important factors in moulding the policy preferences of FOMC members who have served in the past 60 years: ideology, and events that shaped their lives before joining the FOMC. Obviously, there are other factors that we have not discussed. We find that having studied at a 'saltwater' rather than a 'freshwater' university seems to give cleaner answers to explain differences in preferences among these members. However, since the late 1980s there has been a considerable convergence between the two schools of thought, with 'saltwater' elements included in 'freshwater' models, and vice versa. We suspect that if we were to do the same analysis 20 years from now, we may not observe such divisions.

Ideological factors might also have become muted with time because the Federal Reserve, as is the case with many central banks around the world, has converged to an understanding of the

63 Previous research in the literature has already argued that Democratic (Republican) appointees dissent more frequently in favor of a looser (tighter) monetary policy (see Gildea (1990), Havrilesky and Gildea (1991) and Chappell et al. (1995), among others).

importance of price stability (and the use of flexible inflation targeting). Moreover, since the Global Financial Crisis the debate has largely been over financial stability, not price stability. Financial stability has become a growing concern of central banks, and a key difference among them is on exactly what role the financial stability objective should play in their policymaking. Should central banks 'lean against the wind' of asset price booms, or 'clean up the mess' after the boom bursts? And if central banks lean against the wind, what tools should they use – macroprudential regulation or their policy interest rates? Although it is too soon to tell, ideology could still play a role.

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