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SETTING NEW PRIORITIES FOR THE ECB'S MANDATE

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Sciences Po, OFCE

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■ **In a statement announcing the review of its monetary policy strategy, the European Central Bank (ECB) stated that it will, in addition to price stability, also take into account how "other considerations, such as financial stability, employment and environmental sustainability, can be relevant in pursuing the ECB's mandate"**. The key question is which precise objectives shall be taken into account and how the ECB might reach them, keeping in mind that some trade-offs vis-à-vis the primary objective may arise.

■ **We choose relevant indicators of these secondary objectives and compute their respective correlation coefficient with the inflation rate in the euro area**; hence, we illustrate the statistical interactions between these objectives and the primary objective of the ECB.

■ **When objectives are complementary, the ECB can achieve other objectives while still maintaining price stability**. This may be the case, for instance, with heterogeneity of inflation rates. When there is no relationship, achieving price stability does not help in fulfilling the other objective as highlighted, for instance, for financial stability, financial integration, technological progress, climate change and inequality. Challenges are more complex when objectives are substitutable. In this case, trade-offs may arise.

■ **Keeping the current mandate is inevitably the baseline case to be considered but it may not enable the ECB to achieve macroeconomic and financial stability**. This suggests the need to broaden the mandate of the ECB to integrate full employment and financial stability because these objectives, socially important, are closely connected with monetary policy. Yet, it must be acknowledged that this would entail a change in the Treaty, which remains a difficult task.

■ **We do not recommend assigning the ECB with tasks it cannot be held accountable for and which are highly political**. This is notably the case with climate change or inequality. It would be hazardous to set in stone in the Treaty an objective relating, for instance, to a desired level of greenhouse gas emissions and to leave the ECB to be accountable for achieving it.

■ **The global financial crisis highlighted the institutional flaws of the Economic and Monetary Union (EMU)**. Price stability may not be enough to prevent external imbalances. The ECB might consider changing its definition of the price stability target to avoid discrepancies between national inflation rates. This change does not require to modify the Treaty as the ECB has discretion to specify its target.

■ **Adopting new objectives for monetary policy may require additional instruments**. In any case, higher transparency is needed if the ECB implements supposedly conflicting policies as regards the primary and secondary objectives.

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■ **The COVID-19 crisis has shown that shared identification of shocks is crucial to remove the risk of inappropriate policies (monetary contraction and/or permanent fiscal expansion after a negative supply shock)**. Coordinated monetary and fiscal policies help to bolster their respective effects and to achieve their objectives.

■ **Even if climate change does not enter the mandate, monetary policy may yet contribute to the transition to a low-carbon economy through the purchase of assets such as green bonds, as long as quantitative easing (QE) programmes are still activated**. But the question whether to issue those bonds is foremost a policy decision taken by governments.

1. Introduction

In a statement announcing the review of its monetary policy strategy, the European Central Bank (ECB) stated that it will, in addition to price stability, also take into account how "other considerations, such as financial stability, employment and environmental sustainability, can be relevant in pursuing the ECB's mandate". The key question is which precise objectives shall be taken into account and how the ECB might reach them, keeping in mind that some trade-offs vis-à-vis the primary objective may arise.

The Treaty on the Functioning of the European Union (TFEU) provisions on the ECB's mandate are clear as regards the primary objective—price stability—, but they are broad regarding the so-called secondary objectives of supporting "the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union". The questions arise as of how the ECB might reach objectives like "aiming at full employment", improving "the quality of the environment", or the promotion of "technological advance" (all three mentioned in Article 3 of the Treaty of the European Union [TEU]) and whether those secondary objectives interact with the primary objective of price stability. If they do not, should monetary policy look for another instrument to complement its work? If they do and some arbitrage arises, should monetary policy be designed differently? These are the questions at the centre of this paper.

While dealing with these questions, it is noteworthy that we will focus exclusively on the economic perspective. We will not refer to legal issues pertaining to the interpretation of the ECB's mandate or the hierarchy between objectives whenever the conclusions we may reach would require a legal change in the ECB's mandate.

It is obvious that the long list of secondary objectives in the ECB's mandate may raise some trade-offs *vis-à-vis* the primary objective. It is certainly the reason why a hierarchy is introduced in the Treaty stating that the achievement of these secondary objectives should not jeopardise the primary one: trade-offs will automatically vanish and the priority of inflation targeting will prevail.

However, the economic context has substantially changed since the establishment of the ECB. The global financial crisis of 2007-2009, the subsequent sovereign debt crisis and the COVID-19 crisis have all tended to modify the priorities or preferences of policymakers: banking stability, public debt sustainability, climate change and macroeconomic stabilisation have come out as major challenges, whereas price stability was constantly achieved, with the inflation rate actually under-performing its "below, but close to" 2 percent target.[1] Taking for granted that the ECB's mandate remains the same as

1. Average inflation over the period 2015-2019 has not exceeded 1%.

the one enshrined in the TFEU, it is of utmost importance to study whether the ECB's policy oriented towards price stability has facilitated or deteriorated the achievement of other objectives.

In the following, we do not wish to take any predetermined stance on the possible merits of monetary policy to achieve secondary objectives. Although climate change is a very important issue and its mitigation an important objective, we do not take for granted that monetary policy is best suited or suited at all to deliver on this objective. What we wish to do is to analyse whether the different objectives assigned to the ECB behave as substitutes, independent from one another or complementary. For instance, has pursuit of price stability intensified climate change, has it had no impact on climate change, or has it mitigated climate change? It is only after this analysis that we proceed with some recommendations on which objectives are most worth pursuing with monetary policy in the euro area and on how to achieve them.

In our empirical analysis, we start with the investigation of the linkages between the price stability objective and secondary objectives or, expressed a bit differently, we investigate the correlation and causality between the inflation rate, as a natural indicator of the fulfilment of the primary objective, and relevant indicators of the fulfilment of secondary objectives. In a first step, we thus identify a few key indicators of "full employment", "the quality of the environment" and other secondary objectives.

Then, we study pairs of indicators, always including the inflation rate, and check whether a significant correlation and causal relationship arises. For each pair, there are three possible outcomes: i) no (significant) correlation, ii) a significant correlation that does not generate an arbitrage, and iii) a significant correlation that reveals an arbitrage. If, for example, price stability and financial stability are significantly correlated, a secondary objective like, e.g. financial stability, is not worth being specifically targeted: as a side effect, achieving price stability would enable to achieve financial stability. There is no arbitrage. On the contrary, if one shows that an arbitrage arises, because price stability is negatively correlated with financial stability (and the latter is among the secondary objectives), a policy oriented towards price stability may worsen financial stability. If this outcome is costly for the euro area, dealing with the trade-off is a priority. It may either require an additional instrument or dedicated communication from the central bank to explain how the trade-off is handled. It may also call for coordinating policies to reach both objectives. Now, if price stability and financial stability are not correlated, an additional monetary instrument to help achieve the latter is necessary if the achievement of the secondary instrument is considered important but, in contrast with the former case, it would not require cooperative policies (provided the new instrument has no impact on inflation).

Hence, the case for a change in the ECB's mandate may arise when an arbitrage emerges between the different objectives and it is costly to the euro area. An extension of monetary policy instruments is an option in this case. Finally, when the inflation rate is not correlated with the secondary objective and the latter has gained interest from the ECB, it may be worth discussing a clarification of the mandate and the possible extension of instruments to enlarge the scope of monetary policy.

As an important side note, the German Federal Constitutional Court (FCC)'s ruling on the Public Sector Purchase Programme (PSPP) of 5 May 2020 is quite topical. Actually, the ruling introduces a distinction between the "monetary policy objective" and the "economic policy effects arising from the programme". Thus, it ignores the necessary interactions between the monetary policy instruments, the ECB's primary objective and other macroeconomic and financial variables required to fulfil the mandate. Meanwhile, it also completely overlooks the secondary objectives of the ECB.

2. Linkages between price stability and secondary objectives

2.1. Relevant secondary objectives for the fulfilment of general policies

The TFEU is clear about the ECB's main price stability objective. Article 127 (TFEU) states that:

> *"The primary objective of the European System of Central Banks (hereinafter referred to as 'the ESCB') shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid dawn in Article 3 of the Treaty on European Union."*

On the other hand, Article 3 Treaty on European Union (TEU) is only broadly defined and includes the following (paragraph 3):

> "*The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.*"

In a statement announcing the review of its monetary policy strategy, the ECB stated that it will, in addition to price stability, also take into account how "other considerations, such as financial stability, employment and environmental sustainability, can be relevant in pursuing the ECB's mandate". Beyond whether these "other considerations" are taken into account as a means to reach price stability, the question of which "other considerations" should be considered remains open.

Based on the objectives mentioned in the Treaty, we consider 8 secondary objectives that the ECB could consider: financial stability, financial integration (or said differently, the prevention of financial fragmentation), reduction of inflation heterogeneity among euro area countries, sovereign debt sustainability, macroeconomic stability, social progress, technological progress, and climate change mitigation. This paper will attempt to consider the link between those secondary objectives and the ECB's primary one, price stability.

2.2. Correlation between primary and secondary objectives

For each secondary objective enumerated above, we chose relevant indicators and first computed the correlation coefficient with the inflation rate in the euro area in order to illustrate the statistical interaction between these objectives. We interpret these correlations cautiously. The aim is to point to potential interactions and the direction of those relationships. Then, we carry additional statistical analyses to examine further the relationship with price stability and provide more detailed conclusions.[2]

We conduct three complementary tests in order to estimate the dynamic correlation and the direction of the link between the ECB's main objective and the secondary objectives considered.[3] First, we draw a scatterplot of inflation and each secondary objective variable (the regression line is accompanied by a 95% confidence interval) to assess the strength of the relationship and the influence of outliers. Second, the cross-correlogram provides evidence of a dynamic correlation between the contemporary inflation rate and each other variable at different time periods. Finally, we estimate a

2. Table 2 in Annex shows the raw correlation between the different indicators and the headline inflation.

3. We provide the outcomes of these additional statistical analyses for variables whose correlation is low in the Annex and confirm that there is no stable relationship with the ECB primary objective.

VAR model that includes inflation and each secondary objective variable at a time, and plot the response functions of each variable to shocks to the other. This test can be thought of as a Granger causality test and provides some insights on the direction of the link between the primary and secondary objectives and whether it is the main objective that drives the secondary or the other way. It helps to understand if the unique mandate of price stability may be detrimental or not to other objectives, and whether other objectives should be considered.

Based on the test results, three types of relation with the primary objective are defined (later summarised in Table 1):

- The primary and secondary objectives are **independent**, there is no stable link between both on which policymakers could rely.
- The primary and secondary objectives are **complementary**, the pursuit of price stability may enable to attain a second objective.
- The primary and secondary objectives are **substitutable**, the pursuit of one would be detrimental to the achievement of the other.

Our analysis has found the following results:

- Positive correlation between the inflation rate and its standard deviation: higher level of inflation seems to be linked with higher inflation dispersion across euro area countries.
- Strong negative relation is found between the inflation rate and the cross-country standard deviation of interest rates on housing loans to households: more inflation goes together with less dispersion in housing loan rates.
- Positive relation between inflation and improved debt sustainability.[4]

We document the detailed analysis for these indicators where we found a statistically significant relationship. The details for other indicators are reported in the Annex.[5] The underlying data is available upon request.

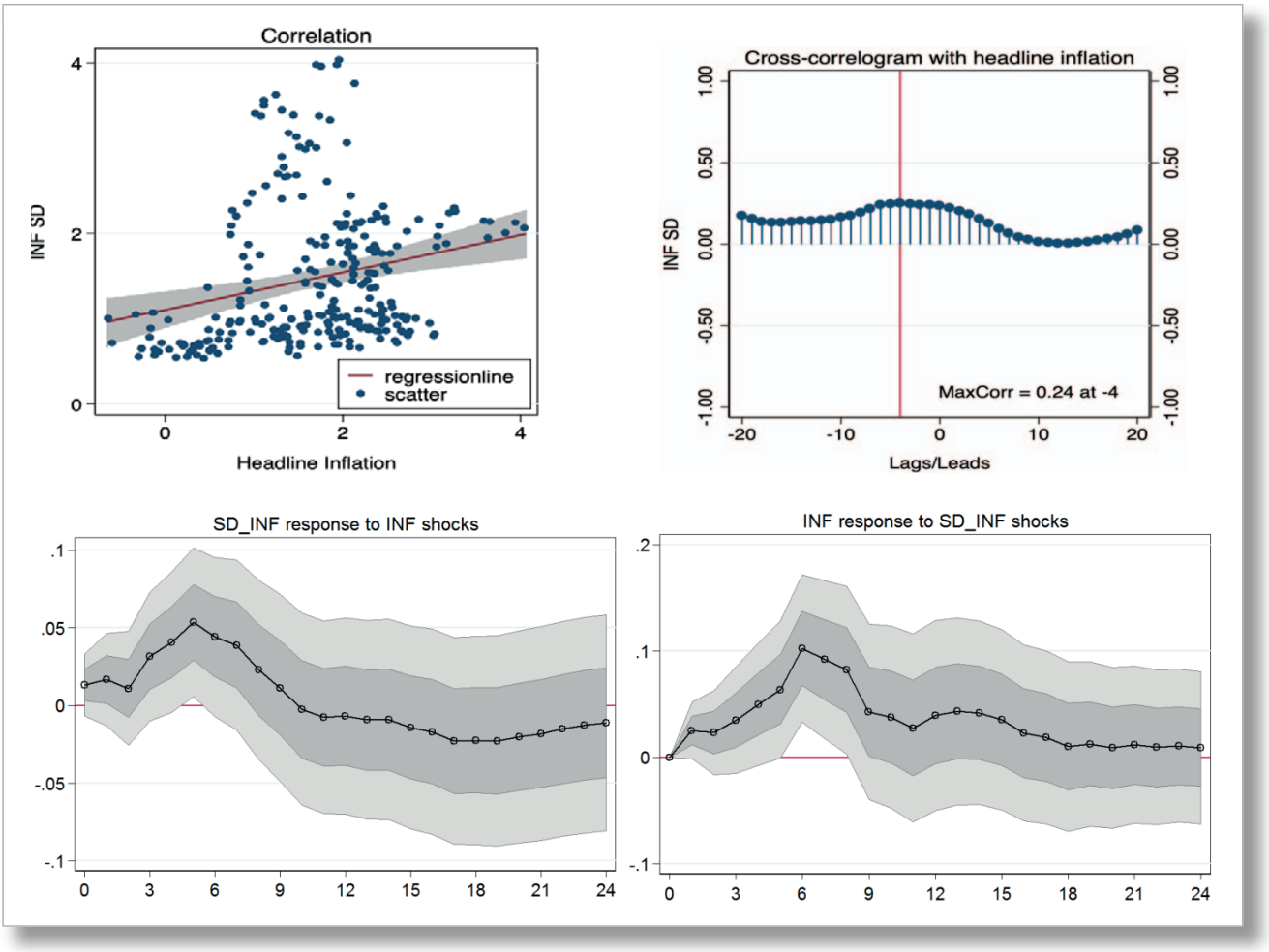
The statistical analysis provides preliminary insights in pairwise correlations and causalities. By construction, this exercise has two shortcomings though. First, the analysis is neither based on a structural nor on a multivariate analysis, and it may not fully account for more complex interactions between objectives. For example, we cannot reject that a missing variable explains some pairwise correlation or causality. Second, the empirical tests are not informative on the impact of the actual policy tools used by the ECB on secondary objectives. Finding a complementarity between primary and secondary objectives cannot be interpreted in terms of the effectiveness of ECB's tools. For these reasons, the discussion on ECB's objectives and tools does not hinge only on the empirical results. The latter give a first research orientation that we confront with the existing literature and with current debates on the design of central banks and the definition of their mandates.

In Figure 1, the cross-correlogram (upper right panel) and the regression line (upper left panel) show a positive relation between inflation rate and its dispersion in the euro area. Higher inflation is associated with higher dispersion of cross-country inflation rates. The correlation is positive and stronger at lag 4: contemporary inflation is mostly related to its standard deviation 4 months before. The impulse responses give the same results: inflation dispersion has a positive effect on inflation, and inflation has a positive effect on inflation dispersion. These causalities are significant at standard levels around the 6th month. The euro area aggregate inflation rate increases by 0.1 percentage point six months after a shock to the dispersion of inflation rates. On the other hand, the dispersion of cross-country inflation rates will increase by 0.05 point six months after a shock on inflation rates.

4. To assess debt sustainability, we compute the difference between actual primary surplus and the primary surplus that would stabilise the debt-to-GDP ratio at 60 percent. This difference is called the primary balance sustainability gap (PBSG).

5. We also find a negative relation between the unemployment rate and the inflation rate, consistent with the Phillips curve, and that higher inflation is also associated with higher financial stability. However, these two correlations are not confirmed with the additional tests. This is consistent with the literature that provides evidence of a flattening of the Phillips curve (Coibion and Gorodnichenko, 2015; Galí and Gambetti, 2019; Del Negro *et al.*, 2020) and Blot *et al.* (2015) that show that the link between price and financial stability is null in the euro area and the US.

Figure 1. **The link between inflation and the dispersion of inflation rates**



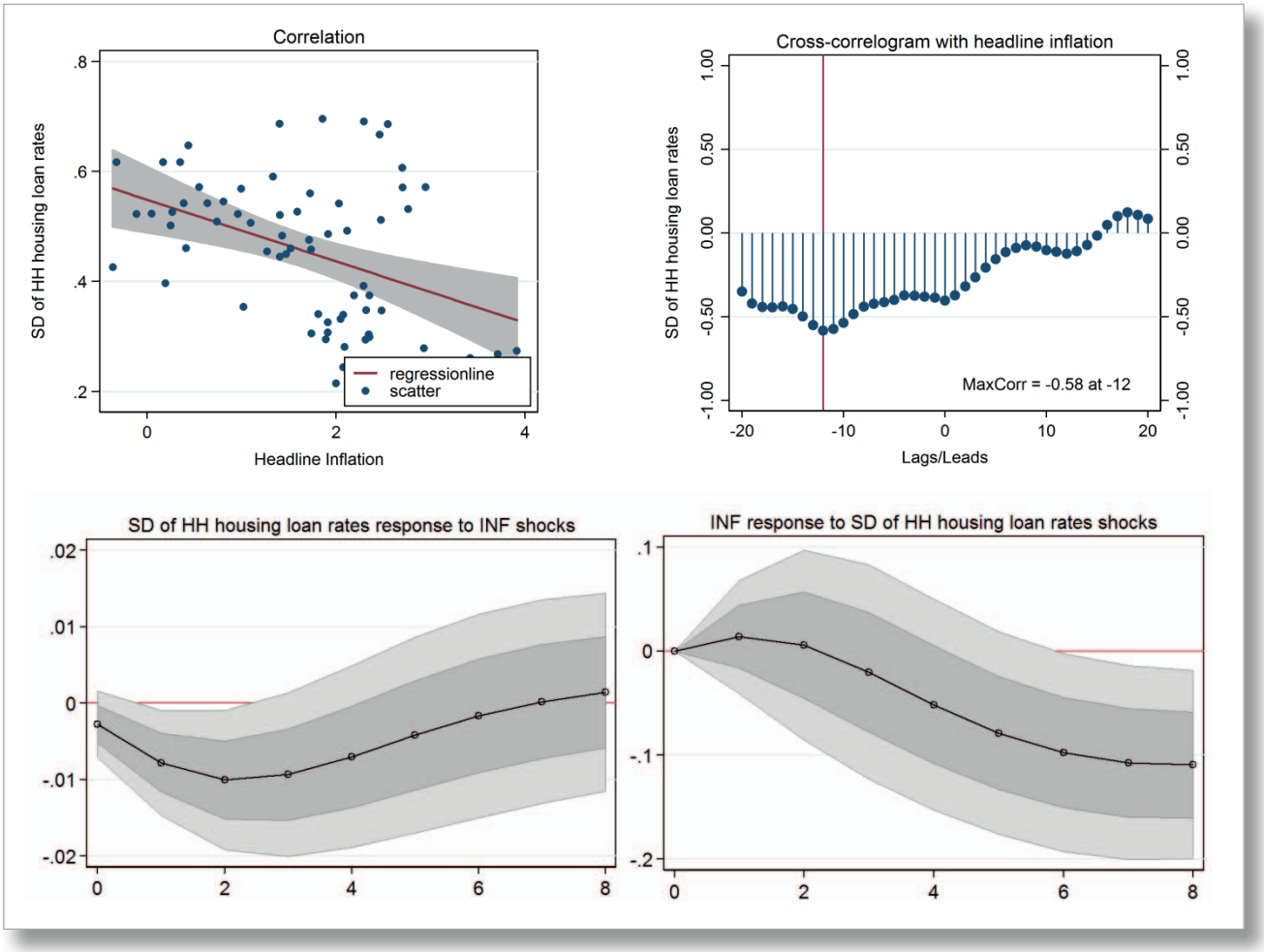
Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

The positive and significant relation between these two variables suggests that inflation pressures will be associated with more fragmentation among cross-country inflation rates in the euro area. According to these empirical results, the objective of price stability and inflation homogeneity are **complementary**. The pursuit of the actual unique objective of the ECB shall help to reach the cross-country inflation rates homogeneity in the euro area.

In Figure 2, the regression line (upper left panel) shows a negative relation between inflation rate and the dispersion of interest rates on housing loans. The cross-correlogram (upper right panel) confirms this result: the correlation is negative and becomes even more negative when the dispersion of housing loan rates lags inflation by 13 months. Higher inflation is associated with less dispersion and so, less financial fragmentation. Both impulse responses (lower panel) confirm this statistically negative link between the two variables: an inflation shock causes less financial fragmentation via lower dispersion of interest rates on housing loans for 3 months (lower left panel).

According to these empirical results, both objectives cannot be achieved together, so they are **substitutable** and generate a trade-off. When the ECB follows its objective of price stability, it can increase financial fragmentation by increasing the dispersion of interest rates on housing loans. The reverse is not statistically true.

Figure 2. **The link between inflation and the dispersion of interest rates on housing loans**



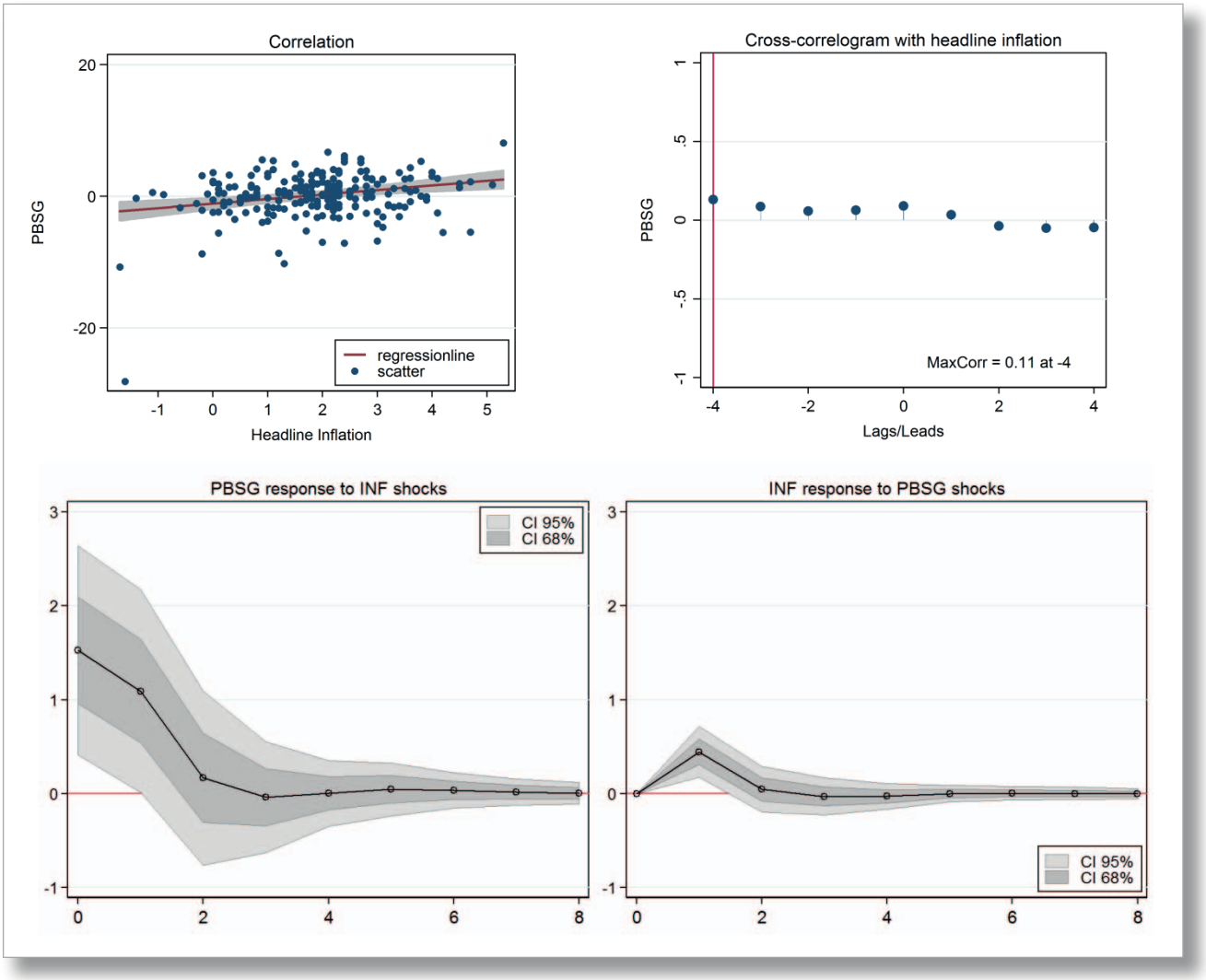
Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure 3, an increase in primary balance sustainability gap (PBSG) illustrates an improvement in debt sustainability. Results indicate a positive relation between inflation rates and sovereign debt sustainability in the euro area: an increase in inflation rates is associated with improved sustainability. We find the same results in the impulse responses: the PBSG will increase the year following an inflation shock (lower left panel). The effect of a PSBG shock on the inflation rates in the euro area is also positive and significant for almost 2 years during which inflation will rise.

The stable and positive relation between inflation and sovereign sustainability generates a trade-off: these objectives are **substitutable** and cannot be achieved together. Even though monetary policy can help reduce sovereign debt costs (see Blot *et al.* 2020c), focusing solely on the price stability objective could deteriorate the sovereign debt sustainability in the euro area.

The results of the tests conducted are summarised in Table 1, highlighting the relationships between the price stability objective and the potential variables representing secondary objectives. The next two parts of the paper deal with the challenges raised by these three types of relationships.

Figure 3. **The link between inflation and sovereign debt sustainability**



Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

If two objectives are independent, then the central bank cannot rely on the pursuit of one objective to achieve the other. In this case, if the central bank wanted to expand its objective set, a new mandate would be necessary.

The case of a complementary relationship seems to be the easy one. Achieving one objective would not be detrimental to the other objective. However, one important question to deal with is that the complementary of two objectives does not necessary mean that the instrument used to maintain price stability will also be complementary with the secondary objective.

Finally, substitutable objectives generate trade-offs since the pursuit of one of the objectives might affect negatively the other objective. This is the case for financial fragmentation and sovereign debt sustainability since lower inflationary tensions mean more financial fragmentation among housing loan rates and worsen sovereign debt sustainability of euro area countries.

Table 1. **Summarised test results**

Independent	Complementarity	Substitutability
Macroeconomic stability (unemployment)	Inflation heterogeneity (SD of inflation rates)	Financial fragmentation (dispersion of housing loan rates)
Financial stability (CISS)		Sovereign debt sustainability (PBSG)
Asset price-based financial integration (CIFI)		
Financial fragmentation (dispersion of NFC loan rates)		
Climate change (GHG emissions)		
Inequality (top 1% / bottom 50% income)		
Technological progress (TFP)		
Financial fragmentation (dispersion of sovereign rates)		

Note: For each variable in the table, we summarize the results of the pairwise correlation, of the time dimension of the correlation (correlogram) and of the causal tests (impulse response functions) of bivariate vector autoregressive models. For example, the variable "inflation heterogeneity" is labelled "complementary" because the pairwise correlation is positive and the correlation has been confirmed by the time dimension of the correlogram and by the impulse response functions.
Source: Authors' classification.

3. How many objectives for the ECB?

Monetary history has emphasised that central banks have been assigned with various objectives before being namely and firstly in charge of price stability (Goodhart, 2011). At the origin, one of the main tasks of the Bank of England was to finance government expenditures, especially during periods of war. During the 19th century, the tasks assigned to central banks evolved and their main objective became financial stability through the emergence of the doctrine of the lender of last resort. It has indeed motivated the creation of the Federal Reserve System via the Federal Reserve Act of December 1913 (Bernanke, 2013) after several decades of recurrent banking crises. Macroeconomic stability became a prominent objective only after the Great Depression and World War II. Finally, Phillips curve critics and the so-called risk of inflation bias, which was pointed out during the 1980s, have pushed the price stability objective to the forefront. The establishment of the ECB and the design of its functioning and status consecrated the new paradigm of monetary theory (Vincensini and Taugourdeau, 2009).

More recently, the episodes of financial and sovereign debt crises as well as the rise of new concerns—climate change and inequality for instance—have raised issues on the role central banks can play and eventually on the objectives or the hierarchy between objectives that should be assigned to central banks. Regarding the ECB, the Treaty makes it clear that there is a hierarchy between the objectives with a priority devoted to price stability and implying that other objectives may be fulfilled only to the extent that they do not prevent the ECB from guaranteeing price stability. As emphasised in the previous section, three options arise. The additional objectives may either be independent from the main objective of price stability, complementary or substitutable with it.

In what follows, and keeping previous results in mind, several options regarding the mandate of the ECB are contemplated. However, this discussion does not hinge only on the aforementioned results but also draws on existing literature and current debates on the design of central banks and the definition of their mandates. At this stage, the discussion is restricted to the objectives assigned to monetary policy and to the instruments used by central banks in the conduct of monetary policy. It should be kept in mind that the ECB has endorsed new responsibilities since 2012 within the European Banking Union that goes beyond monetary policy *per se.* We discuss about the impact of these new responsibilities and their associated tools on the design of monetary policy in the next section.

3.1. Unchanged mandate: which objectives could be achieved?

Keeping the current mandate is inevitably the baseline case to be considered. This option is the most realistic one because it would be hard to find a political compromise on a Treaty change. In this context, price stability would remain the priority of the ECB. However, enhancing price stability could also help promote other objectives if they are complementary with it. As shown in the previous section, this might be the case for the convergence of inflation rates in the euro area. Actually, higher inflation goes generally together with higher volatility. Kim and Lin (2012) find indeed a two-way causality between inflation and its variability consistent with theoretical models developed by Ball (1992) and Cukierman and Meltzer (1986). Even if these analyses are based on time-series, they may also hold once applied to a geographical area such as the euro area. However, it should be kept in mind that during the pre-crisis period, despite low inflation in the euro area, the dispersion of inflation rates has been significant leading to heterogeneity and increasing discrepancy in competitiveness, which has fed macroeconomic imbalances. The recent experience suggests that keeping euro area inflation close to the 2% target may not be sufficient to promote convergence and prevent the building up of imbalances.

Regarding climate change, correlation is found to be null and non-significant. Moreover, it may be pointed out that even if lower inflation would be positively correlated with less CO2 emissions, it would not necessarily lead the central bank to be able to target efficiently climate change as central banks are not equipped with instruments that could tackle this structural issue. Favouring bond purchases from corporates with low greenhouse gas (GHG) emissions is a proposition often put forward, for instance. However, it is not clear that this price distortion would indeed contribute to reducing GHG emission. Another (extreme) way to mitigate climate change is through economic activity. An economic slowdown would lower CO2 emissions. However, in the spirit of the Treaty, the price stability objective does not involve low economic growth. Inflation close to the target and output close to its potential might not contribute to reducing carbon use.

Even if the analysis carried in the previous section has not highlighted a significant correlation between inflation and output, it is sometimes argued that price stability would also enhance growth, which is called the "divine coincidence" by Blanchard and Galí (2007). However, they show that such a situation is a particular case of a New Keynesian model where there are no "trivial" real imperfections. The trade-off between inflation and output would resurface once the model allows for real wage rigidities. In the long run, high or very high inflation is certainly costly and detrimental to economic growth. The question of a trade-off in the short and medium term has been revived over the last years. Many works (see e.g. Coibion and Gorodnichenko, 2015, Galí and Gambetti, 2019; Del Negro *et al.*, 2020) have questioned the empirical relevance of the

Phillips curve. Global supply chains and international drivers of inflation suggest that the link between inflation and output may have vanished as it seems to be indicated by a simple correlation analysis. How should the ECB deal with such a potential trade-off? The answer provided by the Treaty is to set a clear hierarchy between objectives. Consequently, when the conflict arises, because of supply shocks for instance, the ECB is supposed to give priority to the price stability objective. Yet, as discussed thereafter, this particular trade-off may also motivate a dual mandate.

In the same vein, Schwartz (1988) described several channels through which price stability would promote financial stability, a view called the "conventional wisdom". If this view is true, the ECB would contribute to financial stability by keeping inflation low. This was the consensus prevailing before the global financial crisis. The evidence seems however at odds with the conventional wisdom. The period before the global financial crisis was characterised by stable and low inflation. Yet, it has not prevented the build-up of financial imbalances.

If the divine coincidence and the conventional wisdom hold, then a monetary regime primarily devoted to price stability would also foster economic growth and enhance financial stability. Consequently, the current mandate of the ECB would be the best way to achieve these additional goals, justifying a *status quo*. This may, however, not be the case, as available empirical evidence shows and as illustrated by our analysis, thus raising the issue of an extension of the mandate.

Beyond the empirical link between the primary and secondary objectives, the ECB's mandate relates to multidimensional aspects: whether the policy is structural or cyclical, whether the objective is of a very political nature (in which case the question of giving it to an independent institution would be very problematic), and whether the central bank has relevant instruments in its toolkit to tackle these secondary objectives.

3.2. Extending the mandate

In the Treaty, the priority has been given to price stability because it was thought that there was a trade-off only in the short run. In the long run, monetary policy is supposed to be neutral in new Keynesian models so that central banks (and monetary policy) only affect prices. There is now some evidence that the impact of monetary policy on output and employment may be long-lasting (Jordà *et al.*, 2020). Besides, while the EU Treaty makes a clear priority, this is not the case in the United States where according to the Federal Reserve Act, the central bank pursues a dual mandate.[6] Enlarging the mandate may also be needed in case there is a political will to integrate other objectives which are unrelated to price stability or for which there are trade-offs.

A dual mandate…

Contrary to the mandate where price stability is the unique or main objective of monetary policy, price stability and output (or employment) are given equal weight when central banks pursue a dual mandate. In the United States, the Federal Reserve is mandated by the Congress—in the Federal Reserve Act—to promote maximum employment and stable prices. Friedman (2008) claims that central banks generally take account of both price and macroeconomic stability, suggesting that even when the mandate is uniquely defined in terms of price stability, output stabilisation is not overlooked. Castro (2011) has found, for instance, that the output gap entered significantly in the reaction function of the ECB indicating that, at least implicitly, it accounted for output stabilisation. Under these circumstances, the rationale to change the mandate would be reduced. Yet, Friedman (2008) considers that the dual

6. The Federal Reserve is usually attributed a dual mandate, although as stated in the Federal Reserve Act, it should achieve "maximum employment." "stable prices" and "moderate long term interest rates".

mandate, where both objectives are considered without priority, is more appropriate since trade-offs are explicitly recognised, which notably provides the central bank with more leeway to address macroeconomic stabilisation when the unemployment rate is very high (Rosengren, 2013).

… or a triple mandate?

With the creation of the Banking Union in 2014, the ECB is now in charge of the supervision of the largest European banks, *de facto* enlarging the scope of its mission. Furthermore, during the financial crisis, the ECB has implemented a set of measures to meet the liquidity needs of the banking system and played the role of lender of last resort, which was not explicitly assigned in the Treaty. Blot *et al.* (2014) consider that the ECB has *de facto* followed a triple mandate focusing on inflation, growth and financial stability. The Banking Union not only assigns the ECB with an additional mission, it also entails a new instrument: the set of macro- and micro-prudential tools. Yet, there is also an issue regarding the role that can be played by monetary policy to enhance financial stability.

Beyond the role of financial regulation, which clearly remains the main policy instrument to deal with financial stability, some argue that monetary policy could complement this action (Woodford, 2012), implying that standard tools, such as the interest rate, would be used to dampen financial imbalances. Borio (2002) even claims that such a response should be systematic, a strategy known as "leaning against the wind". In practice, there are no central banks where this has been followed formally. There is, however, a growing literature suggesting that monetary policy may affect financial risk via the risk-taking channel. Consequently, price stability is not a sufficient condition to guarantee financial stability, which may constitute an additional argument to integrate financial stability among the objectives of monetary policy. Greenwood *et al.* (2016) suggest for example that monetary policy—through the size of central bank's balance sheet—may be used to promote financial stability by providing liquidity and avoiding financial markets to create riskier assets.

With the outbreak of the COVID-19 crisis, the euro area faces a new recession and requires a large public policy response. Public debt will increase, raising potential challenges for public debt sustainability. The circumstances may remind of the situation after the global financial crisis and the sovereign debt crisis, when the role of the ECB has proven to be crucial to break the vicious circles and to avoid a wider liquidity squeeze for sovereigns. Reis (2017) analyses the role of the quantitative easing (QE) policy to enhance public debt sustainability and financial stability. When there is a risk of public default, QE enables the central bank to "take the risk of default out of the balance sheet of the banks and into the balance sheet of the central bank" by issuing reserves, which are only held by banks. However, Reis (2017) argues that QE does not constitute monetary financing of deficits so that it would not bring central banks back to its original objective. Yet, it would be more relevant to reinforce coordination between monetary and fiscal policy than to elevate public debt sustainability as a central bank objective, as suggested in the next section.

This analysis suggests broadening the mandate of the ECB to integrate full employment and financial stability, as those objectives, while being socially important, are closely connected with monetary policy. Yet, it must be acknowledged that this would entail a change in the Treaty, which remains a difficult task.

3.3. Should other objectives be introduced explicitly in the mandate?

Beyond output stabilisation and financial stability, there may be additional objectives worth integrating explicitly in the mandate. Among them, inequality, climate change, financial integration and convergence have been considered in the previous section. Under which conditions should the mandate be broadened to other objectives? Two criteria may be stressed for the possibility to elevate additional objectives in the mandate of the central bank. First, those objectives must be deemed socially important. Second, monetary policy must be able to affect those objectives so that the ECB can be held accountable for. It would indeed be misguided to assign objectives that cannot be fully controlled by the ECB. Blot *et al.* (2016) discuss this issue in the context of the definition of the inflation target: if euro area inflation is driven by international factors rather than domestic factors, the ECB cannot influence inflation and be held responsible for reaching or missing the target. This entails the risk to undermine its credibility and accountability.

The role of monetary policy with respect to inequality has been long neglected. It was implicitly considered that monetary policy had non-significant or indirect impact. This element has arisen recently in the policy debate and in the academic literature. Potential side-effects of unconventional measures have emerged in the debate because these policies effectively inflate asset prices and could consequently raise inequality. However, there are distinct channels though which these measures affect income and wealth distribution and some have contradictory effects. In the end, conclusions regarding the sign and the magnitude of the effects of unconventional monetary policy measures on inequality are not clear. Auclert (2019) provide a description of these channels within a theoretical model with heterogeneous agents. The effect of monetary policy passes through income distribution because of its effects on employment, inflation and real interest rates affecting asset prices. He notably points out that the impact of monetary policy on income distribution is closely related to its impact on employment. Furthermore, the redistributive effect of monetary policy through asset prices is subtle and hinges on the composition of financial wealth indicating that not all financial assets holders gain from expansionary monetary policy. Empirical evidence has shown contrasting results on this issue. Besides, even if monetary policy has significant effects on inequality, the magnitude of the effect is small compared to the impact of fiscal tools (see e.g. Creel and El Herradi, 2019). Inequality is a highly political issue reflecting social choice which may differ across countries and across periods. It would therefore be hard to set in stone in the Treaty an objective relating to the desired level of inequality. This issue is highly political and assigning the ECB with this objective would inevitably bring the ECB in the realm of politics, which may not be compatible with independence. Nevertheless, it is relevant for policy makers to be aware of potential effect of their decisions on such a highly important social objective. But instead of re-orienting the objectives assigned to the central bank, it may be more relevant to increase fiscal-monetary coordination to better internalise the undesirable effects of monetary policy on inequalities.

Regarding climate change mitigation, the terms of the debate are different. Although the aim is socially important, there is no obvious connection with existing monetary policy tools. Monetary policy may yet contribute to the transition to a low-carbon economy through the purchase of assets such as green bonds, which are issued to finance projects contributing to this transition. This would, for instance, entail re-orienting QE programmes. But whether to issue those bonds is foremost a policy decision taken by governments. To the extent that the QE tool is still activated, the ECB could *indirectly* contribute to climate change mitigation. This does not require a Treaty change.

Convergence is clearly a historical aim of the European Union. The achievement of the monetary union in 1999 was an additional step toward European integration. The global financial crisis, however, highlighted the institutional flaws of the EMU. Despite low inflation in the euro area—from 1999 to 2007, the average inflation was indeed close the 2% target—, divergence has been growing and macroeconomic imbalances have triggered a crisis of the euro with the threat of a split that peaked in 2012 and in 2015 with the Greek crisis. As pointed in Blot *et al.* (2019a), "nominal divergence has led to financial imbalances and to real divergence within the euro area". The ECB has played a key role during this period—through dedicated programmes such as the SMP (securities markets programme) and OMT (outright monetary transactions)—to avoid more dramatic consequences. Therefore, nominal divergence and financial fragmentation are linked and monetary policy has some power to fix the fragmentation of sovereign markets. It is also important for the ECB to deal with fragmentation as it impairs the transmission of monetary policy. It was by the way, the main motivation of the ECB for the implementation of non-standard measures (Durré *et al.*, 2014). Since tools are at the disposal of the central bank, there may be a debate on the opportunity to add convergence in the list of objectives assigned to monetary policy.

Finally, Blot *et al.* (2019b) also raised the issue of a change in the definition of the target for price stability. Instead of seeking to achieve a 2% inflation for the euro area as a whole, the ECB might seek to avoid strong discrepancies between national inflation rates and then the divergence that has been at the origin of the euro area crisis. They claim that such a change may be achieved without changing the Treaty as the ECB has leeway for defining its target. However, the ECB could be constrained in accounting for nominal imbalances if convergence is added to the list of monetary policy objectives.

4. New Tools or enhanced coordination to achieve secondary objectives?

The empirical characterisation of the linkages between the primary and secondary objectives joined with a discussion on the merits of extending or clarifying the mandate of the ECB raise two issues: first, the appropriate number of instruments at the ECB's disposal and, second, the requirement of enhanced cooperation with governments.

4.1. Tools to foster financial stability and financial integration

We already highlighted three worthy elements: first and foremost, empirical correlation and causality results (section 2) between inflation rates, on the one hand, and measures of financial stability or financial integration, on the other hand, have concluded that they were independent one from another. Second, this empirical result does not object that monetary policy should target price stability and financial stability, for instance (section 3); the empirical result makes this kind of double mandate even easier to achieve, provided the tools used to achieve one target do not interfere with the other one. Third, the creation of the Banking Union has given the ECB macro-prudential and micro-prudential tools to achieve banking stability. To these regulatory tools, one should also add the different features of non-standard monetary policies (like Targeted Long-Term Refinancing Operations, and asset purchase programmes) that have alleviated the funding costs of banks and their balance sheet risks.

The ECB is already well-equipped with many tools that, according to the Tinbergen principle, permit achieving several targets. If we take for granted that the chosen tools are effective at achieving their allocated target, it remains that there are three pitfalls to escape.

The first one is to investigate whether the tool used to achieve the secondary target, e.g. financial stability, is symmetric. Heterogeneity in economic and financial frictions across good and bad times—for example, rising and plummeting asset prices—may produce asymmetric effects of monetary policies. Blot *et al.* (2020a) have shown that monetary policy has asymmetric effect on stock price imbalances in the euro area.[7]

7. For the US, Blot *et al.* (2020b) find that restrictive monetary policies have more traction on stock price bubbles than expansionary decisions.

The second pitfall is transparency and communication. Assume the ECB implements supposedly conflicting policies as regards the primary and secondary objectives, like raising the policy rate and easing banks' capital requirements. While both policies would be intended to achieve two independent objectives, they may go in opposite directions, contraction in the former case and accommodation in the latter. To limit misunderstanding on the actual stance of monetary policy, the ECB should use two policy tools that do not have cross-effects on its primary and secondary objectives. However, they may be very difficult to find and both instruments may well impact both objectives. Hence, the ECB would be left with only one option: that of exposing that it has taken into account their inter-relationships in its policies. We stress that communication on this is crucial. It is all the more crucial that the strict legal separation between the Single Supervisory Mechanism (SSM) and the monetary policy role of the ECB, enshrined in the SSM regulations, does not permit to coordinate both policies explicitly, that is the monetary policy role of the ECB on the one hand, and its financial stability role on the other hand .

The third pitfall relates to the dispersion of housing loan rates. The price stability objective runs counter to the reduction in the dispersion, hence intensifying this source of financial fragmentation. This is an important issue because it impairs the transmission channel of monetary policy (*via* increased heterogeneity on credit rates) and also weigh on inequality (*via* heterogeneity in the access to housing and non-financial wealth). While monitoring of this dispersion mechanism is key, it might be in the interest of the euro area to see the ECB develop common regulatory tools on housing loan markets to have a more uniform transmission of policy rates to housing loan rates.

4.2. Enhanced coordination of monetary and fiscal policies

Beyond the discussion regarding the definition of the mandate assigned to the ECB and the instruments that can be used to reach objectives, it is also crucial to account for interplays with other instruments, which may be at the disposal of other institutions. Even if one considers that price stability remains the main priority, the ECB may also account for the interactions between monetary and fiscal policy. The difficulty to reach the "below, but close to" 2% target has illustrated that other forces might counteract the effect of monetary policy and drive the ECB away from its objectives.

Under these circumstances, there may be a need to reinforce coordination between the institutions that implement policies which weigh on the primary objective of the central bank, unless monetary policy decisions are so powerful that they internalise the effect of the other instrument. Alignment with fiscal policy is crucial for macroeconomic stability whether it involves price stability only or a dual mandate. Achieving financial stability and assigning monetary policy with a role towards this objective may also imply a better coordination with the institutions in charge of financial supervision (prudential tools).

5. Concluding remarks on the role of coordination

Finally, coordination may be useful if monetary policy can help other institutions to achieve an objective not assigned to the central bank.

Empirical results in section 2 have shown that there was an apparent conflict between the objectives of price stability and debt sustainability. This conflict is not new: it is well-known that most periods of very high public debts have been followed by higher inflation. Moreover, the independence of the ECB is associated with the prohibition of monetary financing. That being said, debt sustainability is certainly key to the achievement of balanced economic growth. For the ECB, endowed with a secondary objective of so-called balanced economic growth, the interaction between its monetary policy decisions and debt sustainability should be closely monitored. Here again, coordination of policies of the ECB and euro area governments is much needed. Not only is the short run policy mix important to maximise the effectiveness of monetary policy, but also to remove default risk.

We have already argued that monetary policy may not be best equipped to cope with climate change and inequality: public policies can better deal with incentives and externalities via shifts in taxes and in transfers. However, the latter may not be easily coordinated between 19 governments, whereas a federal institution like the ECB would prove useful at giving a common impetus. Hence, cooperation may be required between the ECB and euro area governments to foster both goals. This would not be detrimental to the primary objective of the ECB. The ECB could well dedicate a given share of its asset purchases to “green bonds”. It would require governments to back “green spending” by dedicated and easily identified bonds that the ECB may purchase (on secondary markets) with a priority. Their relative prices may turn out to be higher that non-green bonds, hence providing the former more liquidity.

Results in section 2 also report that inflation, on the one hand, and total factor productivity (TFP) and macroeconomic stability, respectively, on the other hand, do not share a stable link. While the extension of the ECB mandate to macroeconomic stabilisation has been discussed previously, the commitment of the ECB towards technological progress seems less obvious. Nevertheless, indicators of macroeconomic stabilisation (e.g. unemployment rates) and technological progress (TFP) are useful at identifying demand and supply shocks, respectively. In this respect, it is important that the ECB and euro area governments cooperate closely on the identification of shocks in the euro area, either idiosyncratic or common, either supply or demand, to ensure an appropriate policy mix. The COVID-19 crisis has shown that shared identification is crucial as it removes the risk of inappropriate policies (monetary restriction and/or permanent fiscal expansion after a negative supply shock). It has also shown that coordination of monetary and fiscal policies helps to bolster their respective effects and to achieve their objectives: monetary expansion reduces the interest costs of the fiscal expansion and helps the latter be more effective at dampening the fall in demand while the fiscal expansion helps monetary policy achieve its inflation target ■

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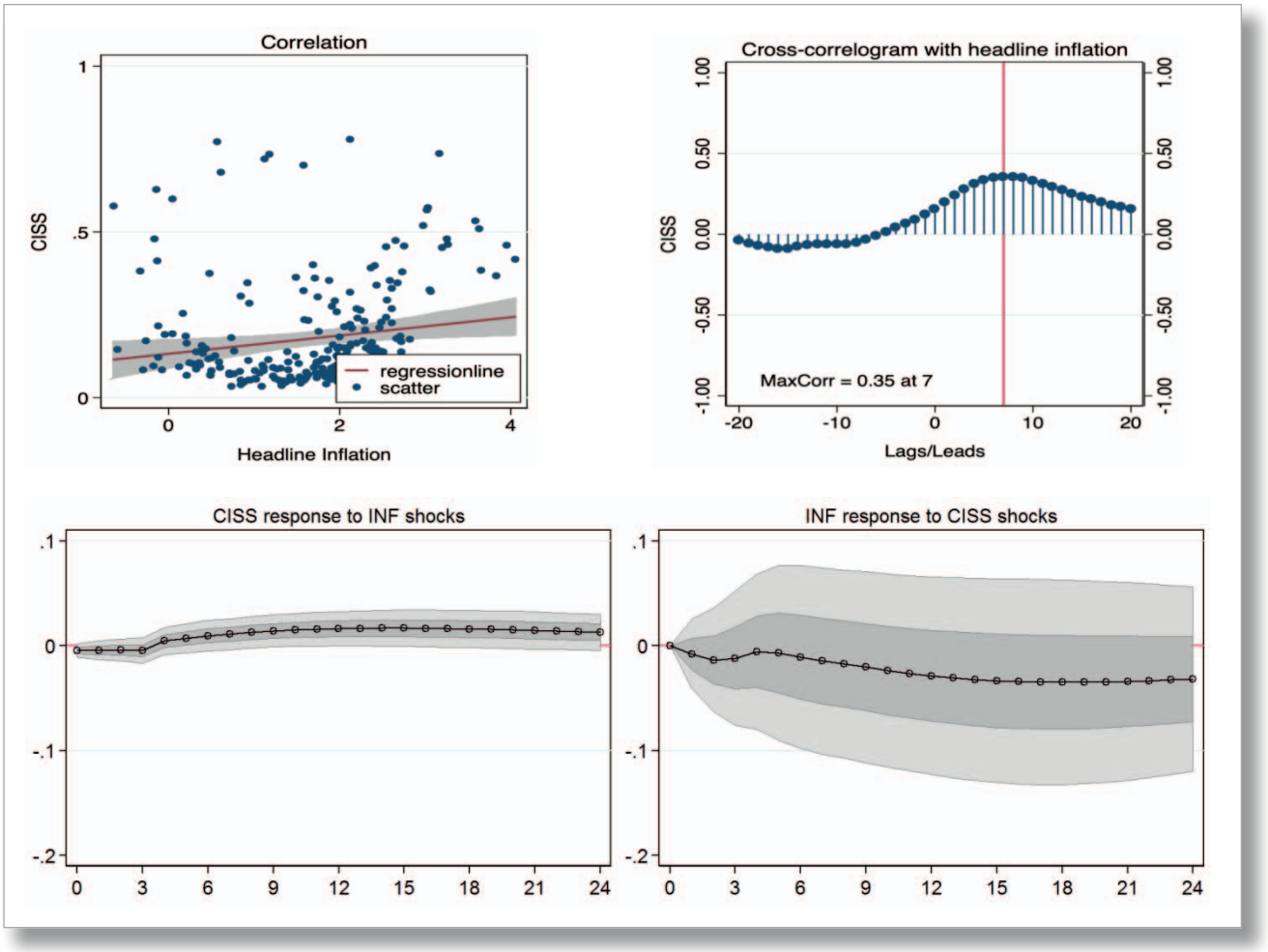
ANNEX.
Empirical results

Table Annex. **Correlation with euro area inflation**

Financial stability	
Composite Indicator of Systemic Stress (CISS)	0,16
Financial fragmentation	
ECB financial integration composite indicator—price-based	**0,23**
Cross-country standard deviation of interest rates on loans below? €1M to non-financial corporations	-0,09
Cross-country standard deviation of interest rates on housing loans to households	**-0,40**
Standard deviation of euro area ten-year sovereign bond yields	0,08
Inflation heterogeneity	
Standard deviation of euro area inflation rates	**0,24**
Sovereign debt sustainability	
Sovereign debt sustainability indicator (pbsg1)	**0,23**
Macroeconomic stability	
GDP growth	0,10
Unemployment	**-0,45**
Social progress	
Top 10% average income / Bottom 50% average income	0,17
Technological progress	
EA countries' total factor productivity	0,13
Climate change	
Consumption emissions per capita	0,12

Note: inflation, CISS, CIFI, interest rates, unemployment data have a monthly frequency, GDP a quarterly frequency, and consumption emissions, inequality indicator, TFP and sovereign debt sustainability are annual. Estimations are realized over a sample spanning from 1998 to 2019.
Sources: ECB, Eurostat, World Inequality Database, AMECO, United Nations database, Peters *et al.* (2011, 2012), Fiscal Space World Bank Database, Authors' computations.

Figure A1. **The link between inflation and financial stability**

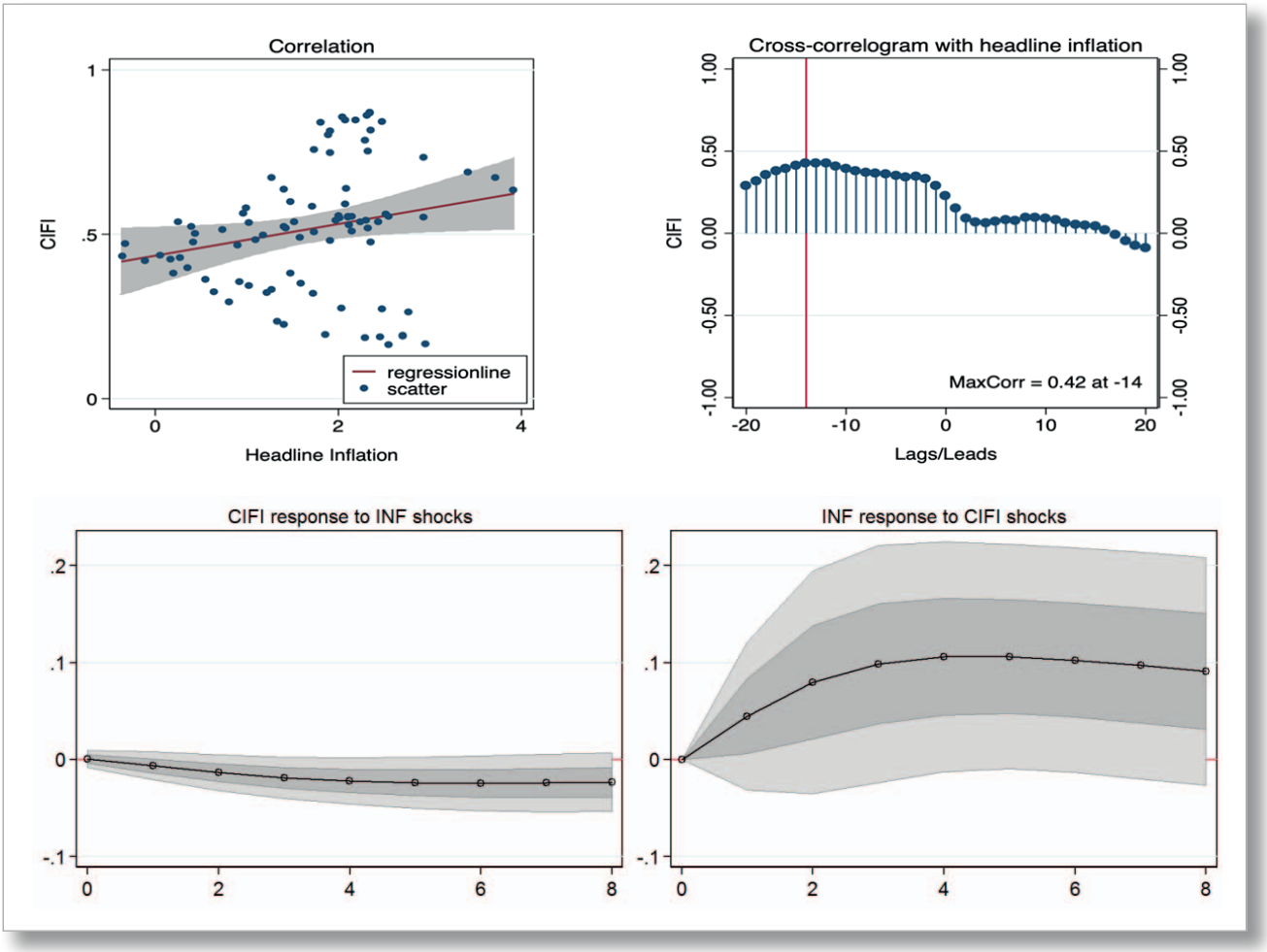


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A1, the upper left graph represents the scatterplot and the regression line of the CPI inflation and the CISS. It shows a weak although positive relation between CPI inflation and CISS suggesting that higher inflation level is associated with more financial risks. The correlogram (upper right) give us clue about the dynamic relation estimated for each correlation coefficient between CISS at different time period and contemporary CPI inflation. It is positive and peaks at 7 months leads. Price and financial stability seem to be positively correlated in time. However, both impulse responses (lower) resorting from the VAR model show that the relationship between inflation and CISS is not significantly different from zero: inflation shocks seem to affect the financial stability and the reverse is also true.

The tests reject evidence of a stable relationship between price stability and financial stability. Those two objectives are **independent**, contrary to what is suggested by conventional wisdom. It confirms Blot and al. (2015) who find no stable link between price and financial stability for the euro area. Pursuing the actual unique objective of price stability does neither satisfy nor interfere with financial stability.

Figure A2. **The link between inflation and asset price-based financial integration**

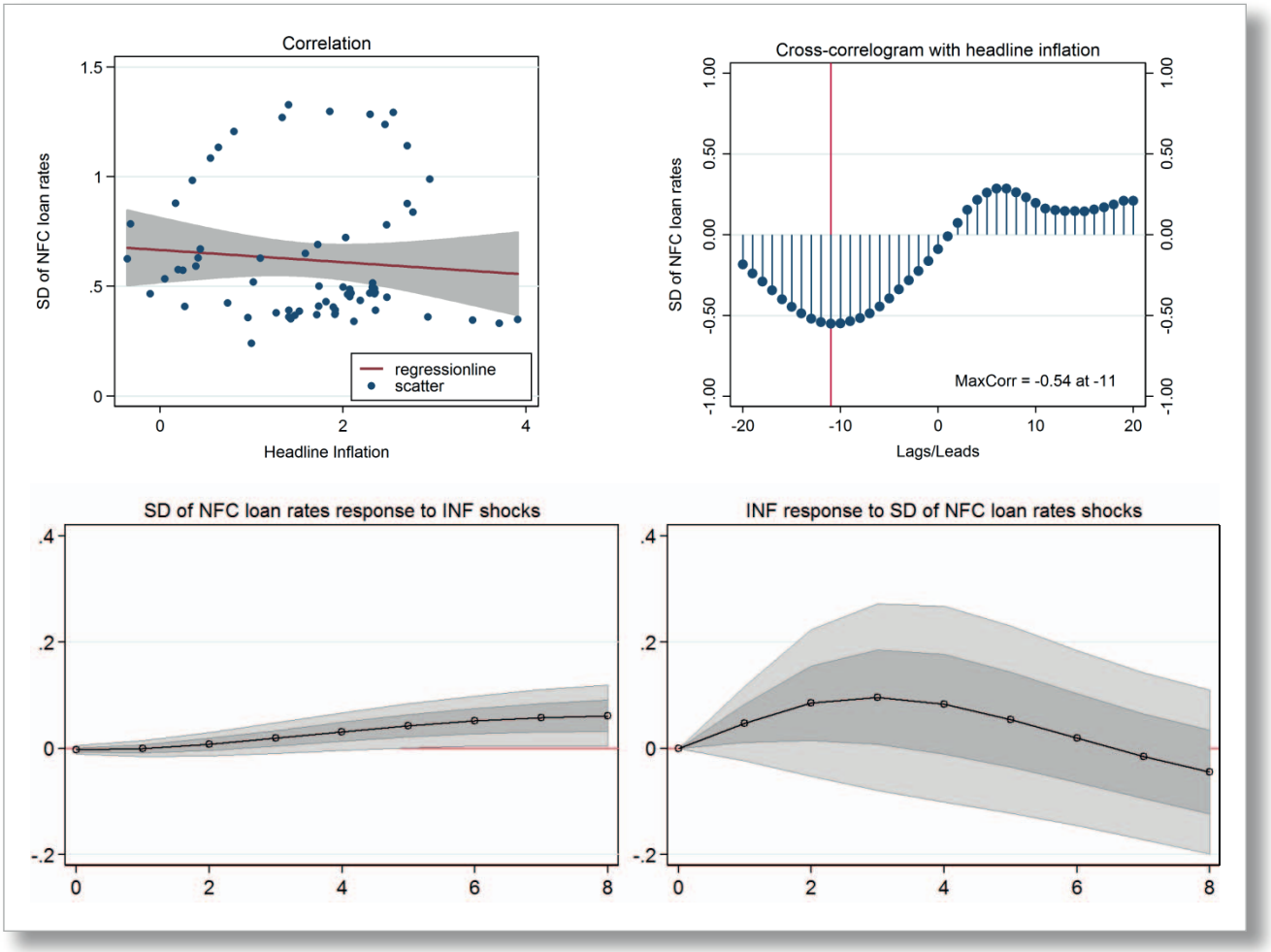


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A2, both regression line (upper left) and the cross-correlogram (upper right) indicate a positive relation between inflation and CIFI. CIFI is an asset price-based financial integration indicator and the higher its value, the lesser financial integration. The correlogram shows that the 12-month lagged value of CIFI is the most positively correlated with contemporary inflation rate. Higher inflation level is associated with lesser financial integration. However, impulse responses show that the relationship is not significantly different from zero: there is no evidence of a causality relation between price stability and financial integration.

Price stability and financial integration are two **independent** objectives, which is consistent with the previous results for financial stability.

Figure A3. **The link between inflation and the dispersion of interest rates on corporate loans**

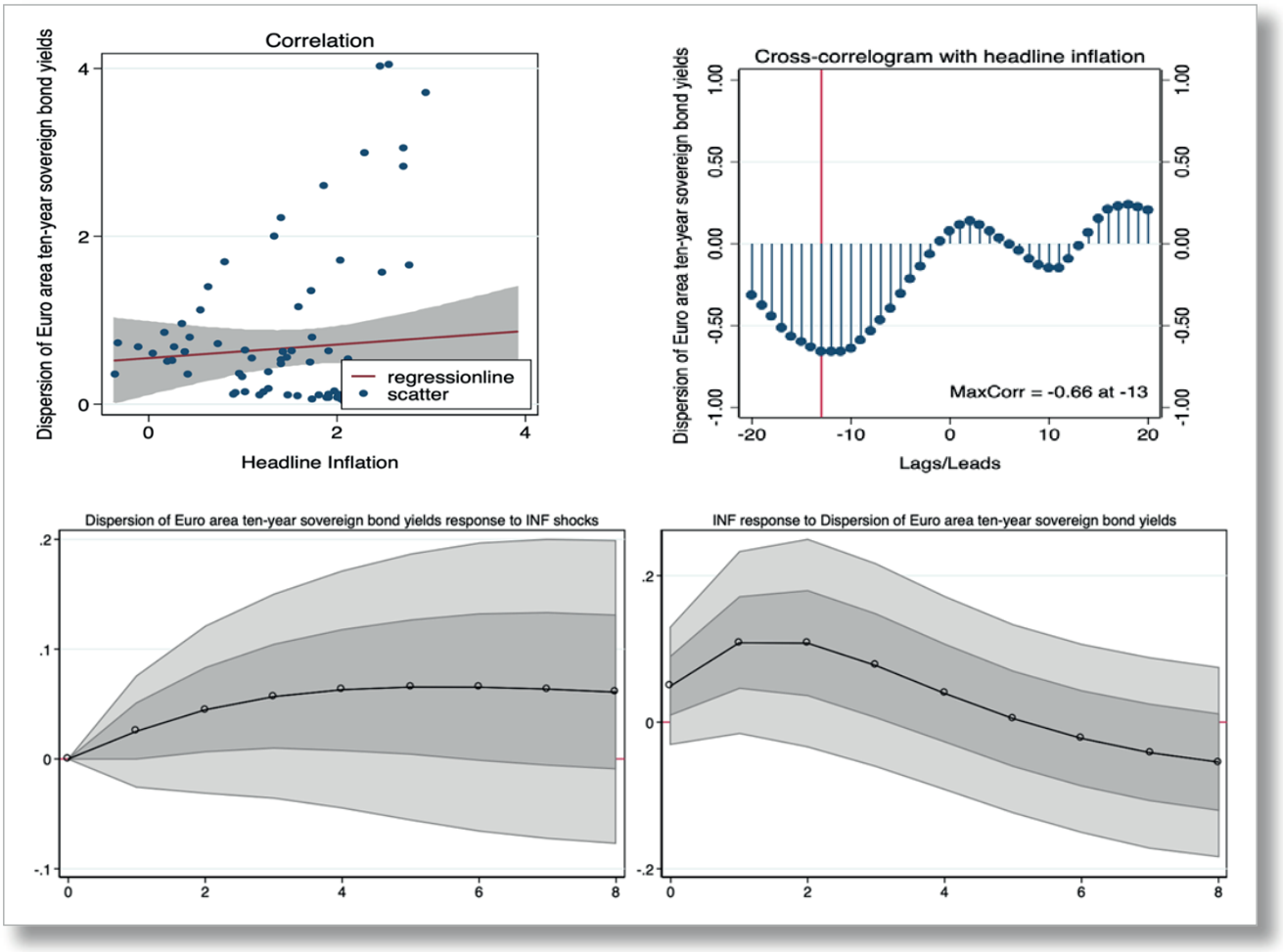


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A3, the first two tests (upper left and right panels) show a low negative correlation between inflation and dispersion of interest rates on corporate loans below EUR 1 million. Although the contemporaneous correlation coefficient between these two variables is close to zero, the correlogram shows that the correlation is more strongly negative at lag 11 months. Higher inflation is associated with less dispersion, so less fragmentation. The correlogram becomes positive after 5 months meaning that the correlation is not stable over time. The impulse responses (bottom panel) show no statistically-significant evidence of a stable relation between inflation and dispersion of interest rates on corporate loan.

Price stability and financial stability through less fragmentation in corporate loan interest rates are two **independent** objectives. By providing price stability, the ECB has no effect on financial fragmentation in the euro area.

Figure A4. **The link between inflation and the dispersion of sovereign bond rates**

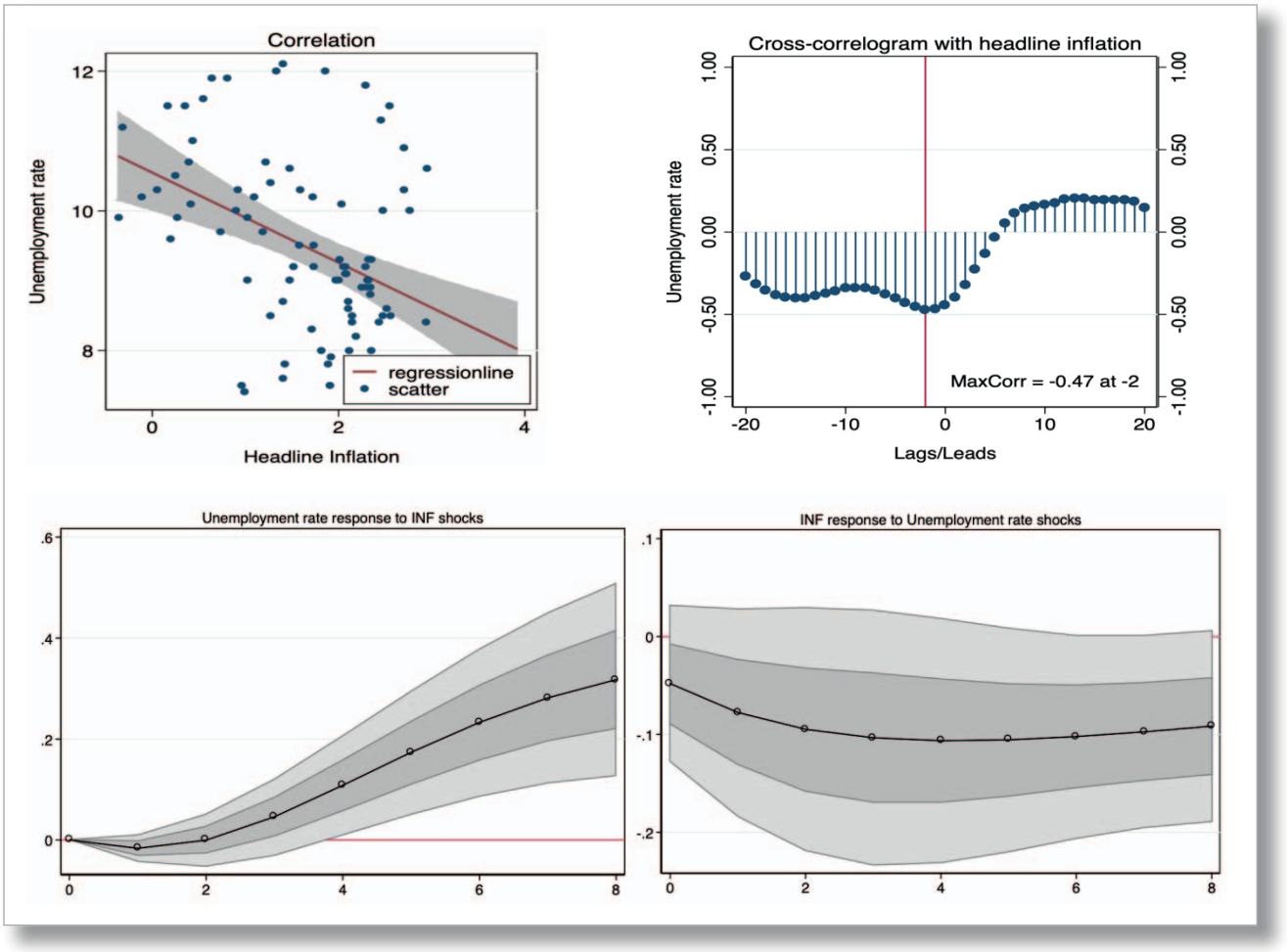


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A4, the contemporaneous correlation between inflation and dispersion of sovereign bond rates in the euro area is close to zero but it becomes strongly negative at lag 13 months (upper right). Higher inflation is associated with less fragmentation among sovereign rates. However, neither of both impulse responses is significant (lower panel): there is no evidence of a stable relation between inflation and dispersion of sovereign bond rates.

Those objectives are **independent**. The actual mandate of price stability of the ECB does not interfere, positively or negatively, with a potential objective of homogeneity of sovereign rates in the euro area.

Figure A5. **The link between inflation and unemployment**

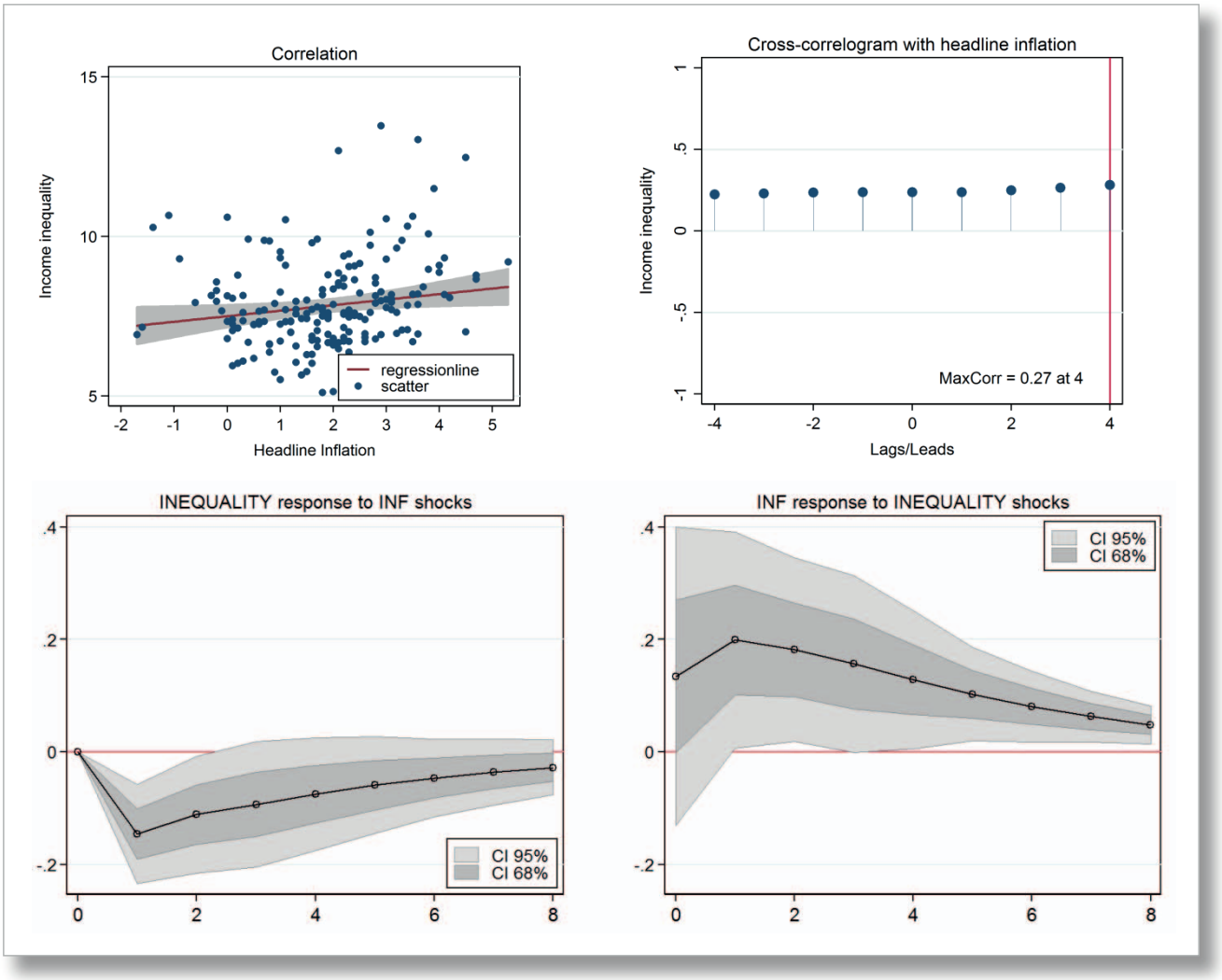


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A5, as expected from the Phillips curve, the correlation between inflation rates and unemployment rate is negative. The correlogram (upper right) shows that the correlation is the strongest with the 2-month lagged unemployment rate. The complementary of these objectives hinges on the nature of the shocks affecting the economy. The response functions illustrate this. A demand shock—unemployment shock (lower right)—has no significant effect on inflation. However, an inflation shock (lower left), interpreted as a supply shock, is followed by a significant increase in unemployment but only 4 years after the initial shock (which seems to be a weak empirical result).

Even though the initial correlation is negative, these objectives do not display a significant and stable link and they are **independent**. The ECB's pursuit of price stability in the euro area does not contribute to reaching low unemployment.

Figure A6. **The link between inflation and inequality**

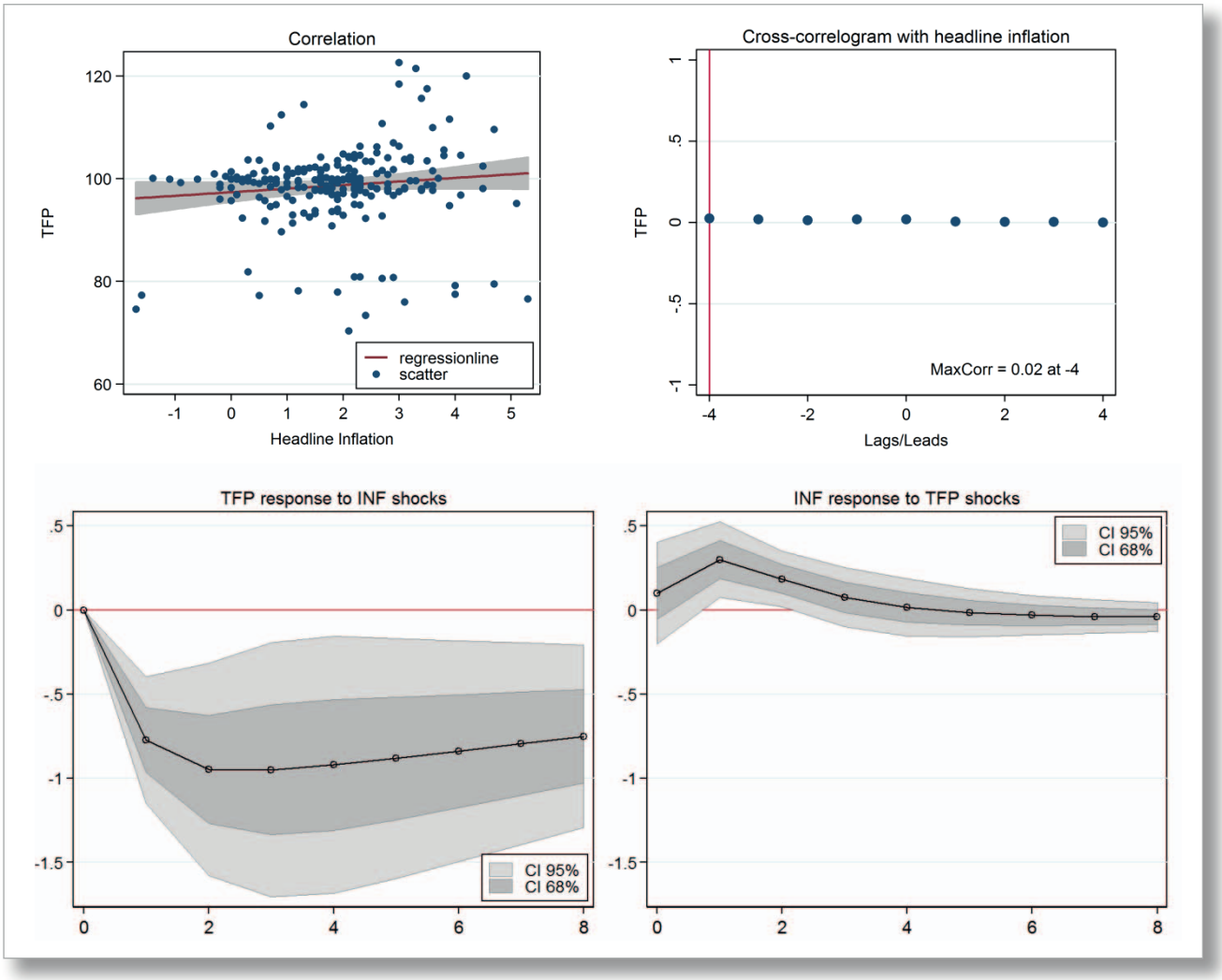


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A6, the correlation between inflation and inequality in the euro area is positive (upper right and left). Higher inflation is therefore associated with higher income inequality. However, the response functions show that the link is not that stable: inequality shock increases inflation rates in the euro area (lower right), but inflation shocks decreases inequality on a prolonged period (lower left).

Price stability and inequality do not display a stable link so they are **independent**. It runs counter to Doepke and Schneider (2006)'s results for the US. They find that inflation provides redistribution wealth at the benefit of young, middle-class households with mortgage debt.

Figure A7. **The link between inflation and technological progress**

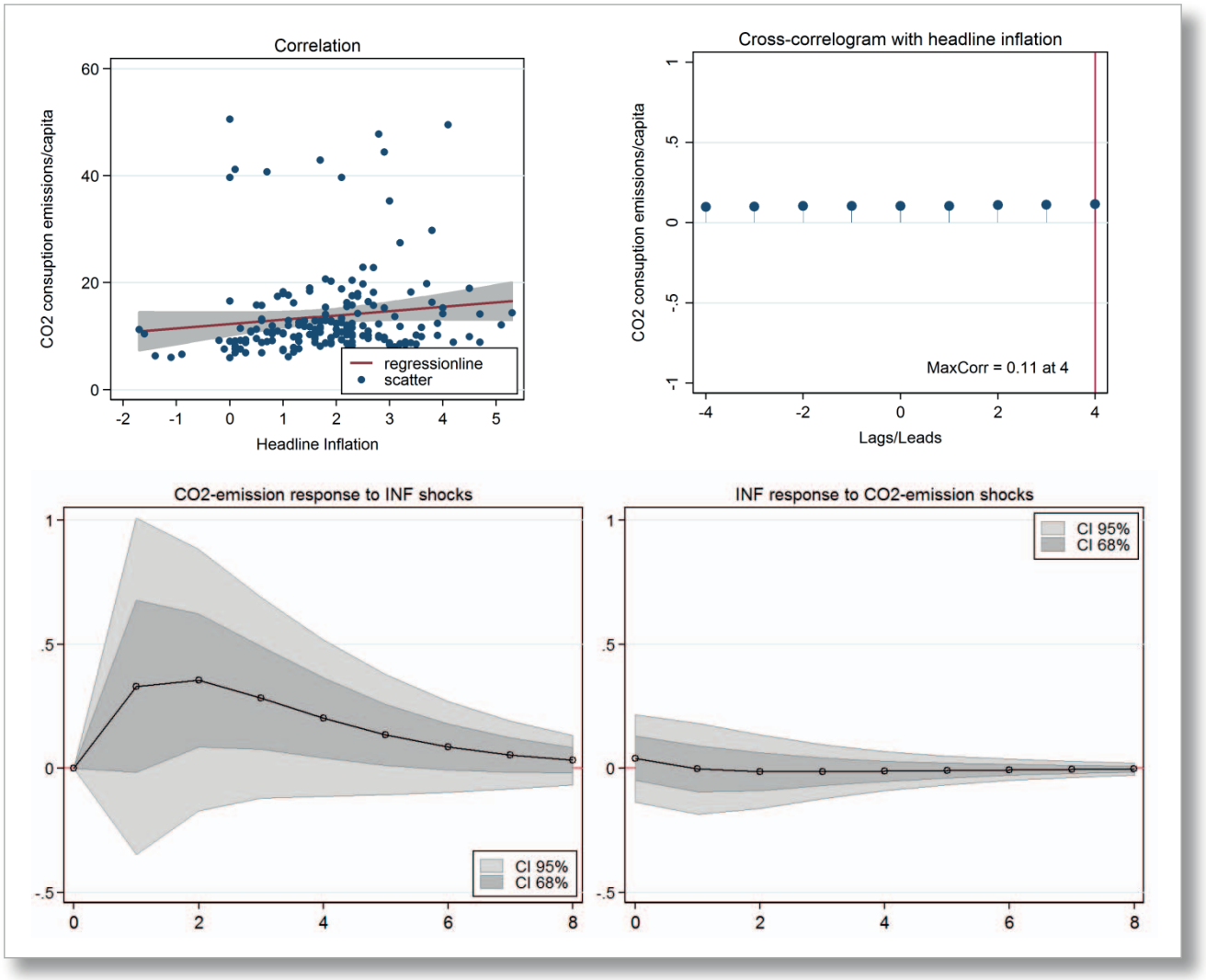


Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A7, we find a positive but low correlation between inflation and technological progress (upper left and right). Inflation is associated with higher total factor productivity (TFP) in the euro area. The impulse responses show an unstable link between the two variables. Technological progress decreases by almost 1 percent 2 years after an inflation shock (lower left). However, the effect of a TFP shock on inflation rate is lower and significant only for two years.

The actual objective of the ECB and this secondary objective display a stable link, so they are **independent**.

Figure A8. **The link between inflation and GHG emissions**



Source: Authors' computations. The dark (resp. light) grey-shaded areas represent confidence intervals for one (resp.two) standard error(s).

In Figure A8, results display a positive but low (and non-significant) correlation between inflation and CO2 emissions. Response functions (lower left and right) confirm that the link is not significant although both variables are very likely to be driven by economic activity and a variable could be omitted hence introducing a bias in the model.

The relation between inflation rates and GHG emissions is unstable. These objectives are **independent**. The actual mandate of price stability does not interfere with a potential objective of limiting the GHG emissions in the euro area. Symmetrically, the pursuit of this secondary objective would not interfere with the actual mandate. However, it would bring monetary policy in structural territories, well beyond its macroeconomic stabilisation objectives.

LIST OF ABBREVIATIONS

CI	Confidence interval
CIFI	Composite indicator of financial integration
CISS	Composite indicator of systemic stress
EA	Euro area
ECB	European Central Bank
EP	European Parliament
GDP	Gross domestic product
GHG	Greenhouse gas
MEP	Member of European Parliament
PBSG	Primary balance sustainability gap
SSM	Single supervisory mechanism
TEU	Treaty of the European Union
TFEU	Treaty on the Functioning of the European Union
TFP	Total factor productivity
VAR	Vector autoregression

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