

EFFECT OF CENTRAL BANK GOVERNOR SPEECHES ON FINANCIAL MARKETS

A Master's Thesis

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The Graduate School of Economics and Social Sciences
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By Fatma Senem Turan

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Economics.

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ABSTRACT

EFFECT OF CENTRAL BANK GOVERNOR SPEECHES ON FINANCIAL MARKETS

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This thesis examines the impact of speeches by central bank governors from European Central Bank (ECB), Deutsche Bundesbank, Bank of France, Bank of Spain and Bank of Italy on OIS yields, bond yields, stock prices and exchange rate. Using two standard event study designs via Rigobon and Sack (2004) and Gürkaynak et al. (2005), the study finds that financial markets are sensitive to central bank governor speeches.

OIS and sovereign bond yields with maturities from 5 to 30 years respond significantly to central bank speeches. For stock prices, the analysis includes the Euro Stoxx50, Euro SX7E, German DAX30, French CAC40, Spanish IBEX35, and Italian MIB30. Even if there are some positive responses, the results align with the typical understanding that a negative relationship exists between stock prices and monetary policy shocks. Lastly, the exchange rate is the least responsive asset among the others, with significant reactions observed in speeches by the ECB governor and the Bundesbank governor on the euro- USD dollar exchange

rate.

Overall, national central bank governors affect financial markets. Among various assets, their voices are particularly influential. However, while the speeches of periphery countries' central bank governors have an impact, ECB governor speeches usually dominate those of the periphery countries' central bank governor speeches. In contrast, the central bank governor speeches of core countries, Germany and France, often have more influence than ECB governor speeches.

Keywords: Central Bank, Central Bank Governor Speech, European Central Bank, Monetary Policy



ÖZET

MERKEZ BANKASI BAŞKANI KONUŞMALARININ FİNANSAL PİYASALAR ÜZERİNDEKİ ETKİSİ

Turan, Fatma Senem

Yüksek Lisans, İktisat Bölümü

Tez Danışmanı: Dr. Öğr. Üyesi Burçin Kısacıköğlü

Eylül 2024

Bu tez, Avrupa Merkez Bankası (AMB), Almanya Merkez Bankası, Fransa Merkez Bankası, İspanya Merkez Bankası ve İtalya Merkez Bankası başkanlarının konuşmalarının OIS getirileri, tahvil getirileri, hisse senedi fiyatları ve döviz kuru üzerindeki etkisini incelemektedir. Bu çalışma, Rigobon and Sack (2004) ve Gürkaynak et al. (2005) tarafından kullanılan iki standart olay çalışması tekniğini kullanarak, finansal piyasaların merkez bankası başkanlarının konuşmalarına duyarlı olduğunu bulmuştur.

5 ila 30 yıl vadeli OIS ve devlet tahvili getirileri, merkez bankası konuşmalarına önemli ölçüde tepki vermektedir. Hisse senedi fiyatları için analiz, Euro Stoxx50, Euro SX7E, Alman DAX30, Fransız CAC40, İspanyol IBEX35 ve İtalyan MIB30'u içermektedir. Pozitif tepkiler gözlemlense de, sonuçlar hisse senedi fiyatları ile para politikası şokları arasında negatif bir ilişkinin var olduğu yönündeki tipik anlayışla uyumludur. Son olarak, döviz kuru, diğer varlıklarla karşılaştırıldığında en az tepki veren varlıktır ve önemli tepkiler, euro-USD döviz kuru üzerinde Avrupa Merkez Bankası başkanının ve Almanya Merkez Bankası başkanının

konuřmalarında gözlemlenmiřtir.

Genel olarak, ulusal merkez bankası başkanları finansal piyasaları etkilemektedir. Farklı varlıklar arasında, ulusal merkez bankası başkanlarının sesleri özellikle etkili olmaktadır. Ancak, çevre ülkelerin merkez bankası başkanlarının konuşmaları bir etkiye sahipken, ECB başkanının konuşmaları genellikle çevre ülkelerin merkez bankası başkanlarının konuşmalarına baskın gelmektedir. Buna karşın, Almanya ve Fransa gibi çekirdek ülkelerin merkez bankası başkanlarının konuşmaları, çoğu zaman ECB başkanının konuşmalarından daha etkili olmaktadır.

Anahtar Kelimeler: Merkez Bankası, Merkez Bankası Başkanı Konuşması, Avrupa Merkez Bankası, Para Politikası

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CHAPTER 1

INTRODUCTION

Central banks use communication tools to convey their actions transparently and explicitly. These communication tools are also used to signal future policy decisions and shape expectations. Bernanke et al. (2004) emphasized the critical role of managing expectations through credible and transparent communication channels. Eggertsson and Woodford (2003) highlighted the importance of credible commitment, especially at the zero lower bound. In this thesis, I provide an empirical study that central bank communication, through central bank governors in the euro area, significantly affects the financial markets. Although statements accompanying decisions are an important source of central bank communication, officials from euro area national central banks and the ECB also deliver speeches on monetary policy and the economic outlook.

The ECB's monetary policy committee, primarily composed of euro area central bank governors, has more members than typical central bank committees. As of 2024, The Governing Council (GC) of the ECB includes a total of 26 members: 6 from the Executive Board and 20 governors from the euro area National Central Banks (NCBs). The GC is understandably unwilling to reveal disagreements among different national central bank governors. For instance, Hayo and Méon (2013) argue that individual GC members pursue national objectives and negotiate over the interest rate. Summaries of ECB meetings often indicate a large

majority in favor of particular policies, but this lack of detail may leave market participants unsure about which members have significant voice and influence. Also, this may lead to missing information for market participants about the decision-making process. Furthermore, not knowing which governors support or oppose to specific policies results in a lack of transparency within the ECB (Bennani and Neuenkirch (2017)).

Speeches are an essential tool for central bankers to express their personal views on the desired policy stance, and this paper addresses the gap by highlighting the perspectives of euro area national central bank governors. It specifically examines the effect of speeches by the ECB governors and the central bank governors of the four largest euro area countries: Germany, France, Italy, and Spain. Using a simple event study regression and heteroscedasticity-based identification a la Rigobon (2003) and Rigobon and Sack (2004), I examine the effect of central bank speeches on overnight index swaps (OIS), sovereign bonds, the euro- USD exchange rate, and European stock markets, including the Stoxx50 and SX7E, as well as the German DAX30, French CAC40, Spanish IBEX35, and Italian MIB30.

I show that central bank governor speeches matter, especially for overnight index swaps (OIS) and sovereign bond yields for Germany, France, Spain, and Italy. Also, speeches significantly affect European and national stock markets; however, they have less effect on the exchange rate.

This paper is related to the literature that examines the effects of monetary policy on financial markets where high-frequency identification is used. In his seminal paper, Kuttner (2001) examined the effect of monetary policy on bill, note, and bond yields using futures market data for federal funds to distinguish between anticipated and unanticipated target rate changes. This work was followed by Bernanke and Kuttner (2005) that studied the effects of conventional

monetary policy on stock markets. Gürkaynak et al. (2005) extend this study to unconventional monetary policy. They introduced the path factor, which extracts forward guidance from federal funds and eurodollar futures on days of monetary policy announcements, rotating the factor such that it is orthogonal to the changes in the current month federal funds rate. Brand et al. (2010) applied this method to the Euro Area using intraday data, while Altavilla et al. (2019) showed that reactions to ECB press conferences can be analyzed by four factors based on the yield curve term structure.

During financial crises, forward guidance is used as a policy tool when the economy hits the zero lower bound and shapes market expectations about future monetary policy. However, it was not always clear what type of information is conveyed through forward guidance until Campbell et al. (2012) pointed out.

The focus on the effects of press conferences extends beyond the term structure of interest rates. Many studies examine the interaction between the yield curve and equity prices or inflation expectations. An opposite-direction effect is generally referred to as a monetary policy shock, while a same-direction effect is referred to as an information effect. Bauer and Swanson (2023) showed that monetary policy shocks dominate, and any information effect if it exists, is often small.

Recently, Swanson (2023) found that speeches and Congressional testimony by the FED chair have significant effects on stocks and bonds and even more than FOMC announcements. Moreover, Istrefi et al. (2022) examine the impact of speeches by ECB governors and board members, as well as officials from euro area National Central Banks (NCBs) as a whole, on Eonia rates, market-based inflation expectations and sovereign bond yields using event study methodology. This thesis aligns with their findings, emphasizing that communication outside regular ECB monetary policy meeting days significantly influences asset prices. Neugebauer et al. (2024) explore how the European Central Bank's (ECB) com-

munication about the Pandemic Emergency Purchase Programme (PEPP) affects government bond spreads in ten euro area countries. The study analyzes various communication methods, including press releases, blog posts, speeches, and interviews, and their impact on bond spreads. The findings indicate that both the type of communication channel and the specific board member communication deliver a message that significantly influences market sensitivity and government bond spreads. Lastly, Jansen and De Haan (2009) conducted an event-study analysis to assess the effects of statements made by European Central Bank (ECB) and Bundesbank officials on the euro-US dollar exchange rate. Their research concluded that such statements affect the volatility of the euro-dollar exchange rate and the level.

The remainder of this study is organized as follows: Chapter 2 discusses the heteroskedasticity-based identification and event-study identification used in this study and explains why it is employed. Chapter 3 talks about the data from central bank speeches and the financial assets used for estimating the responses. Chapter 4 presents and discusses the results of the responses of OIS yields, sovereign bond yields, stock market indices, and the euro-US dollar exchange rate to central bank governor speeches. Finally, Chapter 5 concludes.

CHAPTER 2

METHODOLOGY

2.1 Event-study Identification

The standard approach in the event study literature is to regress changes in asset prices around news, such as policy decisions or data releases, onto surprises. In this context, a surprise is defined as the difference between the release and its corresponding expectation. Since there are no available expectations for the governor's speeches, unlike policy decisions, I follow Rogers et al. (2018) to extract surprises from financial market prices. Specifically, I use 6-month, 2-year, and 10-year OIS rates to identify timing, forward guidance, and large scale asset purchase surprises (LSAP).

While using 2- and 10-year maturity yields is standard for identifying forward guidance and LSAP surprises, using 6-month interest rates for identifying timing surprises is not. Since the target rate does not change during speeches outside of the decision window, these speeches can provide valuable insight into when the next policy rate change might occur. It's important to note that while market participants may agree on the magnitude of the rate change, they can still be surprised by the timing, as the change could happen sooner or later than expected. As it is also used in Altavilla et al. (2019), the 6-month OIS yield captures this effect, thus identifying the *Timing Surprise*.

To identify the *Forward Guidance and Asset Purchase Surprise*, I run the following regressions in turn.

$$\Delta OIS2_t = \xi + \theta TS_t + FGS_t \quad (2.1)$$

For the *Forward Guidance surprises*, I take the residual from a regression of the change in the yield for the 2-year OIS yields onto the Timing surprise. This part corresponds to the medium-run, generally peaking about the 2-year maturity.

$$\Delta OIS10_t = \mu + \tau TS_t + \varphi FGS_t + APS_t \quad (2.2)$$

Lastly, for the *Asset Purchase surprises*, I take the residual from a regression of the change in the 10-year OIS yields onto the timing and forward guidance surprises. This part coincides with the long-run that peaking at the 30-year maturity. This surprise captures the jumps in the long-term interest rates that are associated with central bank governor speeches related to large-scale asset purchases. ECB so far established the Securities Markets Programme (SMP), Covered Bond Purchase Programmes (CBPPs), Asset-Backed Securities Purchase Programme (ABSPP), Public Sector Purchase Programme (PSPP), Corporate Sector Purchase Programme (CSPP), and Pandemic Emergency Purchase Programme (PEPP).

In order to identify the parameter of interests β_1 , β_2 and β_3 , I run the following asset price regression:

$$\Delta s_t = \omega + \beta_1 TS_t + \beta_2 FGS_t + \beta_3 APS_t + v_t \quad (2.3)$$

These regressions orthogonalize surprises by construction. To make more sense of these results, I provide the time series of these surprises in Figure 1 - Figure 5.

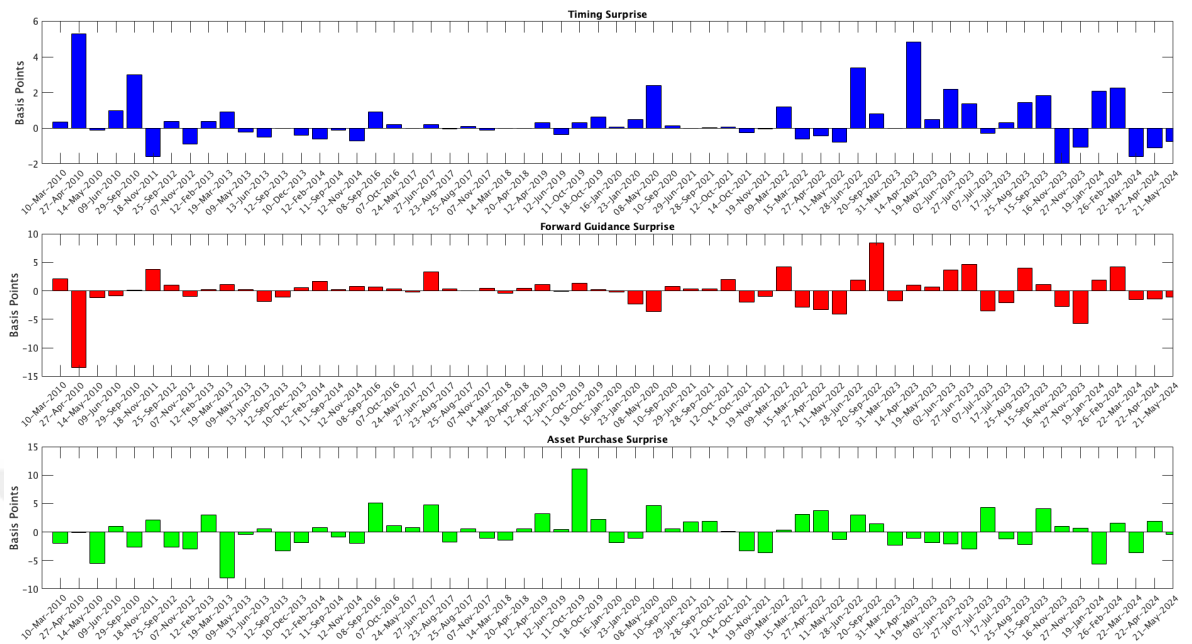


Figure 1: Monetary Policy Surprises of ECB Governor Speeches

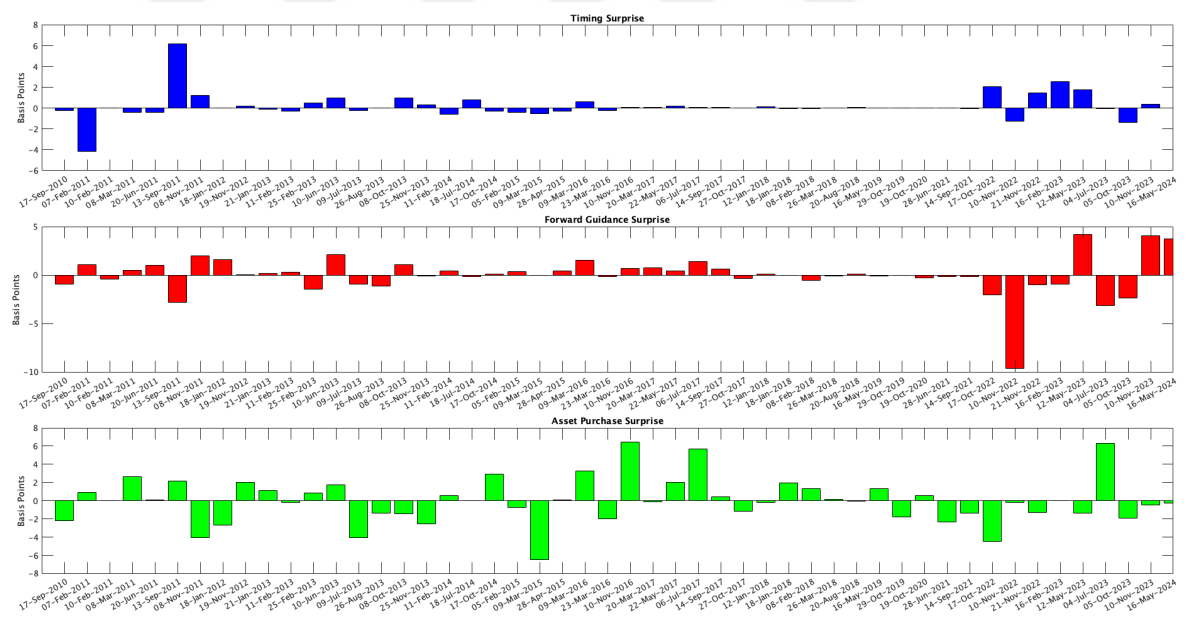


Figure 2: Monetary Policy Surprises of Bundesbank Governor Speeches

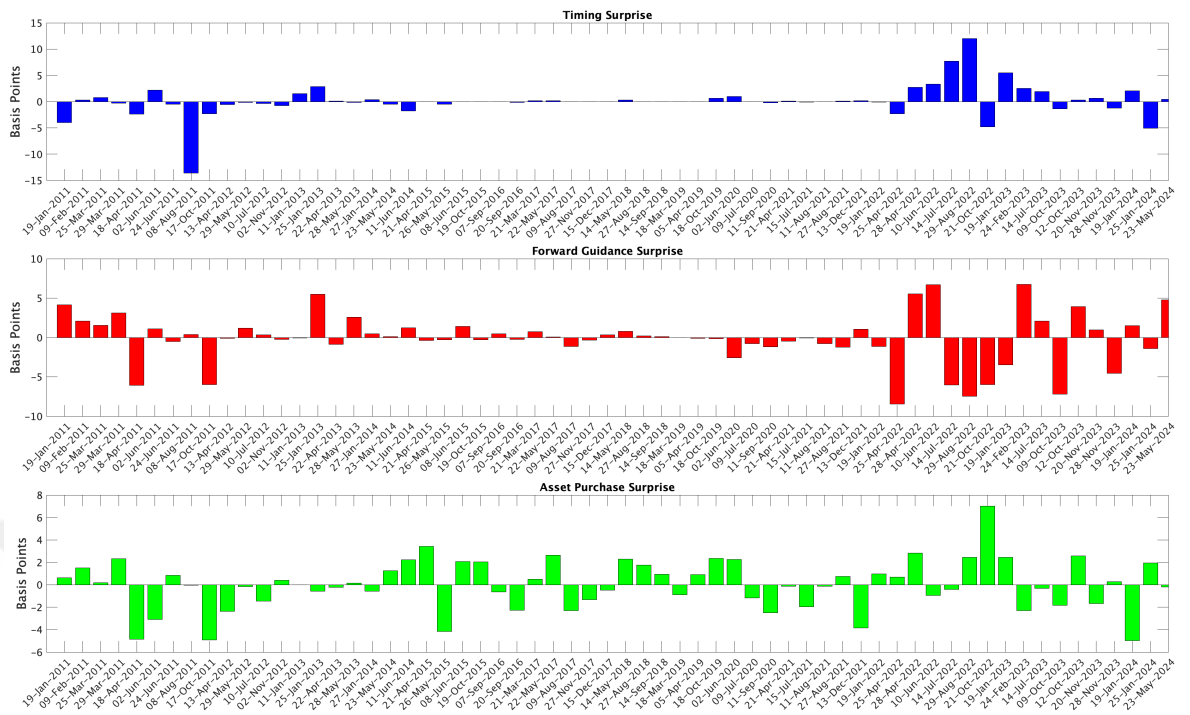


Figure 3: Monetary Policy Surprises of Bank of France Governor Speeches

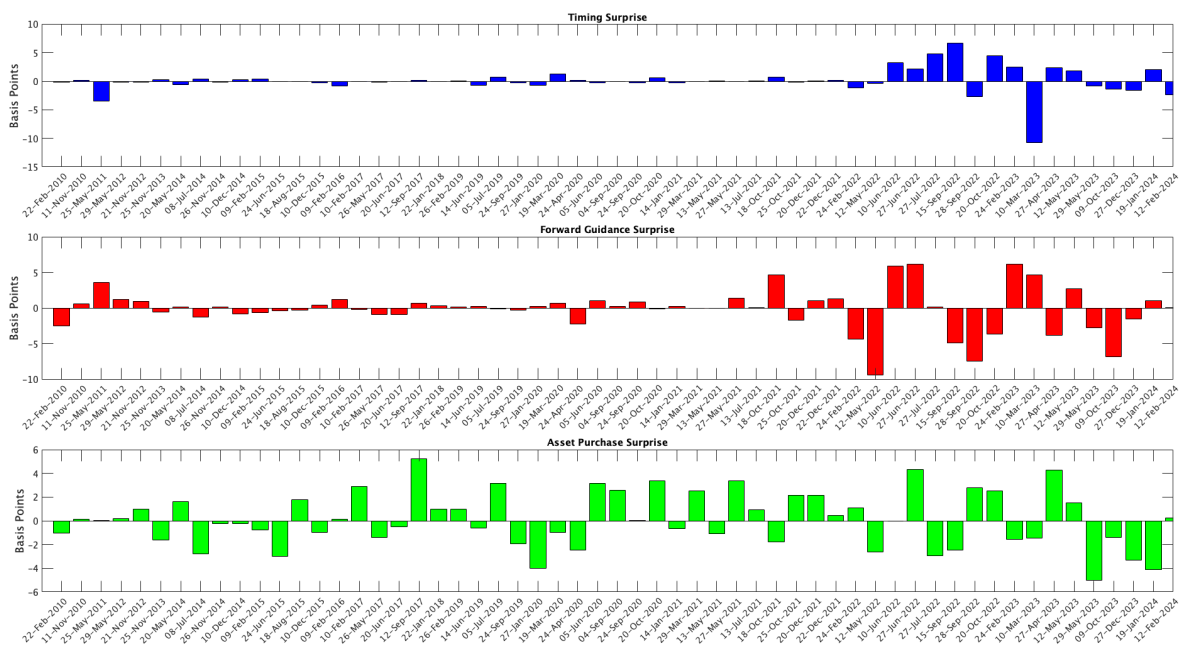


Figure 4: Monetary Policy Surprises of Bank of Spain Governor Speeches

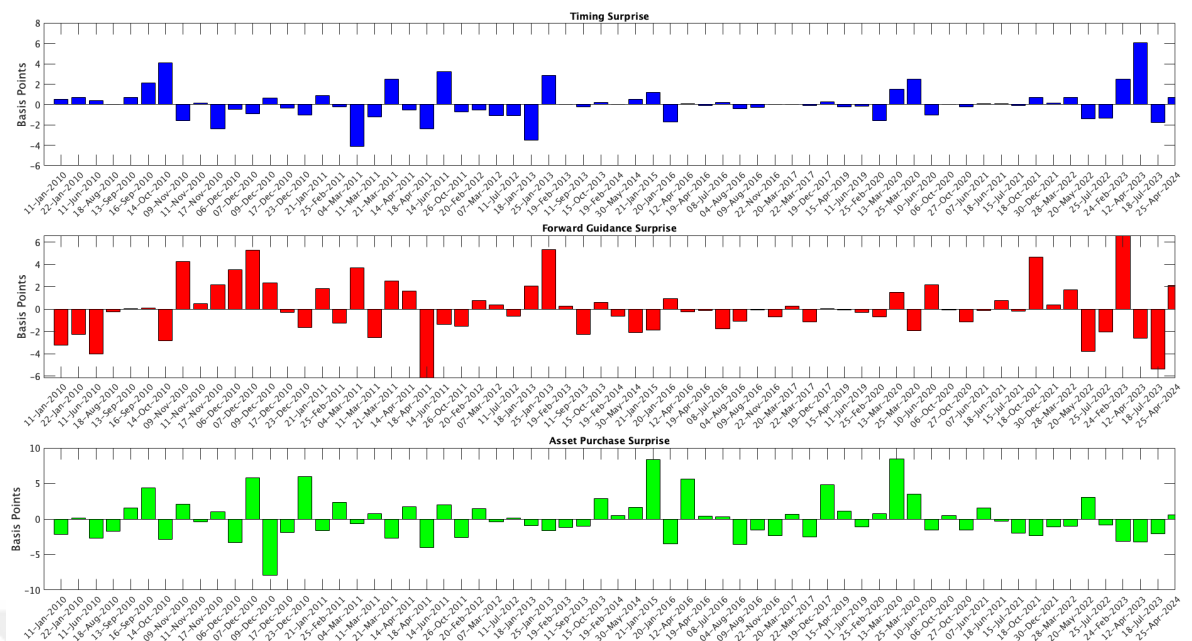


Figure 5: Monetary Policy Surprises of Bank of Italy Governor Speeches

The tables below report some of the major monetary policy surprises of each central bank governor speeches. Swanson (2021) argues that separately identifying the effects of forward guidance and LSAPs is difficult. In our case, speeches simultaneously provide information about different types of policies. Moreover, the context of the speeches and monetary policy surprises are consistent among central bank governors. Overall, these governors represent the voice of the ECB in their respective countries, which supports my motivation in this thesis that when ECB makes a decision, the responses of individual countries might differ due to varying country dynamics. Therefore, national central bankers play a crucial role in ensuring smooth monetary policy transmission.

Table 1: Major monetary policy surprises of ECB governor speeches

Type	Date	Quote
TS	28.06.2022	"We intend to raise our three key interest rates by 25 basis points at our next meeting on 21 July."
TS	14.04.2023	"As inflation is projected to remain too high for too long, the GC of ECB decided in March to raise the key ECB interest rates by 50 basis points... These increases underline our determination to ensure the timely return of inflation to our two percent medium-term target. The elevated level of uncertainty reinforces the importance of a data-dependant approach to our policy rate decisions, which will be determined by our assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation, and the strength of monetary policy transmission... We are monitoring current market tensions closely and stand ready to respond as necessary to preserve price stability and financial stability in the euro area."
FGS	20.09.2022	"Monetary policy will do whatever is needed to return inflation to our target. But a truly European approach where monetary and fiscal policy complement each other can improve the inflation outlook."
FGS	27.04.2010	"Currently, these improvements are guiding a gradual phasing-out process. The speed and path of the phasing-out of non-standard measures will depend on developments in financial markets and the economy."
FGS	25.08.2023	"In the current environment, this means – for the ECB – setting interest rates at sufficiently restrictive levels for as long as necessary to achieve a timely return of inflation to our 2 percent medium-term target."
APS	19.11.2021	"Moreover, even after the expected end of the pandemic emergency, it will still be important for monetary policy – including the appropriate calibration of asset purchases – to support the recovery and the sustainable return of inflation to our target of 2 percent. We will announce our intentions in this matter in December."
APS	10.12.2013	ECB's effort has included the provision of liquidity to the banking system in abundant and uniform terms across the whole euro area, against good quality collateral and subject to risk management limits; as well as securities market purchases, the Securities Market Programme and the covered bonds purchase program, and the Outright Monetary Transactions (OMT) program.
APS	12.11.2014	"More recently, it has been introduced a further three measures of unconventional monetary policy: the TLTROs, credit lines of up to four years that can be used by banks for loans to households and businesses; two programs for the purchase of covered bonds and ABS with the aim being to further expand liquidity."

Table 2: Major monetary policy surprises of Bundesbank governor speeches

Type	Date	Quote
TS	10.11.2022	"Es folgten Zinsanhebungen im Juli, September und Oktober um insgesamt 2 Prozentpunkte. Weitere Zinsschritte sind in Aussicht gestellt." Speech indicates that the ECB has already implemented interest rate hikes and plans further increases to combat inflation.
TS	8.10.2013	"Da der Preisdruck im Euro-Raum auf mittlere Sicht gedämpft sein dürfte, hat der EZB-Rat seine Erwartung zum Ausdruck gebracht, dass die Leitzinsen für längere Zeit nicht steigen." This sentence explains that because inflationary pressures are expected to remain low in the medium term, the ECB anticipates that interest rates will not rise for an extended period.
TS	17.10.2022	"In July, the GC raised the key interest rates by 50 basis points and thereby ended the period of negative interest rate policy in a first step. It was followed by another 75 basis points step in September. And it has been communicated clearly that further rate hikes are to be expected at our next policy meetings."
FGS	10.11.2022	"We must act decisively." Nagel said, and he also predicted an economic contraction during this quarter and in the first three months of next year.
FGS	12.05.2023	"There's consensus in the GC that interest-rate hikes should continue... The data don't allow us to consider changing our view that further rate hikes will be necessary, and that also applies for beyond the summer break."
FGS	5.10.2023	"There's a lot of debate about the peak in rates: instead we should now talk of a plateau, and we'll remain on this plateau as long as necessary."
APS	23.03.2016	The speech discussed the expansion of the APP, particularly highlighting the decision to increase the monthly net purchases from €60 billion to €80 billion starting in April 2016.
APS	9.03.2016	Weidmann warned against the potential fiscal implications of large-scale asset purchases, particularly the risk of blurring the lines between fiscal and monetary policy.
APS	13.03.2020	In his speech, Weidmann talk about the emergency 750 billion-euro bond-buying program by the ECB.

Table 3: Major monetary policy surprises of Bank of France governor speeches

Type	Date	Quote
TS	19.01.2023	Villeroy talked about how the European Central Bank should aim to conclude its series of interest rate hikes "by the summer" and then maintain the rates at that level for an extended period to manage inflation.
TS	14.07.2022	Regarding the ECB's decision to raise rates by 50 basis points, Villeroy says "starting rate hikes faster doesn't mean ending higher"
FGS	24.02.2023	Speech about ECB probably make interest rate peak by September and hold at least two years to ensure 2 percent inflation target.
FGS	10.06.2022	"Nobody should have any doubt, including on markets, over our collective will to prevent fragmentation... We have the will and nobody should doubt we will have the instruments if and when necessary"
FGS	29.08.2022	"We can be gradual, but we should not be slow and delay normalization until higher inflation expectations force us into aggressive interest-rate hikes."
APS	17.10.2011	"By contrast, purchases of sovereign debt by the Eurosystem have remained extremely limited and will stay so... Our objectives are very circumscribed: to avoid disruptions in monetary policy transmission. Any lasting liquidity backstop has to come from governments."
APS	13.12.2021	Villeroy emphasized that the ECB is committed to concluding its emergency bond-buying program by March and may not need to expand regular asset purchases to cover the shortfall.
APS	19.01.2023	Villeroy emphasized the importance of maintaining flexibility in the asset purchasing programs to respond to ongoing economic uncertainties and ensure effective transmission of monetary policy across the euro area.

Table 4: Major monetary policy surprises of Bank of Italy governor speeches

Type	Date	Quote
TS	24.02.2023	Since July, ECB policymakers have increased interest rates by a total of 300 basis points, raising the deposit rate to 2.5 percent. In the speech, Visco said that ECB plans to implement another 0.5 percent hike in March and has indicated that further rate increases will follow beyond that.
TS	25.07.2022	The European Central Bank will follow a step-by-step approach in raising borrowing costs, not being very slow, according to Governing Council member Ignazio Visco.
FGS	24.02.2023	"The European Central Bank will raise interest rates as high as necessary to bring inflation back down to 2 percent... Our objective is to go back to an inflation rate of 2 percent in the medium term. If we need to be more restrictive, we'll be more restrictive."
FGS	18.04.2011	Draghi highlighted that the ECB would use all necessary tools, both conventional and unconventional, to achieve its inflation target.
FGS	20.05.2022	"Given the uncertainty of the economic outlook, the rates will have to be raised gradually."
APS	9.12.2010	"The purchase of government securities does not make the introduction of reforms to increase the growth potential of the euro-area countries any less necessary or likely. Indeed, it can foster them by improving the macroeconomic outlook and reducing its uncertainty."
APS	26.05.2015	ECB expanded the asset purchase program (APP), which involved purchasing €60 billion per month in public and private sector securities until at least September 2016. Visco emphasized the program's role in boosting economic activity and raising inflation by reducing yields.
APS	4.08.2016	Visco highlighted that the continuation of the asset purchase program was necessary due to ongoing low inflation and economic uncertainties.

Table 5: Major monetary policy surprises of Bank of Spain governor speeches

Type	Date	Quote
TS	10.03.2023	ECB had decided earlier in March to increase key interest rates by 50 basis points, reflecting its commitment to bringing inflation back to its 2 percent medium-term target.
TS	15.09.2022	"The speed and extent of the European Central Bank's monetary tightening will hinge on its ability to control inflation expectations and reduce the spread of price increases beyond energy."
FGS	10.06.2022	de Cos speech about guidance typically reflects the ECB's broader strategy of ensuring that monetary policy remains accommodative enough to support economic recovery while being vigilant about inflationary pressures
FGS	24.02.2023	de Cos talk about maintaining price stability and avoiding a deanchoring of inflation expectations in order to ensure sustainable economic growth over the medium term.
APS	27.04.2023	Speech focused on the continuation and effectiveness of ECB's asset purchase programs.
APS	5.06.2020	de Cos talks about the expanded ECB Pandemic Emergency Purchase Programme (PEPP) by €600 billion, bringing the total to €1.35 trillion.
APS	20.10.2020	Speech about Pandemic Emergency Purchase Programme (PEPP) as part of its broader monetary policy response to the COVID-19 pandemic.

2.2 Heteroskedasticity-based Identification

The previous subsection demonstrates that it is possible to identify surprises using asset price responses to governor speeches. However, the total effects of speeches on asset prices can be identified without specifying the dimension of policy agents are surprised about.

These total effects can be identified using the heteroskedastic nature of asset prices, following Rigobon and Sack (2004). Rigobon and Sack (2004) argue that, at low frequencies, the challenge of identifying the effects of policy on asset prices is complicated because of potential endogeneity, which can be captured using a simultaneous equation system:

$$\Delta i_t = \beta \Delta s_t + \gamma z_t + \epsilon_t \quad (2.4)$$

$$\Delta s_t = \alpha \Delta i_t + z_t + \eta_t \quad (2.5)$$

where Δi_t is defined as the change in the policy rate when analyzing the effects of monetary policy on various asset prices. However, since I am focusing on the effects of governor speeches, there is no clear 'policy rate' refer to. To operationalize this framework, I assume that the 2-year OIS rate serves as an instrument for governor speeches. In this context, positive changes in the 2-year OIS rate on speech days indicate a tighter stance, while negative changes suggest the opposite. It is important to note that the choice of the 2-year OIS yield is deliberate, following Gilchrist and Zakrajšek (2012), who argue that 2-year yields reflect the effects of future policy expectations.

Δs_t is the change in asset price and z_t is an unobservable common factor which affects both Δi_t and Δs_t . The variable ϵ_t is the monetary policy shock measured by the daily change in the 2-year OIS yields or 2-year sovereign bond yields at the event date, and η_t is the market noise. ϵ_t and η_t are assumed to be serially uncorrelated and contemporaneously uncorrelated with each other and both serially and contemporaneously uncorrelated with z_t . α is the parameter of interest that measures the effect of a central bank governor's speech on the asset price.

Equation (2.1) represents the 2-year OIS yield change that captures the expected response of speech to an unobservable common factor z_t and the change in the asset prices Δs_t . Eq. (2.2) is the asset price equation, which allows the asset price to be affected by the governor's speeches and also by the other variables z_t .

In the event-study approach, it is assumed that the variance of the policy shocks is strictly greater than the variance of exogenous variables and the variance of the asset price shock. Heteroskedasticity-based estimation involves fewer and simpler assumptions. In this approach, the level of bias resulting from endogeneity and the exclusion of other exogenous variables (e.g., macroeconomic announcements) does not need to be zero. To use this method, we only need to observe an increase in the variance of the policy shock when the governor of the central bank gives a speech, while the variances of other shocks remain unchanged. This approach allows us to establish causality from speeches to asset prices on speech dates.

We need to identify two subsamples, denoted F for the speech days and \tilde{F} for the non-speech days, the parameters of Eqs. (2.1) and (2.2) are stable and the following assumptions on the second moments of the shocks hold:

$$\sigma_{\epsilon}^F > \sigma_{\epsilon}^{\tilde{F}}, \quad (2.6)$$

$$\sigma_{\eta}^F = \sigma_{\eta}^{\tilde{F}}, \quad (2.7)$$

$$\sigma_z^F = \sigma_z^{\tilde{F}} \quad (2.8)$$

These assumptions mean that the importance of speech shock is greater in subsample F . Nevertheless, shocks in the asset price equation occur at the same level in both subsample F and \tilde{F} .

On days of governor speeches, there is typically more news about speeches than on other days. Although other shocks also occur on these days, the significance of speech shocks increases significantly, which is crucial for our identification method. Therefore, we classify these dates as "policy dates" (subsample F), indicating higher variance in policy shocks. For non-policy dates (subsample \tilde{F}), I use the days immediately before the policy dates, ensuring equal sample sizes and minimizing changes in shock variances over time.

The identification can be shown analytically by first solving for the reduced form of equations (2.1) and (2.2):

$$\Delta i_t = \frac{1}{1 - \alpha\beta} [(\beta + \gamma)z_t + \beta\eta_t + \epsilon_t] \quad (2.9)$$

$$\Delta s_t = \frac{1}{1 - \alpha\beta} [(1 + \alpha\gamma)z_t + \eta_t + \alpha\epsilon_t] \quad (2.10)$$

Consider the covariance matrix of the variables in each subsample, $\Omega_F = \mathbb{E}[\Delta i_t \Delta s'_t \mid t \in F]$ and $\Omega_{\tilde{F}} = \mathbb{E}[\Delta i_t \Delta s'_t \mid t \notin \tilde{F}]$. Under the structure assumed, these covariance matrices are determined by

$$\Omega_F = \frac{1}{(1 - \alpha\beta)^2} \begin{bmatrix} \sigma_\epsilon^F + \beta^2 \sigma_\eta^F + (\beta + \gamma)^2 \sigma_z^F & \alpha \sigma_\epsilon^F + \beta \sigma_\eta^F + (\beta + \gamma)(1 + \alpha\gamma) \sigma_z^F \\ \cdot & \alpha^2 \sigma_\epsilon^F + \sigma_\eta^F + (1 + \alpha\gamma)^2 \sigma_z^F \end{bmatrix} \quad (2.11)$$

$$\Omega_{\tilde{F}} = \frac{1}{(1 - \alpha\beta)^2} \begin{bmatrix} \sigma_\epsilon^{\tilde{F}} + \beta^2 \sigma_\eta^{\tilde{F}} + (\beta + \gamma)^2 \sigma_z^{\tilde{F}} & \alpha \sigma_\epsilon^{\tilde{F}} + \beta \sigma_\eta^{\tilde{F}} + (\beta + \gamma)(1 + \alpha\gamma) \sigma_z^{\tilde{F}} \\ \cdot & \alpha^2 \sigma_\epsilon^{\tilde{F}} + \sigma_\eta^{\tilde{F}} + (1 + \alpha\gamma)^2 \sigma_z^{\tilde{F}} \end{bmatrix} \quad (2.12)$$

In addition to (2.3)-(2.5), the parameters α , β , and γ are stable across the two sets of dates, which is a necessary condition for identification. The difference in these covariance matrices is

$$\Delta\Omega = \Omega_F - \Omega_{\tilde{F}} = \frac{(\sigma_\epsilon^F - \sigma_\epsilon^{\tilde{F}})}{(1 - \alpha\beta)^2} \begin{bmatrix} 1 & \alpha \\ \alpha & \alpha^2 \end{bmatrix} \quad (2.13)$$

From equation (2.10), α can be easily identified from the change in the covariance matrix.

I used the proposed technique in Rigobon and Sack (2004) that is

$$\hat{\alpha}_{\text{het}} = \frac{\Delta \hat{\Omega}_{12}}{\Delta \hat{\Omega}_{11}} \quad (2.14)$$

CHAPTER 3

DATA

The dates for speeches given by the governors of ECB, Deutsche Bundesbank, Bank of France, Bank of Italy, and Bank of Spain were collected from various sources. The initial data collection phase focused on the monetary policy section of the archived speeches and interviews available on the official websites of these central banks. Speeches are chosen from the outside of the policy or ECB announcement days. By following Istrefi et al. (2022), I consider speech dates that are outside of regular monetary policy meetings. These communications are crucial for understanding how monetary policy is transmitted to financial markets. The study suggests that focusing only on press conferences after the official policy meetings might miss the significant policy signals conveyed by ECB policymakers on the days preceding the actual meetings.

Jansen and De Haan (2005) analyze the central bank officials' communication by collecting statements from Bloomberg; by following them, additional checks were made using Bloomberg and Financial Times articles for speeches not listed on the event calendars of central banks. It is important to note that governors sometimes deliver speeches abroad, so the times of these speeches are adjusted for consistency.

In event-study identification, my sample size include speeches between 2010-2024. For ECB, to ensure that daily windows around any of the announcements do not overlap with macroeconomic data releases or other market-moving events for the euro area, 12 news announcements were eliminated, leaving 61 speech days for analysis. For Germany, France, Italy, and Spain, data related to euro area announcements, ECB policy rate announcements, and speeches, as well as FED policy rate announcements, speeches, and minutes, are excluded. Speeches are adjusted accordingly for the timing of FED announcements.

For Germany, I collect 50 speech dates from 2010 and eliminated 55 news announcements to avoid any overlap. For France, I gather speech days starting from January 2022. Before this period, I collect the speech days from Bloomberg and Financial Times. I eliminated 41 news items to prevent any overlap and left with 62 speech days for the analysis. For Italy, I collect speech days starting from February 2010, I eliminate 43 news items and left with in 65 speech days. For Spain, speech dates are collected starting from June 2018. Before this period, I use articles from Bloomberg are Financial Times and eliminate 44 news items, end up with 57 speech days.

In the heteroskedasticity-based identification, the key assumption is that the variance of financial variables is greater on days when central bank governors speak compared to other days, while the variances of other shocks remain constant throughout the observed period. Following this, I collect data on the days when central bank governors give speeches, allowing for other news events to occur on the same days. For the ECB, data collection began in 2010, resulting in 236 speech days being gathered. For Germany, 222 speech days are collected from 2010 to 2024. For France, 205 speech days are gathered between 2011 and 2024. Spain has 112 speech days from 2010 to 2024, and finally, Italy has 154 speech days collected between 2010 and 2024.

Furthermore, a daily historical series of OIS yields, sovereign bond yields, exchange rate, and stock market data is used to comprehensively assess the effect of central bank governor speeches on financial markets. For OIS, maturities from 2-year to 30-year are gathered and generic bonds are used for country-specific sovereign bonds collecting 2-year to 30-year maturity bonds. The euro- USD dollar exchange rate, Euro Stoxx50, Euro SX7E, German DAX30, French CAC40, Spain IBEX35, and Italian MIB30 indices are collected to capture exchange rate and stock market developments in the euro area. All financial assets are gathered from the Bloomberg database. The Euro Stoxx50 serves as a proxy for the aggregate European stock market and includes 50 of the largest companies from the Eurozone. The Euro Stoxx Banks Index (STOXX7E) tracks the performance of the banking sector within the Eurozone.

CHAPTER 4

RESULTS

4.1 Overnight Index Swaps (OIS)

An overnight index swap (OIS) is a financial contract where two parties agree to exchange interest payments. One party pays a fixed interest rate, while the other pays a floating rate based on a daily overnight index, such as the federal funds rate in the U.S. or EONIA in Europe. Because the only payment involved is the net interest obligation at maturity without any exchange of principal, OIS carries very little counter-party risk. This low risk makes OIS particularly useful for analyzing market expectations about future movements in the financial markets. Additionally, due to their close link with overnight rates set by central banks, OIS yields reflect market expectations about future central bank policies.

Odendahl et al. (2024) argue that governor speeches have a particularly significant impact on medium and long-run maturities of Euro Area OIS forward rates and sovereign yields for France, Germany, Italy, and Spain. They suggest that these speeches function similarly to unconventional monetary policy announcements at the effective lower bound (ELB).

Moreover, central banks use forward guidance to convey their future policy intentions, and OIS captures how the market interprets this guidance. Because governor speeches are also used for guidance purposes, analyzing the OIS re-

action to these speeches helps us understand their influence on the financial market. In their study, measuring the euro area monetary policy, Altavilla et al. (2019) explain that market participants derive two distinct types of guidance from the press conference. One type is forward guidance, which provides information relevant to the medium term, with its effects peaking at around 2-year of maturity. The other one is the timing component that provides information relevant to the short run that peaks at around 6-months of maturity. In order to understand whether governor speeches have the same kind of effect, I apply the event-study methodology.

In Table 6 and Table 7, Timing and Forward Guidance have a peaking effect on 5-year yields, whereas Asset Purchase has an effect on 30-year yields. Similar observations can be seen in the tables that ECB governor speech most of the time dominates the voices of periphery country central bank governors and is sometimes dominated by the core country central bank governor speeches. Furthermore, one important observation is that for Bank of France, Bank of Italy, and Bank of Spain, central bank governor speeches have a stronger impact on the timing component. In contrast, for ECB and Bundesbank, governor speeches have a more pronounced effect on the forward guidance component.

Table 6: Estimated effect of governor speeches on OIS yields - I

	5-year	15-year	30-year
ECB			
TS	1.50 *** (0.07)	0.70 *** (0.05)	0.27 ** (0.12)
FGS	1.24 *** (0.03)	1.17 *** (0.02)	1.11 *** (0.05)
APS	0.60 *** (0.03)	1.14 *** (0.02)	1.28 *** (0.05)
Observations	61	61	61
R-squared	0.97	0.98	0.94
Bundesbank			
TS	1.21 *** (0.09)	0.48 *** (0.06)	0.26 * (0.14)
FGS	1.28 *** (0.06)	1.02 *** (0.04)	0.80 *** (0.09)
APS	0.62 *** (0.05)	1.02 *** (0.03)	1.11 *** (0.07)
Observations	50	50	50
R-squared	0.94	0.97	0.85
Bank of France			
TS	1.50 *** (0.03)	1.04 *** (0.02)	0.82 *** (0.05)
FGS	1.00 *** (0.03)	0.63 *** (0.02)	0.52 *** (0.04)
APS	0.59 *** (0.04)	1.12 *** (0.04)	1.21 *** (0.06)
Observations	62	62	62
R-squared	0.97	0.97	0.92

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 7: Estimated effect of governor speeches on OIS yields - II

	5-year	15-year	30-year
Bank of Italy			
TS	1.48 *** (0.08)	1.30*** (0.04)	1.21 *** (0.10)
FGS	0.93 *** (0.04)	0.52 *** (0.02)	0.28 *** (0.06)
APS	0.59 *** (0.05)	1.06 *** (0.02)	1.16 *** (0.05)
Observations	65	65	65
R-squared	0.94	0.97	0.91
Bank of Spain			
TS	1.12 *** (0.05)	0.90 *** (0.04)	0.75 *** (0.08)
FGS	1.02 *** (0.03)	0.65 *** (0.03)	0.41 *** (0.06)
APS	0.53 *** (0.04)	1.15 *** (0.04)	1.24 *** (0.08)
Observations	57	57	57
R-squared	0.97	0.96	0.82

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 8 presents the standard deviations and the covariance of 5-year, 10-year, 15-year, and 30-year OIS yields with the 2-year yield as a proxy for policy rate. The table uses daily changes in OIS yields in basis points. The standard deviation of governor speech is higher on event days (F) compared to non-event days (\tilde{F}). These results are followed by the covariances, indicating that on event days, the covariance between the 2-year yield and other OIS yields is considerably high, whereas on non-event days, the covariances between them are relatively small. The shift in the covariance between the 2-year yield and the asset prices on policy dates is used to estimate the parameter alpha when I use heteroskedasticity-based identification.

Table 8: The standard deviations and the covariances for OIS yields

	Standard Deviation		Covariance	
	Event	Non-event	Event	Non-event
ECB				
2-year	4.17	1.66	-	-
5-year	4.29	2.18	14.79	2.47
10-year	4.42	2.02	12.24	1.67
15-year	4.34	1.79	11.07	1.02
30-year	4.54	1.88	9.10	0.41
Bundesbank				
2-year	3.97	1.32	-	-
5-year	4.27	2.08	14.39	1.80
10-year	4.31	2.09	11.94	1.20
15-year	4.07	1.96	10.50	0.84
30-year	3.83	2.11	7.79	0.87
Bank of France				
2-year	3.65	1.48	-	-
5-year	3.98	1.84	11.99	2.15
10-year	4.13	1.94	10.17	1.55
15-year	4.04	1.91	8.97	1.22
30-year	3.90	2.01	6.96	0.73
Bank of Spain				
2-year	3.69	1.69	-	-
5-year	4.58	1.89	10.48	1.81
10-year	4.72	2.01	8.57	1.40
15-year	4.52	2.03	7.35	0.96
30-year	4.35	2.11	5.92	0.62
Bank of Italy				
2-year	4.70	2.09	-	-
5-year	4.59	2.34	17.90	3.68
10-year	4.16	2.24	14.36	2.06
15-year	3.92	1.97	10.87	1.58
30-year	3.87	1.90	8.35	0.43

The standard deviations and the covariances with 2-year yield for OIS yields. The table uses daily changes in OIS yields in basis points.

From Table 9, by using heteroskedasticity-based identification, it is evident that yields on the OIS with maturities ranging from 5 to 30 years respond significantly

to central bank speeches like in event-study identification. Furthermore, a positive sign of the coefficient indicates that OIS responds to a monetary policy that reflects on average hawkish communication throughout the sample period. The responses decline gradually across all maturities. In addition to interpretation of event-study OIS results, the stronger response of shorter maturities like the 5-year OIS suggests that these yields are more sensitive to central bank speeches. This is because short-term yields are more directly influenced by expectations of short-term policy actions.

Another important observation is that speeches by Bundesbank governor and Bank of France governor, representing core euro area countries, slightly have a more dominant effect on OIS yields compared to ECB governor speeches on average. On the other hand, the responses from the central bank governors of Spain and Italy, the periphery countries, are not as strong as those from the ECB, Germany, and France.

Table 9: Estimated effects of governor speeches on OIS yields - III

	5-year	10-year	15-year	30-year
ECB	0.84*** (0.06)	0.72 *** (0.09)	0.68*** (0.10)	0.59*** (0.14)
Bundesbank	0.89*** (0.03)	0.76*** (0.14)	0.68*** (0.11)	0.49*** (0.11)
Bank of France	0.88*** (0.10)	0.77*** (0.15)	0.67*** (0.15)	0.56*** (0.16)
Bank of Spain	0.80** (0.35)	0.66* (0.35)	0.60** (0.28)	0.49** (0.25)
Bank of Italy	0.79*** (0.08)	0.69*** (0.09)	0.52*** (0.09)	0.44*** (0.09)

Heteroskedasticity-based estimates. Asymptotic standard errors are in parentheses and calculated the by delta method (*p < 0.1, **p < 0.05, ***p < 0.01).

4.2 Sovereign Bond Yields

Sovereign bonds are government-issued debt instruments that promise to pay the principal and interest to the buyer. Moreover, changes in sovereign bond yields can signal changes in investor confidence and economic outlook, contributing to overall market confidence. Therefore, the stability and reliability of sovereign bonds are critical for financial stability and investor trust.

The purpose of this analysis in this subsection is as follows: Istrefi et al. (2022) found the importance of ECB governor speeches on euro area countries. However, it is important to question whether national central bank governors have a voice in their own countries or if their speeches are dominated by ECB governor speeches.

For the euro area, sovereign bonds would serve as a good proxy for the policy rate if euro area countries had their own central banks. Moreover, since sovereign bonds are valuable assets for central banks, it is useful to consider them when analyzing the effect of central bank governor speeches on financial markets.

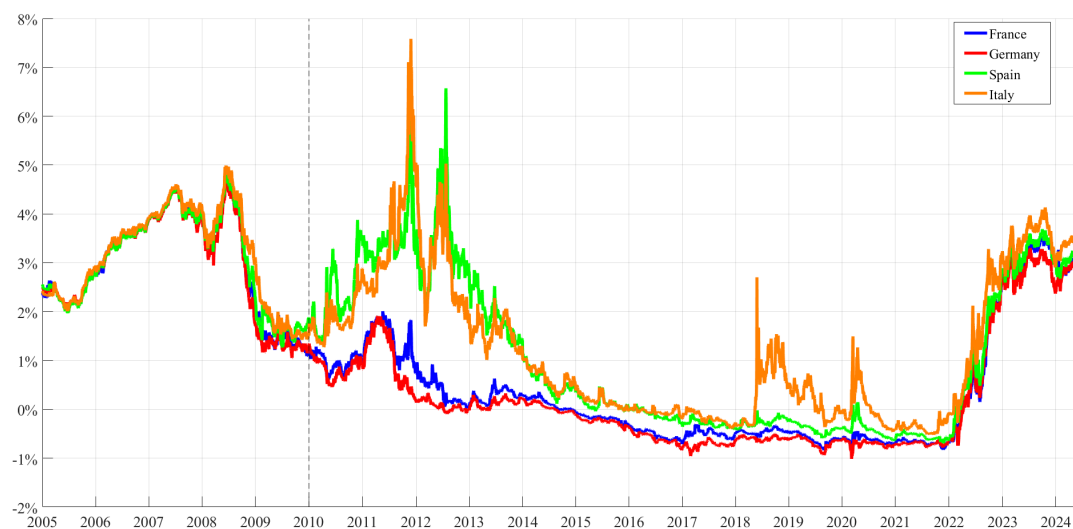


Figure 6: 2-year sovereign bond yields of Germany, France, Spain and Italy between 2005-2024.

Source: Bloomberg

German sovereign bonds, known as German Bunds, are considered the safest investment asset in the euro area because of solid and stable fiscal and political policies. This is why they are known as the benchmark for eurozone bonds. Figure 6 shows the 2-year yields of German, French, Spanish, and Italian sovereign bond yields between 2005 and 2024. German Bunds typically offer lower yields compared to other euro area countries. During economic uncertainty, like in the sovereign debt crisis that happened between 2010-2012, when markets are highly volatile, a flight to quality occurs. Investors move to German bonds, increasing their demand and decreasing their yields.

Table 10 - Table 13 give the estimated effect of governor speeches on bond yields for countries when I employ event study methodology.

Table 10: Estimated effect of ECB and Bundesbank governor speeches on German bond yields

	2-year	5-year	10-year	30-year
ECB (Germany)				
TS	0.29 (0.41)	1.76 *** (0.20)	1.12 *** (0.19)	0.56 *** (0.20)
FGS	-0.27 (0.19)	1.42 *** (0.09)	1.31 *** (0.09)	1.19 *** (0.09)
AP	-0.19 (0.18)	0.52 *** (0.09)	0.81 *** (0.08)	1.02 *** (0.08)
Observations	61	61	61	61
R-squared	0.06	0.85	0.84	0.84
Bundesbank				
TS	0.47 (0.37)	1.19 *** (0.13)	0.87 *** (0.11)	0.13 (0.17)
FGS	0.45 * (0.24)	1.48 *** (0.08)	1.48 *** (0.07)	1.06 *** (0.10)
AP	-0.09 (0.19)	0.61 *** (0.06)	1.06 *** (0.05)	1.15 *** (0.08)
Observations	50	50	50	50
R-squared	0.10	0.90	0.94	0.85

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01). The table shows the estimated effect of Bundesbank governor and ECB (Germany) to ECB governor speeches on German bond yields.

Table 11: Estimated effect of ECB and Bank of France governor speeches on French bond yields

	2-year	5-year	10-year	30-year
ECB (France)				
TS	1.77 *** (0.24)	1.60 *** (0.31)	1.51 *** (0.33)	1.14 *** (0.35)
FGS	0.99 *** (0.11)	1.20 *** (0.14)	1.13 *** (0.15)	0.86 *** (0.16)
AP	-0.02 (0.11)	0.25 * (0.13)	0.60 *** (0.14)	0.80 *** (0.15)
Observations	61	61	61	61
R-squared	0.68	0.65	0.61	0.53
Bank of France				
TS	0.86 *** (0.12)	0.97 *** (0.12)	0.72 *** (0.11)	0.38 *** (0.09)
FGS	0.76 *** (0.11)	0.95 *** (0.12)	0.73 *** (0.10)	0.56 *** (0.09)
AP	0.17 (0.16)	0.52 *** (0.17)	0.86 *** (0.15)	1.04 *** (0.13)
Observations	62	62	62	62
R-squared	0.62	0.69	0.68	0.65

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01). The table shows the estimated effect of Bank of France governor speeches and ECB (France) as ECB governor speeches on French bonds.

Table 12: Estimated effect of ECB and Bank of Spain governor speeches on Spanish bond yields

	2-year	5-year	10-year	30-year
ECB (Spain)				
TS	2.39 *** (0.41)	2.13 *** (0.42)	1.74 *** (0.41)	1.12 *** (0.41)
FGS	0.42 *** (0.18)	0.78 *** (0.19)	0.89 *** (0.19)	0.89 *** (0.19)
AP	-0.30 (0.20)	-0.03 (0.18)	0.19 (0.18)	0.36* (0.18)
Observations	61	61	61	61
R-squared	0.42	0.42	0.41	0.35
Bank of Spain				
TS	1.82 *** (0.32)	1.65 *** (0.35)	1.45 *** (0.39)	0.91 ** (0.39)
FGS	0.89 *** (0.25)	1.10 *** (0.27)	0.82 *** (0.30)	0.55 * (0.30)
AP	0.25 (0.31)	0.46 (0.34)	0.50 (0.38)	0.80 ** (0.38)
Observations	57	57	57	57
R-squared	0.45	0.43	0.32	0.25

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01). The estimated effect of Bank of Spain governor speeches and ECB (Spain) as ECB governor speeches on Spanish bonds.

Table 13: Estimated effect of ECB and Bank of Italy governor speeches on Italian bond yields

	2-year	5-year	10-year	30-year
ECB (Italy)				
TS	2.56 *** (0.60)	2.32*** (0.61)	1.73*** (0.61)	1.12** (0.51)
FGS	0.23 (0.28)	0.69*** (0.28)	0.91*** (0.28)	0.87*** (0.23)
AP	-0.32 (0.27)	-0.22 (0.27)	0.17 (0.27)	0.44** (0.22)
Observations	61	61	61	61
R-squared	0.25	0.38	0.24	0.28
Bank of Italy				
TS	0.65 * (0.41)	0.69 (0.44)	0.48 (0.41)	0.22 (0.39)
FGS	0.55** (0.27)	0.56 * (0.29)	0.40 (0.27)	0.20 (0.25)
AP	-0.35 (0.22)	0.01 (0.24)	0.30 (0.22)	0.38* (0.21)
Observations	65	65	65	65
R-squared	0.12	0.09	0.08	0.06

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01). The estimated effect of ECB and Bank of Italy governor speeches on Italian bond yields.

In general, Timing has an effect on the shortest-end of the yield curve that picks up in 2 years; Forward Guidance always affects intermediate maturities the most, and Asset Purchases pick up in 30 years, the long-end.

In most of the responses, ECB dominates the voice of Bundesbank for German bonds significantly. In French bonds, for Timing, ECB governor speech strongly dominates but for Forward Guidance and Asset Purchase, Bank of France governor speech dominates the voice of ECB governor speech. Moreover, in general, Bank of Spain and Bank of Italy governor speeches have a lower effect compared to ECB governor speeches.

Unlike the on average responses resulting from heteroskedasticity-based identification in Table 16 below, ECB and Bundesbank Bank governor speeches have a significant effect on German bond yields under the event-study identification. Also, most of the responses are positive.

Tables 14 and 15 show the descriptive statistics on daily changes in policy yields proxied by 2-year bonds and changes in 5-year, 10-year, and 30-year bond yields on event and non-event dates. As expected, the variance of changes in interest rates increases on event days compared to non-event days. On speech dates, the change in the covariance between bond yields and 2-year yield is used to estimate the parameter in heteroskedasticity-based identification.

Table 14: The standard deviations and the covariances for core country sovereign bonds

	Standard Deviation		Covariance	
	Event	Non-event	Event	Non-event
Bundesbank				
2-year	4.67	2.30	-	-
5-year	4.91	3.38	0.33	-2.06
10-year	4.71	2.97	1.21	-1.72
30-year	4.14	2.70	0.69	-1.38
ECB (Germany)				
2-year	3.87	3.14	-	-
5-year	5.03	2.74	-0.62	-0.18
10-year	4.63	2.47	-1.44	0.11
30-year	4.48	2.40	-1.52	-0.52
Bank of France				
2-year	3.83	2.17	-	-
5-year	5.02	2.49	15.63	4.07
10-year	5.14	2.66	13.26	3.17
30-year	5.17	2.81	10.16	1.43
ECB (France)				
2-year	4.83	3.19	-	-
5-year	5.23	3.97	21.61	10.41
10-year	5.10	3.32	18.22	7.41
30-year	4.63	3.29	13.96	5.68

The standard deviations and the covariance with 2-year yield for sovereign bonds. The table uses daily changes in basis points. The table shows the standard deviations and the covariances of Bundesbank governor and ECB (Germany) as ECB governor speeches on German bonds and Bank of France governor speeches and ECB (France) as ECB governor speeches on French bonds.

Table 15: The standard deviations and the covariances for periphery country sovereign bonds

	Standard Deviation		Covariance	
	Event	Non-event	Event	Non-event
Bank of Italy				
2-year	6.68	4.51	-	-
5-year	5.77	4.85	32.70	18.36
10-year	5.74	4.25	25.45	11.97
30-year	5.24	4.17	17.25	10.50
ECB (Italy)				
2-year	8.39	4.38	-	-
5-year	7.89	4.42	61.19	15.35
10-year	6.58	4.21	44.40	11.20
30-year	5.31	3.59	23.21	5.83
Bank of Spain				
2-year	7.11	2.86	-	-
5-year	8.13	3.30	43.30	7.01
10-year	7.91	3.22	35.83	4.86
30-year	7.40	3.18	26.84	3.39
ECB (Spain)				
2-year	7.52	3.34	-	-
5-year	7.21	3.49	50.66	8.85
10-year	6.53	3.69	41.35	6.44
30-year	5.51	3.28	28.43	3.46

The standard deviations and the covariance with 2-year yield for sovereign bonds. The table uses daily changes in basis points. The table shows the standard deviations and the covariances of the Bank of Italy governor and ECB (Italy) as ECB governor speeches on Italian bonds and Bank of Spain governor speeches and ECB (Spain) as ECB governor speeches on Spanish bonds.

In Table 16, a notable observation is that speeches by the ECB governor and Bundesbank governor do not have a statistically significant effect on German bonds on average when I employ heteroskedasticity-based identification. However, results from the event-study methodology provide a detailed interpretation above.

Table 16: Estimated effects of governor speeches on sovereign bond yields

	5-year	10-year	30-year
ECB (Germany)	-0.08 (0.68)	-0.30 (0.43)	-0.19 (0.44)
Bundesbank	0.14 (0.32)	0.17 (0.24)	0.12 (0.13)
ECB (France)	0.85*** (0.20)	0.82*** (0.17)	0.62*** (0.16)
Bank of France	1.15*** (0.17)	1.01*** (0.23)	0.87*** (0.28)
ECB (Italy)	0.89*** (0.04)	0.64*** (0.05)	0.33*** (0.05)
Bank of Italy	0.58*** (0.12)	0.55*** (0.16)	0.27 (0.24)
ECB (Spain)	0.92*** (0.04)	0.76*** (0.05)	0.55*** (0.05)
Bank of Spain	0.85*** (0.16)	0.73*** (0.23)	0.55*** (0.20)

Heteroskedasticity-based estimates. Asymptotic standard errors are in parentheses and calculated the by delta method (*p < 0.1, **p < 0.05, ***p < 0.01). Table shows the responses of Bundesbank governor and ECB (Germany) as ECB governor speeches on German bonds, Bank of France governor speech and ECB (France) as ECB governor speeches on French bonds, Bank of Italy governor and ECB (Italy) as ECB governor speeches on Italian bonds and Bank of Spain governor speech and ECB (Spain) as ECB governor speeches on Spanish bonds.

Furthermore, France tells us an exciting story. The speeches of both ECB governor and Bank of France governor have a much stronger effect on average on French sovereign bonds. Although France is considered a core country in the Eurozone, it differs from Germany. In Figure 6, between 2010-2013, the 2-year sovereign bond yields of France and Germany diverged from each other, and France's bond yield picked up in December 2011. The increase in bond yields in France can due to the increase in the country risk premium where investors require compensation for buying French bonds. The CDS rates, a measure of perceived macroeconomic fragility of a country, for France mildly increased after 2010, with a dramatic shoot up between mid 2011 and late 2012. Even though we are not taking a stance on why the CDS might be increasing so quickly, it is clear

that the market saw French bonds riskier than German bonds.

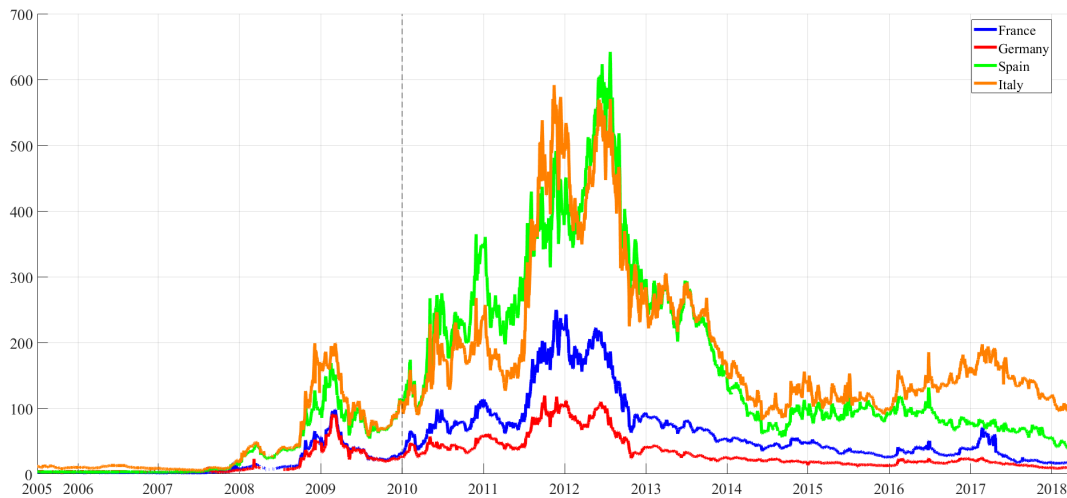


Figure 7: 5-year credit default swap (CDS) for Germany, France, Spain and Italy between 2005-2018.

Source: Bloomberg

For periphery countries, on average, the effect of ECB governor speeches dominates the voice of the national central bank governors, and the effect declines through maturities, as is also observed in OIS yields. Notably, the 5-year Italian sovereign bond yield response to the Bank of Italy governor speeches is very small, indicating the relatively weak influence of the Bank of Italy governors on Italy sovereign bonds compared to the other central bank governor speeches to their relative country sovereign bonds.

4.3 Stock Markets

To examine the effect of central bank governor speeches on the European stock market, I analyze several key indices: the Euro Stoxx50 (STOXX50), the Euro Stoxx Banks Index (STOXX7E), the German DAX30, the French CAC40, the Spanish IBEX 35, and the Italian MIB30.

When I employ the event study, the responses align with the heteroskedasticity-based identification reported below. All statistically significant responses from the timing surprise are positive, except for the German DAX30's response to the Bundesbank governor's speech, which is -0.16 basis points. The only significant response from forward guidance comes from the estimated effect of Bank of France governor speeches on the Euro Stoxx50 and the French CAC40. Lastly, there are no significant responses resulting from Asset Purchases.

From Table 17, only statistically significant response to ECB governor speeches for all stock markets are coming from Timing. Sign of the stock market responses to ECB governor speeches are mostly same in both methodologies. ECB governor speeches and Bank of Spain governor speeches do not have any effect on IBEX35 and Bank of Italy and Bank of Spain governor speech do not have a voice in euro Stoxx50 and SX7E, and respective national stock markets in event-study methodology.

Moreover, the effect of Bundesbank and Bank of France governor speeches on stock markets coincide with the heteroskedasticity-based identification results that sign the responses are the same.

Table 17: Estimated effect of ECB governor speeches on stock markets

	STOXX50	SX7E	DAX30	CAC40	MIB30	IBEX35
TS	0.16* (0.09)	0.26 * (0.15)	0.16* (0.09)	0.15* (0.09)	0.20 * (0.10)	0.14 (0.11)
FGS	0.02 (0.04)	0.07 (0.07)	0.04 (0.04)	0.01 (0.04)	0.02 (0.06)	-0.03 (0.05)
APS	0.02 (0.04)	0.02 (0.08)	0.01 (0.04)	0.03 (0.04)	0.02 (0.05)	0.03 (0.05)
Observations	61	61	61	61	61	61
R-squared	0.04	0.12	0.05	0.04	0.07	0.03

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 18: Estimated effect of Bundesbank governor speeches on stock markets

	STOXX50	SX7E	DAX30
TS	-0.08 (0.13)	0.04 (0.21)	-0.16 * (0.10)
FGS	0.04 (0.08)	-0.08 (0.13)	0.08 (0.08)
APS	0.01 (0.06)	0.05 (0.11)	0.006 (0.06)
Observations	50	50	50
R-squared	0.01	0.01	0.05

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 19: Estimated effect of Bank of France governor speeches on stock markets

	STOXX50	SX7E	CAC40
TS	0.003 (0.04)	-0.05 (0.06)	0.04 (0.04)
FGS	0.09 ** (0.04)	0.06 (0.06)	0.10 ** (0.04)
APS	-0.01 (0.06)	-0.007 (0.08)	-0.03 (0.06)
Observations	62	62	62
R-squared	0.08	0.02	0.09

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 20: Estimated effect of Bank of Italy governor speeches on stock markets

	STOXX50	SX7E	MIB30
TS	0.03 (0.12)	0.12 (0.22)	0.07 (0.14)
FGS	0.03 (0.08)	0.10 (0.14)	0.01 (0.09)
APS	0.07 (0.06)	0.12 (0.12)	0.09 (0.07)
Observations	65	65	65
R-squared	0.01	0.03	0.03

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 21: Estimated effect of Bank of Spain governor speeches on stock markets

	STOXX50	SX7E	IBEX35
TS	-0.11 (0.08)	-0.21 (0.13)	-0.06 (0.08)
FGS	0.09 (0.06)	0.05 (0.08)	0.05 (0.06)
APS	0.02 (0.08)	0.01 (0.11)	0.01 (0.08)
Observations	57	57	57
R-squared	0.07	0.05	0.02

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Generally, the tables of standard deviation and covariance for stock markets show that the variance related to the central bank governor's speech is higher and on non-policy dates, there is no clear relationship between stock prices and the 2-year yield, as shown by the relatively small covariance between them. Moreover, the negative covariance between the 2-year yield and stock market indices on the event dates indicates a negative sign for the estimated parameter alpha.

Table 22: The standard deviations and covariances for Euro STOXX50

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	3.85	1.61	-	-
	STOXX50	1.33	1.17	0.60	-0.12
Bundesbank	2-year	4.10	1.31	-	-
	STOXX50	1.14	0.95	-0.89	-0.05
Bank of France	2-year	3.64	1.47	-	-
	STOXX50	1.21	1.03	0.74	0.15
Bank of Spain	2-year	3.68	1.76	-	-
	STOXX50	1.18	0.98	-0.01	0.25
Bank of Italy	2-year	4.44	1.99	-	-
	STOXX50	1.61	1.25	0.91	0.12

The standard deviations and the covariances with 2-year yield for Euro STOXX50. The table uses log daily changes.

Table 23: The standard deviations and the covariances for Euro SX7E

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.23	1.64	-	-
	SX7E	2.10	1.87	-1.48	-0.20
Bundesbank	2-year	4.01	1.32	-	-
	SX7E	1.86	1.60	-1.04	-0.06
Bank of France	2-year	3.71	1.50	-	-
	SX7E	1.96	1.66	0.93	0.07
Bank of Spain	2-year	3.92	1.88	-	-
	SX7E	1.81	1.48	-0.46	0.16
Bank of Italy	2-year	4.68	2.19	-	-
	SX7E	2.26	1.71	0.67	-0.89

The standard deviations and the covariances with 2-year yield for Euro SX7E. The table uses log daily change.

Table 24: The standard deviations and the covariances for German DAX30

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.07	1.66	-	-
	DAX30	1.45	1.29	0.83	0.02
Bundesbank	2-year	4.18	1.37	-	-
	DAX30	1.13	0.91	-0.62	-0.003

The standard deviations and the covariances with 2-year yield for DAX30. The table uses log daily changes.

Table 25: The standard deviations and the covariances for French CAC40

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.04	1.81	-	-
	CAC40	1.30	1.14	0.55	-0.17
Bank of France	2-year	3.44	1.49	-	-
	CAC40	1.13	0.96	0.69	0.12

The standard deviations and the covariances with 2-year yield for CAC40. The table uses log daily changes.

Table 26: The standard deviations and the covariances for Spanish IBEX35

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.31	1.79	-	-
	IBEX35	1.42	1.24	0.50	-0.14
Bank of Spain	2-year	4.31	1.96	-	-
	IBEX35	1.15	0.94	-0.35	0.12

The standard deviations and the covariances with 2-year yield for IBEX35. The table uses log daily changes.

Table 27: The standard deviations and the covariances for Italian MIB30

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.45	1.97	-	-
	MIB30	1.52	1.26	-0.91	-0.07
Bank of Italy	2-year	4.63	2.41	-	-
	MIB30	1.66	1.28	0.70	-0.18

The standard deviations and the covariances with 2-year yield for MIB30. The table uses log daily changes.

Table 28: Estimated effects of governor speeches on stock markets

	STOXX50	SX7E	DAX30	CAC40	IBEX35	MIB30
ECB	0.06 ** (0.02)	-0.08 * (0.04)	0.05* (0.03)	0.05 ** (0.02)	0.04 ** (0.02)	-0.05 ** (0.02)
Bundesbank	-0.05 *** (0.01)	-0.07* (0.04)	-0.04 *** (0.01)	- -	- -	- -
Bank of France	0.05 ** (0.02)	0.07 (0.07)	- -	0.05 ** (0.02)	- -	- -
Bank of Spain	-0.02 (0.03)	-0.05 (0.06)	- -	- -	-0.03 * (0.01)	- -
Bank of Italy	0.05 (0.03)	0.09 (0.06)	- -	- -	- -	0.05 * (0.03)

Heteroskedasticity-based estimates. Asymptotic standard errors are in parentheses and calculated the by delta method (*p < 0.1, **p < 0.05, ***p < 0.01).

The results of heteroskedasticity-based identification are reported in Table 28. Some responses align with the typical understanding that there is a negative relationship between stock prices and monetary policy shocks but some responses have a positive sign. Bohl et al. (2008) analyze the reaction of European stock market returns, including the Euro Stoxx50, German DAX30, French CAC40, Spanish IBEX35, and Italian MIB30, to unexpected interest rate decisions by the ECB using heteroskedasticity-based identification. Their findings indicate a negative and significant response of European stock returns to monetary

policy shocks. My results for ECB governor speeches align with national stock market indices but not with the Euro Stoxx50. Moreover, speeches by the ECB, Bundesbank, and Bank of France governor significantly impact the Euro Stoxx50, and ECB and Bundesbank governor speeches affect the banking index Euro SX7E. For national indexes, the ECB governor speeches only significantly dominate Bank of Spain governor speeches on average for the IBEX35 when I use heteroskedasticity-based identification.

Here are some studies that may be the reasons why we observe positive stock price responses. Parle (2022) found that hawkish signals in ECB press conferences lead to higher stock prices, suggesting that information about a more positive economic outlook outweighs monetary policy shocks. Also, Schmeling and Wagner (2016) showed that a more positive tone raises stock prices and lowers volatility through risk premiums.

In the literature, a positive growth shock generally causes both stock prices and yields to rise, and a possible explanation comes from the survey-based approach. The survey-based approach suggests that central bank announcements provide important economic information that the public does not already know. Miranda-Agrippino and Ricco (2021) show that these information effects can make it harder to identify monetary transmissions. To get a clear monetary policy signal, they control for the central bank's private information using survey forecasts.

Altavilla et al. (2019) observed that from early 2008 to 2013, the relationship between stock prices and 2-year yield was generally positive. The strong positive comovement around ECB press conferences during this period is notable because these conferences provide almost immediate context to policy decisions. However, in the early summer of 2013, communication started to drive stocks and yields in opposite directions. This shift happened just after FOMC Chairman Bernanke's testimony on May 22, 2013. Moreover, authors showed the relation-

ship between 2-year OIS, 2-year inflation-linked swaps, and Euro Stoxx50 on ECB Governing Council Policy Meeting Dates. On days when these variables move together, it mainly reflects information shocks (Delphic), while days when bond yields move in the opposite direction mostly indicate pure monetary policy shocks (Odyssean).



4.4 Exchange Rate

Uncovered Interest Rate Parity (UIP) states that a country with a higher interest rate will be expected to experience depreciation of its domestic currency relative to foreign currency. However, empirical data consistently reject this hypothesis. For instance, if the FED maintains the interest rate at the same level while the ECB raises its policy rate, the euro becomes more attractive to investors, leading to the appreciation of the euro.

According to Jansen and De Haan (2009), statements by ECB officials have a significant impact on the level and volatility of the euro-US dollar exchange rate. In such context, I examine how the euro-US dollar exchange rate responds to speeches by central bank governors.

Table 29 shows the event study estimation results of the euro-US dollar exchange rate. The statistically significant positive impact of speeches by ECB and German central bank governors on the euro-US dollar exchange rate suggests that these speeches convey information about future monetary policy tightening. This finding is consistent with Blinder et al. (2008), which highlights the significant influence of central bank transparency and forward guidance on market expectations and asset prices such as exchange rate, and aligns with the results of Altavilla et al. (2019).

Table 29: Estimated effect of governor speeches on EUR/USD - I

	ECB	Bundesbank	Bank of France	Bank of Italy	Bank of Spain
TS	0.04 (0.04)	0.003 (0.07)	0.02 (0.01)	0.03 (0.02)	0.04 (0.02)
FGS	0.03 * (0.02)	0.07 * (0.03)	0.01 (0.01)	0.003 (0.03)	0.03 (0.02)
AP	0.008 (0.01)	-0.02 (0.03)	0.02 (0.02)	0.02 (0.02)	0.008 (0.02)
Observations	61	50	62	65	57
R-squared	0.07	0.06	0.05	0.09	0.10

OLS estimates. Standard errors are in parentheses (*p < 0.1, **p < 0.05, ***p < 0.01).

Table 30 displays the euro- US dollar standard deviation and covariance with the 2-year OIS yield. It is obvious that days of central bank governor speech announcements are days that the variance of speech shocks was specifically high.

Table 30: The standard deviation and covariance for EUR/USD

		Standard Deviation		Covariance	
		Event	Non-event	Event	Non-event
ECB	2-year	4.22	1.70	-	-
	EUR/USD	0.55	0.48	0.12	-0.03
Bundesbank	2-year	4.01	1.27	-	-
	EUR/USD	0.55	0.47	0.20	0.02
Bank of France	2-year	3.68	1.46	-	-
	EUR/USD	0.42	0.43	0.03	0.08
Bank of Spain	2-year	3.38	1.48	-	-
	EUR/USD	0.44	0.39	0.05	0.00
Bank of Italy	2-year	4.07	1.77	-	-
	EUR/USD	0.55	0.51	0.07	0.06

The standard deviations and the covariance with 2-year yield for EUR/USD. The table uses log daily changes.

Furthermore, Table 31 presents the results when I use heteroskedasticity-based identification and on average responses coincide with the results of the event-study identification.

Table 31: Estimated effects of governor speeches on EUR/USD - II

	EUR/USD
ECB	0.01*** (0.002)
Bundesbank	0.01*** (0.003)
Bank of France	-0.003 (0.002)
Bank of Spain	0.005 (0.003)
Bank of Italy	0.006 (0.004)

Heteroskedasticity-based estimates. Asymptotic standard errors are in parentheses and calculated the by delta method (*p < 0.1, **p < 0.05, ***p < 0.01).

CHAPTER 5

CONCLUSION

This study analyzes the impact of speeches by the governors of ECB, Bundesbank, Bank of France, Bank of Spain, and Bank of Italy on OIS yields, sovereign bond yields, euro area and national stock market indices, and the euro-US dollar exchange rate. The findings show that OIS yields significantly respond to central bank governor speeches across all maturities and results indicate that these speeches contain Timing, Forward Guidance and Asset Purchase component. For individual country analysis, sovereign bonds are used and statistically significant responses are observed.

Regarding stock markets, some responses indicate a negative relationship between stock prices and monetary policy shocks. Additionally, ECB, Bundesbank and Bank of France significantly influence euro area stock markets. For the exchange rate, the statistically significant positive impact of speeches that contain Forward Guidance by ECB and German central bank governors on the euro-US dollar exchange rate suggests these speeches likely convey information about future monetary policy tightening.

This article is essential in the context of the euro area. Since the ECB Governing Council consists of twenty-six members, mostly from euro area national central banks, possible policy decisions the council takes may elicit different responses across the euro area countries. Therefore, clear and effective communication

by national central banks is also crucial. Furthermore, ECB meeting decisions often indicate a large majority in favor of particular policies, but this lack of detail leaves market participants unsure about which members have significant influence. This may lead to missing information about the decision-making process.

Recently, the role of speeches in central bank communication has gained importance for transmitting monetary policy decisions, especially scheduling them after policy announcement days or when central bank governors are invited to speak at events, as evidenced by the latest studies. For instance, Odendahl et al. (2024) mentioned that speeches function similarly to unconventional monetary policy announcements, and Istrefi et al. (2022) emphasized the importance of considering speech dates outside regular monetary policy meetings.

Publishing central bank governor speeches on their websites is common practice for FED and ECB. For the euro area, the Bundesbank and Bank of Italy websites list speeches dating back to 2005, whereas the Bank of France and Bank of Spain provide limited archives. Creating such archives would be beneficial for further research. Regarding the limitations of this study, selecting and collecting speech dates is a prominent challenge. Moreover, interpreting the results opens up further research questions, especially concerning the behavior of sovereign bonds in response to governor speeches.

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APPENDIX

Table 32: Major Bundesbank governor speeches for sovereign bond yields

Name	Date	Quote
Joachim Nagel	10.06.2022	"Inflation this year will be even stronger than it was at the beginning of the 1980s... Monetary policy is called upon to reduce inflation through resolute action."
Jens Weidmann	6.03.2020	"Given the significant economic uncertainties caused by the coronavirus, it is crucial for the Bundesbank to maintain its stability-oriented monetary policy while being prepared to support measures that stabilize the economy. However, we must also be cautious of long-term inflationary pressures."
Joachim Nagel	27.04.2023	"The German economy continues to face significant headwinds due to ongoing global uncertainties and inflationary pressures... It is crucial to maintain a steady hand in our monetary policy to ensure stability and manage inflation effectively."
Axel Weber	26.10.2005	"In light of the current economic conditions, we must remain vigilant and cautious. It is essential to maintain our commitment to stability and to continue monitoring inflationary pressures closely."
Jens Weidmann	25.06.2012	"Bond-buying by the ECB should not be perceived as financing governments directly. This approach risks undermining the independence of monetary policy and could lead to inflationary pressures."

Major Bundesbank governor speeches for daily change in Germany sovereign bond yields by using heteroskedasticity-based identification.

Table 33: Major Bank of France governor speeches for sovereign bond yields

Name	Date	Quote
Christian Noyer	17.03.2011	"The European Central Bank is fully committed to maintaining price stability and supporting the economic recovery of the Eurozone."
Christian Noyer	8.07.2011	"The situation in Europe remains fragile, and it is essential that we continue to support our banking institutions to ensure financial stability. The ongoing debt crisis requires coordinated efforts to manage and mitigate risks."
François Villeroy de Galhau	9.10.2023	"The European Central Bank isn't ready to consider lowering borrowing costs now, but will examine the question at some point during 2024. Barring any shock, rate hikes are now over. The question of a cut may arise when the time comes during 2024, but not now: when a remedy is effective, you have to be patient enough on its duration."
François Villeroy de Galhau	23.05.2023	"...while headline inflation has been declining, underlying price pressures show persistence. The Governing Council has already taken prompt and forceful actions to tighten the stance of monetary policy."

Major Bank of France governor speeches for daily change in France sovereign bond yields by using heteroskedasticity-based identification.

Table 34: Major Bank of Spain governor speeches for sovereign bond yields

Name	Date	Quote
Miguel Á. F. Ordóñez	10.02.2010	"If Silicon Valley Bank would have been Silicon Valley CBDC service provider, you would never run because CBDC is money. It is not a promise to pay money that could fail."
Miguel Á. F. Ordóñez	7.09.2010	"The Spanish banking system must undergo significant reforms to strengthen its foundations and regain the confidence of both domestic and international investors."
Luis Linde	29.05.2012	"In the real estate and financial bubble years, there was a sort of euphoria which led to the risks that were accumulating to not be seen, or not wish to be seen."
Luis Linde	19.02.2016	"The ongoing recovery of the Spanish economy is a testament to the resilience and adaptability of our economic structures. However, it is imperative that we continue with the necessary reforms to ensure the stability and robustness of our financial system."
Pablo H. de Cos	7.02.2018	"The Spanish economy grew by 2.5 percent in 2018, surpassing the average growth rate of the eurozone... It is critical to implement the full Basel III package in Europe, as its components are complementary in nature and are necessary to safeguard the resilience of the European banking system."

Major Bank of Spain governor speeches for daily change in Spain sovereign bond yields by using heteroskedasticity-based identification.

Table 35: Major Bank of Italy governor speeches for sovereign bond yields

Name	Date	Quote
Ignazio Visco	12.04.2019	"We must pursue policies that support growth while ensuring financial stability. Structural reforms are essential to improve productivity and enhance the potential growth of our economy."
Ignazio Visco	10.03.2023	"While it is crucial to contain inflation, we must also be cautious to not stifle the economic recovery that is still underway."

Major Bank of Italy governor speeches for daily change in Italy sovereign bond yields by using heteroskedasticity-based identification.

Table 36: Major ECB Governor speeches for daily change in OIS yields

Name	Date	Quote
Mario Draghi	26.05.2014	"What we need to be particularly watchful for at the moment is the potential for a negative spiral to take hold between low inflation, falling inflation expectations and credit, in particular in stressed countries."

Major ECB governor speeches for daily change in OIS yields by using heteroskedasticity-based identification.

Table 37: Major Bundesbank Governor speeches for daily change in OIS yields

Name	Date	Quote
Joachim Nagel	10.06.2022	"Inflation this year will be even stronger than it was at the beginning of the 1980s."
Joachim Nagel	9.03.2023	"Interest rate movements continue to be at the heart of the current monetary policy debate. One thing is clear: the interest rate step announced for March will not be the last. Further significant interest rate steps might even be necessary afterwards, too."
Joachim Nagel	2.02.2024	"But a recession in the sense of a considerable, widespread and lasting contraction of economic performance still cannot be observed and is also not to be expected."

Major Bundesbank governor speeches for daily change in OIS yields by using heteroskedasticity-based identification.

Table 38: Major Bank of France Governor speeches for daily change in OIS yields

Name	Date	Quote
Christian Noyer	8.08.2011	"French banks are solid and have no liquidity or solvency problems. They are well capitalized and profitable."
François Villeroy de Galhau	21.10.2022	"Due to the current instability in the crypto market, it is necessary for France to implement mandatory licensing for digital asset service providers as soon as possible rather than just requiring registration."
François Villeroy de Galhau	10.06.2022	"Central banks must carefully balance the need to address inflationary pressures while supporting economic growth. Our commitment remains firm to ensure price stability, which is essential for sustainable economic development."
François Villeroy de Galhau	25.04.2022	"We clearly show our determination to bring inflation back to 2 percent in the medium term: this is not only our target, it is our commitment towards European citizens; our will and our capacity to deliver on our mandate cannot be subject to any doubt whatsoever."
Christian Noyer	18.04.2011	"It is essential to maintain confidence in the financial markets and continue our efforts to support the recovery of the French economy while addressing the structural challenges that lie ahead."

Major Bank of France governor speeches for daily change in OIS yields by using heteroskedasticity-based identification.

Table 39: Major Bank of Spain Governor speeches for daily change in OIS yields

Name	Date	Quote
Pablo H. de Cos	27.05.2021	"The potential for climate change to impact the natural interest rate is significant. Climate-related risks could lower the natural interest rate by increasing economic uncertainty and reducing investment, thereby affecting the transmission of monetary policy."
Pablo H. de Cos	27.06.2022	"In the current environment of heightened uncertainty, it is crucial to maintain a balanced approach to monetary policy, one that addresses inflationary pressures without stifling the economic recovery. We must also work closely with our European partners to ensure coordinated and effective responses to these challenges."
Pablo H. de Cos	27.07.2022	"Although the price rises were initially concentrated in commodities and food and seemed to be relatively temporary in nature, in recent quarters their intensity has systematically surprised on the upside, spreading to the rest of the goods and services in the consumption basket and showing signs of greater persistence."

Major Bank of Spain governor speeches for daily change in OIS yields by using heteroskedasticity-based identification.

Table 40: Major Bank of Italy Governor speeches for daily change in OIS yields

Name	Date	Quote
Ignazio Visco	10.03.2023	"Allowing more explicitly for these characteristics, these new models definitely contribute to improving our understanding of the ways in which monetary policy operates... Lowering interest rates reduces the debt burden and the returns on savings and may lead to higher asset prices. Over time, it tends to spur economic activity and push up labor demand, as well as wages and consumer prices. Depending on expectations and on the shape and position of a complex relation such as the Phillips curve, it may lead to higher inflation."
Mario Draghi	16.10.2018	"The current financial crisis is the most severe since the Great Depression. Coordinated international efforts are essential to restore confidence and stability in the financial system. We need a system with more rules, more capital, less debt, and more transparency."
Ignazio Visco	12.04.2023	"Managing inflation effectively is critical to ensure sustainable growth and economic stability. We must continue to implement robust policies and collaborate internationally to address the challenges facing the global economy."
Ignazio Visco	12.05.2023	"In the face of persistent inflationary pressures, it is crucial to maintain a balanced approach to monetary policy, ensuring that we do not stifle economic recovery while also preventing inflation from becoming entrenched. Structural reforms remain essential to enhance the growth potential of our economy and to build resilience against future shocks."

Major Bank of Italy governor speeches for daily change in OIS yields by using heteroskedasticity-based identification.