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Monetary and Fiscal Policies in the Euro Area: Estimates of the Impact on the Real Economy and the Italian Banking System

By Alessandra Amici, Vincenzo Chiorazzo,
Vincenzo D'Apice and Pierluigi Morelli

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ABSTRACT

In this study we use two macro-econometric models to estimate the impact of Euro Area monetary and fiscal policies both on the real economy and on the Italian banking system. We start by calibrating a baseline scenario for the 2015-2018 period which includes on-going policies and then we compare it with: i) a counterfactual scenario with no ultra-accommodative monetary policy; ii) an alternative scenario in which fiscal expansion plays a role. Our results highlight that the effect of the ECB's ultra-expansionary monetary policy is remarkable: at the end of 2018, Euro Area GDP is 2.9% higher than in a scenario without such a policy. The impact on the Italian banking system is also positive, when all the channels at work are taken into account: we find a cumulative higher profit of 7.7 billion. According to our exercises, however, a different economic policy mix - in which a less accommodative monetary policy is combined with fiscal stimulus via public investment - would yield better outcomes, both for the economy at large and for the Italian banking sector. In comparison with our baseline (on-going policies), a scenario in which fiscal policy "helps" monetary policy adds up to 0.7 percentage points of GDP growth at the end of 2018 (+3.6% as compared to +2.9%), 3.2 percentage points of credit to the Italian economy and 0.3 pp to ROE.

1. INTRODUCTION

Monetary policy in the Euro Area (EA) has been ultra-accommodative in recent years. From October 2010 to March 2016, the ECB policy rate declined from 4.25% to 0%. Moreover, during this period, the ECB implemented many unconventional monetary policy tools. Among these tools, the latest is the quantitative easing programme (QE), announced in January 2015, where €60 billion per month of euro-area bonds are bought. Beginning in March 2015, the stimulus was planned to last until September 2016 at the earliest, with a total QE of at least €1.1 trillion. In March 2016 the ECB expanded its QE programme to €80 billion per month until the March 2017. Moreover, a new round of OMRLT was introduced with a 4-year maturity.

The intensity of fiscal policy has been much lower. Without a fiscal union, the only programme launched has been the Juncker Plan.

Some observers argue that the impact of the ultra-accommodative monetary policy on the real economy will be very limited and, at the same time, that the huge amount of liquidity injected could put financial stability at risk (Bindseil et al., 2015; Borio, 2014; IMF, 2013). On the contrary, other observers argue that the ultra-accommodative stance is necessary to bring the inflation rate closer to the ECB target (Cecioni et al., 2011). At the same time, the argument says that, to stimulate economic growth, monetary policy expansion should be matched by fiscal policy stimulus (Bernanke, Reinhart and Sack 2004; IMF, 2014).

The objective of this article is threefold. First, we quantify the impact of the ECB ultra-accommodative monetary policy on the real economy. Second, we evaluate the effect of a different mix of economic policy, in which a less accommodative monetary policy is combined with fiscal stimulus. Third, we quantify the impact of these policies on the Italian banking system.

Using the NiGEM macroeconomic model, we find that the effect of the ECB ultra-accommodative monetary policy is remarkable. At the end of 2018, Euro Area GDP is 2.9% higher than in a scenario without such a policy. The impact of the ECB ultra-accommodative monetary policy on the Italian banking system is also positive. Using the ABI macroeconomic model, we find a cumulative higher profit of 7.7 billion. The results of the different economic policy mix simulation are slightly better. With respect to a scenario without the ECB ultra-accommodative monetary policy, GDP is 3.6% higher at the end of 2018. A different policy mix would be more beneficial for the economy at large and also for the Italian banking sector. We find a cumulative higher profit of 10 billion in this scenario. Thus, we conclude that an ultra-expansionary monetary policy is fine, but a different policy mix would be even better.

The rest of the paper is organized as follows. Section 2 offers a brief review of the debate on recent monetary and fiscal policies in the EA (and beyond), with the aim of highlighting, on the

one hand, the theoretical channels through which ultra-accommodative monetary policies and expansionary fiscal policies exert their effect and, on the other, the evidence on the empirical effects of such policies. In section 3 we describe the econometric models used to perform our "what if" simulations. In Section 4 we present and discuss the results of our empirical exercises. Section 5 concludes.

2. A REVIEW OF THE DEBATE ON RECENT MONETARY AND FISCAL POLICIES IN THE EA (AND BEYOND)

In this section we offer a brief review of the vivid debate on Euro Area economic policy by focusing firstly on the theoretical and empirical effects of ultra-accommodative monetary policies (and notably of QE) and, secondly, on expansionary fiscal policies driven by public investment stimuli.

2.1 QE and ultra-accommodative monetary policy: channels of transmission

In response to the 2007-08 Great Financial Crisis, central banks around the world resorted to a variety of standard and non-standard measures. A growing literature has focused on the effectiveness of non-standard measures, notably on asset purchase programmes, and emphasized the large number of channels through which non-conventional instruments might work:

i) *The traditional interest rate channel.* Through this mechanism, ultra-accomodative monetary interventions push longer term interest rates lower so encouraging firms and households to borrow and spend (Chen et al., 2012);

ii) *The portfolio rebalancing channel.* Asset purchases by the central bank result in an increase in the liquidity held by the sellers of these assets. If the liquidity received is not considered a perfect substitute for the assets sold, an asset swap can lead to a rebalancing of portfolios towards other assets. Through such portfolio rebalancing attempts, asset prices rise until a new equilibrium is reached, implying lower yields and costs of external financing. Empirical evidence for the United States indicates that the Federal Reserve's policies adopted in March 2009 caused yields on corporate bonds to fall by about the same amount as those on the Treasury securities included in the programme (Gagnon et al., 2011). Joyce et al. (2014) find similar evidence for the United Kingdom, where the Bank of England's purchases of government securities encouraged institutional investors to modify their portfolios by substituting government securities with corporate bonds, with much the same effect on the yields of the two securities;

iii) *The bank lending channel.* Through this channel, unconventional monetary policy help directly ease financial conditions and support bank lending to the private sector by improving the availability of funds (Chen et al., 2012).

Beyond the above three channels, explicitly considered in the setup of our simulations in paragraph 4.1.1 of this paper, a number of other channels of transmission may operate and many other effects can be at work. Among them: a) *signalling effects.* Central bank asset purchases provide an indirect signal of the central bank's objectives and future conventional policy actions[1]; b) *exchange rate effects.* The substitution of assets available in financial markets with Central bank reserves and the reduction in long-term interest rates lead to a depreciation of the currency[2]; c) *wealth effects*. The increase in the prices of financial and real assets has an expansionary effect on aggregate demand, by directly increasing the wealth of holders[3].

As to the empirical literature on the influence of ultra-accommodative monetary policy, some researchers argued that unconventional policy actions, such as Central bank large-scale asset purchases (LSAP) of longer-term securities or foreign exchange can complement conventional policy actions, by making financial conditions more favorable for growth even when short-term rates are constrained by the Zero Lower Bound (Bernanke, Reinhart, and Sack, 2004). A large number of research papers examine the influence of Central bank asset purchases on financial markets and argue that the impact varies, depending on the type of asset the Central bank acquires (Gagnon et al, 2011b; D'Amico and King, 2013). For the United States, the central tendency of the estimates indicates that $600 billion of Federal Reserve asset purchases lowers the yield on ten-year Treasury notes by around 15 to 25 basis points. One area where low or zero interest rate monetary policies have had an impact, however, is on yield curves. There is consensus among economists that such policies have lowered long-term yields and financial market volatility (Krishnamurthy and Vissing-Jorgensen, 2011; Gagnon et al., 2011; Swanson et al., 2011; D'Amico et al., 2012; Aksoy and Basso, 2014; Wu 2014; Neely 2015; Steeley and Matyushkin, 2015).

A more specific strand of research is related to the effects of QE on banks. Bowman et al. (2011) argue that Japan's QE between 2001 and 2009 had a modest positive influence on bank lending. Joyce and Spaltro (2014) find similar evidence for the UK. Lambert and Ueda (2014) address the effects of ultra-low interest rates and unconventional monetary policy on bank

[1] However, many studies have found that the contribution of the signalling channel is highly uncertain. It has been found to be muted in the United Kingdom, moderate in the Euro area and highly uncertain in the United States. (Krishnamurthy and Vissing-Jorgensen, 2013; Bauer and Rudebusch, 2014; Christensen and Rudebusch, 2012).

[2] Fratzscher et al. (2013) point out that, in the United States, about a third of the dollar's loss of value between 2007 and 2011 was due to the Federal Reserve's policies.

[3] The effectiveness of this channel depends on the size and composition of the portfolios of households and firms.

profitability, risk-taking and soundness. Their research is based on the idea that a prolonged period of low interest rates can create incentives for banks to take on greater risk thereby undermining financial stability. Authors use three complementary approaches to evaluate the effects of those policies on banks. An event study approach, motivated by the idea that any effect of unconventional monetary interventions on bank soundness, including bank default risk and performance, should be immediately reflected in changes in bank stock prices and bond yields at the time of the announcements. The second approach aim to investigate the channels of impact of unconventional monetary policy on banks, by relating indicators of monetary policy to balance sheet measures of bank's health, including profitability, risk taking and the status of balance sheet repair. The last approach observe the possible growth in interest rate risk in banks, which is a potential consequence of the protracted period of low interest rates. In the event study, they do not find clear effects of monetary easing on bank stock valuation but detect a deterioration of medium-term bank credit risk in the United States, the Euro area, and the United Kingdom. Indeed, in the panel regression approach, using data from US banks' balance sheet information, they observe that bank profitability and risk taking are ambiguously affected, while balance sheet repair is delayed.

Finally, in the very recent past, the ECB has been involved in a debate on the practical effects of monetary policy both on the real economy and on the profitability of European banks, emphasising the positive outcomes of the present monetary policy stance in the EA. In a short paper by V. Constâncio interestingly labelled "In Defence of Monetary Policy" (ECB, 2016a), the author states that:

> "we estimate that two thirds of the one percent of registered growth in the past two years was due to our monetary policy (…). Naturally, all policies have limits. In the case of the instruments we are now using, this is particularly true of negative interest rates on our deposit facility. The reasons are more fundamental than just the effect on banks. Despite negative rates throughout last year, the net interest income (NII) of euro area banks increased in percentage of assets, and their return on equity went up from 3.5% in 2014 to 5.7% in 2015 – which corresponds to a real return as inflation was zero. Our policies also produced capital gains for banks, as securities' prices went up (and yields down), and impairment costs came down as the recovery reduced the amount of NPLs. More broadly, negative deposit facility rates have contributed to negative rates in the money market, reducing funding costs for banks. The whole yield curve has been lowered, which is the sole objective of using this particular monetary policy instrument."

2.2. The debate on the effects of public investment expansion

The fall in investment in some advanced countries has recently led to a debate on the possible role of an increase in public investment, especially in the present context of interest rates at their historical low. The IMF's October 2014 World Economic Outlook (IMF, 2014) underscored the contribution of public investment to growth and called for a surge in infrastructure

investment to help further global recovery. The study shows clear longer-run benefits from public investment, on both the demand and the supply side, especially when conducted in times of substantial economic slack. The IMF finds that the average multiplier in advanced economies is 0.4 in the short run and 1.5 percent after four years. In developing countries, the impact on output is smaller, at around 0.25 in the same year, and 0.5 after four years. IMF researchers also find that investment shocks have a bigger growth impact in advanced economies with more efficient public investment, increasing the level of output by 2.6 percent after four years.

In the same vein, a recent ECB study (ECB, 2016), points to the possible role of a public investment burst in some large EA countries. The impact on output is found to be positive, but heterogeneous across countries and time. The positive relationship between public investment and economic growth stems from two different sources: 1) in the short term, an increase in public investment has positive demand-side effects; 2) in the long term, supply-side effects are at work, thanks to the increase in public capital stocks, but estimates vary considerably with the time period, country, measure of capital and estimation method. Moreover, according to the ECB: a) increases in public investment have the strongest short-term demand effects in the presence of a credible accommodative monetary policy; b) debt-financed increases in public investment have positive demand effects, with modest effects on the public debt-to-gdp ratio if investment projects are carefully selected, but are not self-financing; c) longer-term effects on output and public finances crucially depend on the quality of investment. The main result of the simulations suggests that an increase in public investment of 1% of the initial Gdp over 20 quarters would give rise, if debt-financed, to a 1.6% increase in Gdp in the first two years and 1.8% after ten years.

3. EMPIRICAL ANALYSIS: THE ECONOMETRIC TOOLS

In this section we describe the econometric tools used to estimate the impact of the EA economic policies on the real economy (3.1) and on the Italian banking system (3.2).

3.1. NiGEM

NiGEM is an estimated model, which uses a "New-Keynesian" framework in that agents are presumed to be forward-looking but nominal rigidities slow the process of adjustment to external events. As a policy-advice model, NiGEM is also designed to be flexible so assumptions on behaviour and policy can be changed. The structure of the model is designed to correspond to macroeconomic policy needs. Thus, NiGEM is structured around the national income identity, can accommodate forward-looking consumer behaviour and has many of the characteristics of a Dynamic Stochastic General Equilibrium (DSGE) model. However,

NiGEM is based on estimation using historical data, it thus strikes a balance between theory and data and enables the model to be used both for policy analysis and forecasting.

3.2 The ABI macroeconomic model

The ABI macroeconomic model is a traditional large-scale model. It is built to provide accurate medium-term forecasts up to three years. It is particularly suitable for describing the dynamics of aggregate demand (i.e., goods and services) as well as production inputs (i.e., labor and capital formation). Moreover, it takes into account, in a very accurate way, the budget constraints of the main economic actors, namely households and the public sector. The ABI macroeconomic model is characterized by the full exposition of bank accounts in terms of both the balance sheet as well as the profit and loss accounts. Thus, the model gives forecasts on a large set of banking indicators such as: capitalization, loan portfolio risk, interest and non-interest income, cost of risk and net profits.

4. EMPIRICAL ANALYSIS: SIMULATIONS

4.1. The impact of ECB ultra-accommodative monetary policy

In this section we explain first the methodology used to proxy the ECB ultra-accommodative monetary policy (section 4.1.1.), and then we comment on the results of the simulation to quantify the impact of this policy on the real economy (section 4.1.2) and Italian banking system (section 4.1.3).

4.1.1 Methodology

The first objective of this study is to quantify the impact of the ultra-accommodative monetary policy on the real economy. To this end, we start from a base scenario provided by the National Institute of Economic and Social Research[4] in January 2016. Then, as we also want to take into account the latest ECB decisions announced in March 2016, we impose on this baseline a prolonged zero policy interest rate and the effect of the QE enlargement. We call this the "ONGOING POLICY" scenario (our ***baseline***)[5].

[4] The National Institute of Economic and Social Research is Britain's longest established independent research institute, founded in 1938. The vision of its founders was to carry out research to improve understanding of the economic and social forces that affect people's lives, and the ways in which policy can bring about change. Seventy-five years later, this remains central to NIESR's ethos. They continue to apply their expertise in both quantitative and qualitative methods and their understanding of economic and social issues to current debates and to influence policy. The Institute is independent of all party political interests. NIESR's well-known quarterly economic forecasts are produced using their global econometric model, NIGEM, which is also used by many European Central Banks and international organisations such as the IMF.

[5] Detailed results of this scenario are available upon request.

From this scenario, we examine a ***counterfactual*** scenario of what would have happened had the ECB not applied its ultra-accommodative monetary policy. We call this new scenario the "NO QE POLICY" scenario[6].

The "NO QE POLICY" scenario has two key assumptions: (1) higher ECB policy rate; (2) no QE. With regard to the first assumption, we use the implicit ECB policy rate profile reflected in the future contract on the 3-month Euribor before the ECB's first QE announcement. Table 1 shows the different path of ECB policy rate in the two scenarios. As can be seen, the policy rate is higher in the "NO QE POLICY" scenario by 0.2 pp in 2015 and by 1.4 pp at the end of the simulation period (2018). Moreover, between 2015 and 2018, the mean ECB policy rate is equal to 0.1% in the "ONGOING POLICY" vs. 1% in the "NO QE POLICY". Figure 1 depicts the ECB policy rate quarterly profile in the two scenarios.

With regard to the second key assumption of the "NO QE POLICY" scenario, we consider the following three QE transmission channels (Fic, 2013):

(1) QE reduces long-term interest rates in the Euro Area. In the NiGEM model, this is implemented by a negative shock to the term spread risk premium, which causes an increase in the market price of government bonds and a reduction in the coupon rate. This type of shock reduces the long-term interest rates in the model. Based on the empirical evidence provided by Fic (2013), in the "ONGOING POLICY" scenario, the term spread risk premium is lower by 50 basis points from the beginning of 2015 and then it goes down progressively during the simulation. As can be seen in Table 2, in 2015, the difference in long-term rate is equal to 0.2, but at the end of the period the difference reaches 1.4 pp. Moreover, between 2015 and 2018, the mean long-term rate is equal to 1.5% in the "ONGOING POLICY" scenario vs. 2.3% in the "NO QE POLICY" scenario.

(2) QE increases Euro Area equity prices, as the central bank asset purchases ease financial conditions and influence investors' portfolio decisions (including moving to riskier assets). In the model, this is implemented through a negative shock to the equity risk premium. This type of shock produces an increase in the equity prices used in the model. Based on the empirical evidence provided by Fic (2013), in the "ONGOING POLICY" scenario, the equity risk premium is lower by 1% from the beginning of 2015 and then goes down progressively during the simulation.

(3) QE eases financial conditions and supports bank lending to the private sector by improving the availability of funds. In the model, this is approximated by a negative

[6] Detailed results of this scenario are available upon request.

shock to the investment premium. This type of shock produces a reduction of credit rationing in the business sector, as the spread applied over the risk-free rate is lower. Based on the empirical evidence provided by Fic (2013), in the "ONGOING POLICY" scenario, the investment premium is lower by 1% from the beginning of 2015 and then goes down progressively during the simulation.

4.1.2 *Impact on the real economy*

As explained in the previous section, we simulated two scenarios: (1) the "ONGOING POLICY" scenario, that takes into account the ultra-accommodative monetary policy implemented by the ECB from 2015 until the end of 2018; (2) the "NO QE POLICY" scenario without the ultra-accommodative monetary policy: using the first one as baseline and the second one as counterfactual, the difference between these two scenarios shows the impact of the ultra-accommodative monetary policy on the real economy.

As can be seen from Table 3, the effect of the ECB's ultra-accommodative monetary policy is remarkable. At the end of 2018, the Euro Area GDP is higher by 2.9% than in a scenario without such policy. The inflation index is higher by about 2.9%, this means that the inflation rate exceeds the ECB target (2%) in 2018. Figure 2 depicts GDP and inflation index quarterly profile in terms of the percentage difference between the two scenarios. The long-term rates are lower and the public finances stronger. In particular, the public deficit ratio is lower by about 0.8 pp (of which 0.4 pp due to lower interest expenses) and the public debt is lower by 6.7 pp. The impact on the Italian economy is slightly stronger. The GDP gain is equal to 3% at the end of 2018, the public deficit ratio is lower by about 1.2 pp and the public debt is lower by about 10.9 pp.

4.1.3 Impact on the Italian banking system

Using the results of the previous section, we can quantify the impact of the ECB ultra-accommodative monetary policy on the Italian banking system using ABI's macroeconometric model. Due to its structure, in the ABI model an ultra-expansionary monetary policy exerts its effects via four main channels: 1) a "volumes channel", namely through, on the one hand, an increase in bank loans to households and firms and, on the other hand, an increase in demand for fee-based services; 2) a "prices channel", namely through a squeeze on the commercial spreads of banks, mainly due to the fact that, at very low or zero interest rates, banks are unable to mark-down their deposit rates; 3) a "valuation channel", namely through the increase in the market value of the financial assets held by banks; 4) a "cost of risk channel", as the improved

economic outlook reduces the flow of provisions on loans to households and businesses, while the lower tension in financial markets reduces the flow of provisions on financial assets.

As can be seen from Table 4, the impact of ECB monetary policy on the Italian banking system is positive. More precisely, at the end of 2018, thanks to higher GDP growth and lower interest rates, loans to residents are higher by 7.3% in the "ONGOING POLICY" with respect to the "NO QE POLICY". Notwithstanding the higher volume of loans, the lower level of interest rates pushes down net interest income by about 18.5 billion from 2015 to 2018. However, in the same period, improved conditions in the financial markets, push up non-interest income by about 22 billion; thus operating income is higher by about 3.5 billion. Taking into account a lower cost of risk of 11 billion, we find a cumulative higher profit of 7.7 billion in the "ONGOING POLICY" scenario with the mean Roe higher by 0.5 pp in the simulation period.

4.2 A different mix of economic policies

Now we want to simulate a scenario with a less aggressive monetary policy combined with fiscal stimulus. Thus, in this section, we explain first the methodology used to build this scenario (4.2.1) and then describe the impact of this simulation on the real economy (4.2.2) and the Italian banking system (4.2.3).

4.2.1 Methodology

This simulation has two key assumptions: (1) less aggressive monetary policies; (2) fiscal stimulus. We call this **alternative** scenario "DIFFERENT POLICY MIX"[7].

With regard to the first assumption, we simulate a scenario in which the ECB policy rate is slightly higher than in the scenario with ultra-accommodative monetary policy. Table 5 shows the different ECB policy rate path and Figure 3 depicts the quarterly profile. We also simulate a less intensive ECB QE, i.e. a QE programme without the enlargement announced in March 2016. In other words, the impact of QE on the long-term rate, equity prices and banking spread is lower.

With regard to the second key assumption (i.e., fiscal stimulus), we consider an increase in public investment in the Euro Area equal to 1% of GDP for two years (i.e., 2016 and 2017). This shock amounts to 97.6 billion in the first year and to 99.4 billion in the second year (see Figure 4). We assume that this public investment plan has a high level of efficiency, such that there is a positive impact on productivity[8].

[7] Detailed results of this scenario are available upon request.

[8] In the model this effect is captured by an increase in technological progress.

4.2.2 Impact on the real economy

A different mix of economic policies in the Euro Area gives slightly better results. Taking as a reference the scenario without ultra-accommodative monetary policy (i.e., NO QE POLICY), in the "DIFFERENT POLICY MIX" scenario (i.e., less aggressive monetary policies combined with a fiscal stimulus scenario) GDP is higher by 3.6% at the end of 2018 (see Table 6). The inflation index is higher by about 2.7%, this means that the inflation rate is 2.3% in 2018. In this scenario, having hypothesized use of the fiscal instrument, we need to look carefully at the effects on public finances. With regard to the public accounts, in the two years of fiscal stimulus (i.e., 2016-2017) the public deficit is higher by 0.4 pp in each year. However, at the end of the stimulus (2018), the deficit is lower by 0.5 pp. Higher GDP growth produces a lower public debt ratio in each year of the simulation period: at the end of 2018 the public debt is lower by 5.2 pp. With regard to Italy, the gain in GDP is equal to 3.7 at the end of 2018. The impact on public finance is positive. At the end of the simulation period, the public deficit is lower by about 1 pp and the public debt is lower by 10 pp.

With regard to the comparison between "ONGOING POLICY" and "DIFFERENT POLICY MIX", we can say that a different mix of economic policies produces higher GDP growth and slightly worse public finances.

4.2.3 Impact on the Italian banking system

A different policy mix, with a slightly less expansionary monetary policy and a more aggressive fiscal policy in terms of public investment, would be more beneficial for the economy as a whole and also for the banking sector. More precisely, with regard to Italian banks, at the end of 2018, thanks to higher GDP growth and lower interest rates, loans to residents are higher by 11.3% in the "DIFFERENT POLICY MIX" with respect to the "NO QE POLICY". Notwithstanding the higher volume of loans, the lower level of interest rates pushes down net interest income by about 14 billion from 2015 to 2018. However, in the same period, improved conditions on the financial markets, push up non-interest income by about 21 billion; thus operating income is higher of about 6.6 billion. Taking into account a lower cost of risk of 12 billion, we find a cumulative higher profit of 10 billion in the "DIFFERENT POLICY MIX" scenario with a mean Roe higher by 0.6 pp in the simulation period.

Now we can also compare "DIFFERENT POLICY MIX" with the "ONGOING POLICY". The "DIFFERENT POLICY MIX" scenario has, at the end of the period, a higher volume of loans (+3.2%) due to the more dynamic GDP growth and a higher banking spread (+0.2 pp.), due to a less aggressive monetary policy. Thus, in this scenario net interest income over the

entire period is higher by about 4.2 billion. On the contrary, non-interest income is lower as the consequence of attenuated valuation effects. The higher volume of loans pushes up operating costs, but the higher GDP growth pushed down the cost of risk. Overall, the "DIFFERENT POLICY MIX" scenario has a net profit higher of about 2.2 billion, with a gain in term of ROE of 0.3 at the end of the period.

5. CONCLUSIONS

In this study we used two macroeconometric models to estimate the impact of Euro Area monetary and fiscal policies on the real economy and the Italian banking system. Our results point out that the effect of the ECB's ultra-accommodative monetary policy is remarkable. At the end of 2018, Euro Area GDP is 2.9% higher than in a scenario without such a policy. The inflation index is higher by about 3%, this means that the inflation rate exceeds the ECB target (2%) in 2018. With regard to Italy, the GDP gain is equal to 3% at the end of 2018. The impact of the ECB's ultra-accommodative monetary policy on the Italian banking system is also positive. We find a cumulative higher profit of 7.7 billion with a mean Roe higher by 0.5 pp in the simulation period. We also simulated the effect of a different mix of economic policy, in which a less accommodative monetary policy is combined with fiscal stimulus aimed to increase Euro Area public investment by 1% for two years. The results of this exercise are slightly better. With respect to a scenario without the ECB's ultra-accommodative monetary policy, GDP is higher by 3.6% at the end of 2018. The inflation index is higher by about 2.7%, which means that the inflation rate is 2.3% in 2018. With regard to Italy, the gain in GDP is 3.7 at the end of 2018. In comparison with our baseline (on-going policies), a scenario in which fiscal policy "helps" monetary policy adds up to 0.7 percentage points of GDP growth at the end of 2018 (+3.6% as compared to +2.9%) and 3.2 percentage points of credit to the Italian economy and 2.3 billion of bank profit (10 billion as compared to 7.7 billion).

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TABLES

Table 1

ECB Policy Rate Profile: "ONGOING POLICY" vs. "NO QE POLICY" scenario

Variable	Scenario	Unit	2015	2016	2017	2018	Mean
ECB Policy Rate	ONGOING POLICY	Level%	0.1	0.0	0.0	0.3	0.1
ECB Policy Rate	NO QE POLICY	Level%	0.3	0.8	1.2	1.7	1.0

Table 2

Long-term Rate Profile: "ONGOING POLICY" vs. "NO QE POLICY" scenario

Variable	Scenario	Unit	2015	2016	2017	2018	Mean
Long-term Rate	ONGOING POLICY	Level%	1.0	1.2	1.7	2.1	1.5
Long-term Rate	NO QE POLICY	Level%	1.2	1.9	2.8	3.5	2.3

Table 3

Difference between "ONGOING POLICY" vs. "NO QE POLICY" scenario

Variable	Unit	2015	2016	2017	2018
Euro Area					
GDP	% diff. between levels	0.6	1.8	2.6	2.9
Inflation Index	% diff. between levels	0.0	0.6	1.6	2.9
Policy Rate	p.p. diff. between levels	-0.3	-0.8	-1.2	-1.5
3m Interest Rate	p.p. diff. between levels	-0.3	-0.8	-1.2	-1.5
Long-term Rate	p.p. diff. between levels	-0.2	-0.7	-1.1	-1.4
Public Deficit Ratio	p.p. diff. between levels	0.1	0.3	0.6	0.8
Public Debt Ratio	p.p. diff. between levels	-0.7	-2.5	-4.7	-6.7
Italy					
GDP	% diff. between levels	0.5	1.6	2.5	3.0
Inflation Index	% diff. between levels	0.1	0.7	2.1	4.0
Long-term rate	p.p. diff. between levels	-0.2	-0.7	-1.1	-1.4
Public Deficit	p.p. diff. between levels	0.1	0.4	0.8	1.1
Public Debt	p.p. diff. between levels	-3.6	-3.5	-7.3	-9.8
Unemployment	p.p. diff. between levels	-0.1	-0.5	-0.9	-0.7

Table 4

Difference between "ONGOING POLICY" vs. "NO QE POLICY" scenario

Variable	Unit	2015	2016	2017	2018
Loans to Residents	%	0.5	2.4	4.9	7.3
Bank Spread*	%	-0.1	-0.2	-0.4	-0.4
Net Interest Income	€ mil	-1800	-4288	-5666	-6702
Non Interest Income	€ mil	1158	5075	7187	8681
Operating Income	€ mil	-642	786	1522	1978
Operating Expenses	€ mil	99	548	1181	1758
Net Write-Downs And Provisions	€ mil	-1718	-3117	-3122	-2719
Net Profit	€ mil	632	2264	2563	2235
Roe	%	0.2	0.6	0.6	0.5

*:Average interest rate on loans-average interest rate on funding

Table 5

ECB Policy Rate: "DIFFERENT POLICY MIX" vs. "NO QE POLICY" scenario

Variable	Scenario	Unit	2015	2016	2017	2018	Mean
ECB Policy Rate	DIFFERENT POLICY MIX	Level%	0.1	0.0	0.2	0.6	0.2
ECB Policy Rate	NO QE POLICY	Level%	0.3	0.8	1.2	1.7	1.0
Memo:							
ECB Policy Rate	ONGOING POLICY	Level%	0.1	0.0	0.0	0.3	0.1

Table 6

Difference between "DIFFERENT POLICY MIX" vs. "NO QE POLICY" scenario

Variable	Unit	2015	2016	2017	2018
Euro Area					
GDP	% diff. between levels	0.6	2.4	3.5	3.6
Inflation Index	% diff. between levels	0.0	0.6	1.6	2.7
Policy Rate	p.p. diff. between levels	-0.3	-0.8	-1.0	-1.1
3m Interest Rate	p.p. diff. between levels	-0.3	-0.8	-1.0	-1.1
Long-term Rate	p.p. diff. between levels	-0.2	-0.6	-0.9	-1.1
Public Deficit Ratio	p.p. diff. between levels	0.1	-0.4	-0.4	0.5
Public Debt Ratio	p.p. diff. between levels	-0.7	-2.4	-3.9	-5.2
Italy					
GDP	% diff. between levels	0.5	2.0	3.5	3.7
Inflation Index	% diff. between levels	0.1	0.7	2.3	4.0
Long-term rate	p.p. diff. between levels	-0.2	-0.6	-0.9	-1.1
Public Deficit	p.p. diff. between levels	0.1	-0.3	-0.1	0.9
Public Debt	p.p. diff. between levels	-3.6	-3.4	-7.0	-8.9
Unemployment	p.p. diff. between levels	-0.1	-0.5	-0.7	-0.6

Table 7

Difference between "DIFFERENT POLICY MIX" vs. "NO QE POLICY" scenario

Variable	Unit	2015	2016	2017	2018
Loans to Residents	%	0.5	3.9	8.0	11.3
Bank Spread*	%	-0.1	-0.2	-0.3	-0.2
Net Interest Income	€ mil	-1800	-3498	-4352	-4565
Non Interest Income	€ mil	1158	4529	6766	8322
Operating Income	€ mil	-642	1031	2414	3756
Operating Expenses	€ mil	99	668	1521	2299
Net Write-Downs And Provisions	€ mil	-1718	-3600	-3540	-3170
Net Profit	€ mil	632	2655	3249	3420
Roe	%	0.2	0.7	0.8	0.8

*:Average interest rate on loans-average interest rate on funding

Table 8

"DIFFERENT POLICY MIX" vs. "ONGOING POLICY" scenario

Variable	Unit	2015	2016	2017	2018
Loans to Residents	%	0.0	1.5	2.7	3.2
Bank Spread*	%	0.0	0.1	0.1	0.2
Net Interest Income	€ mil	0	790	1314	2137
Non Interest Income	€ mil	0	-546	-421	-359
Operating Income	€ mil	0	244	893	1778
Operating Expenses	€ mil	0	120	340	541
Net Write-Downs And Provisions	€ mil	0	-483	-418	-451
Net Profit	€ mil	0	392	686	1185
Roe	%	0.0	0.1	0.2	0.3

*:Average interest rate on loans-average interest rate on funding

FIGURES

Figure 1

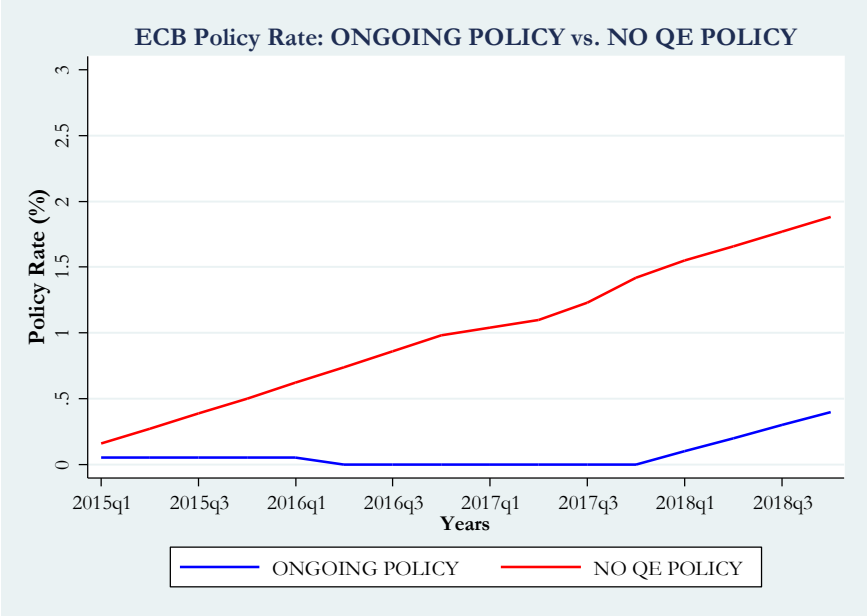

Figure 2

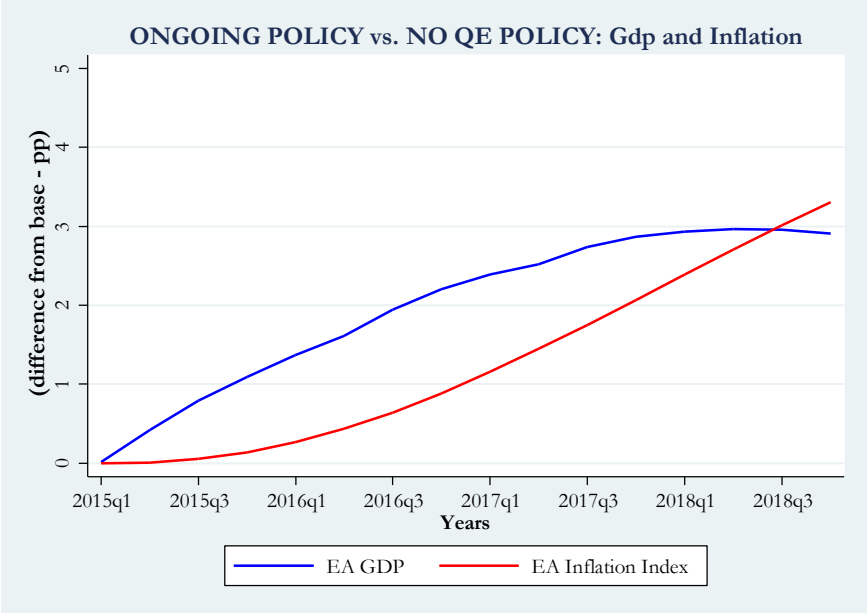

Figure 3

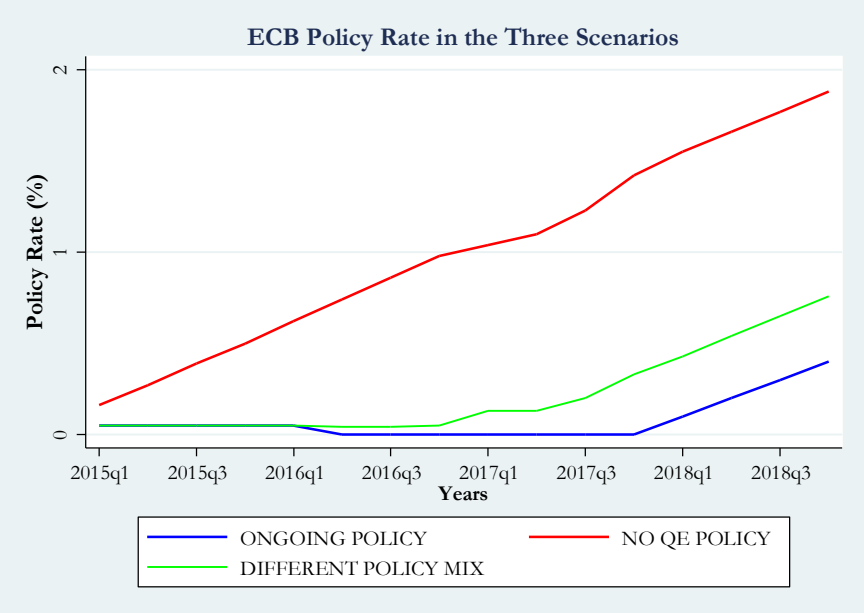

Figure 4