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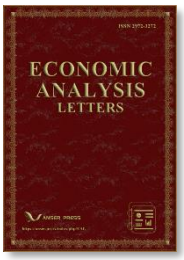

The effectiveness of the european central bank in pursuing its prime mandate

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ABSTRACT

The objectives and tasks of the European Central Bank (ECB) are defined in Articles 2 and 3 of Protocol (No 4) on the Statute of the European System of Central Banks (ESCB) and of the European Central Bank (ECB). While in Article 3,1° of this Protocol other tasks are mentioned, the prime objective of the ESCB and therefore of the ECB, is price stability. This concept was originally specified by the Executive Board of the ECB as an annual increase of less than 2% in the inflation rate over the medium term, measured by the Harmonized Index of Consumer Prices (HICP) for the euro area. This paper examines to what extent the ECB has been effective in realizing price stability over the period from January 1, 2000 to December 31, 2022. Price stability is important for economic agents. It allows them to plan their savings, spending and investment eventually resulting in sustained economic growth. Notwithstanding the commitment of large human and other resources and the use of unconventional monetary policies, the ECB did not realize its prime objective during a large part of this period. We conclude that putting too much confidence in DSGE-modeling as one of the methodologies to determine monetary policy, may have played an important role in the ECB not achieving its main statutory objective.

KEYWORDS

Effectiveness; central bank; inflation targeting; price stability; monetary instruments

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1. Introduction

Contrary to other major central banks such as the Fed, price stability is the only stated main objective of the ESCB/ECB. Art. 2 of Protocol (No 4) reads as follows: "*In accordance with Article 127(1) and Article 282(2) of the Treaty on the Functioning of the European Union, the primary objective of the ESCB shall be to maintain price stability.*" (European Union, Protocol (No. 4), 2016, p. 230). While in Art. 2 *"supporting general economic policies in the European Union"* is also mentioned as an objective, this additional activity is to be performed *"without prejudice to the objective of price stability."*

The principal objective of price stability assumes that the ECB disposes of the necessary monetary and other instruments to realize it. The main monetary tool the ECB uses in this respect are its key interest rates. Since the crisis of 2008-2009 unconventional monetary tools (negative interest rates, acquiring all kinds of financial assets) and forward guidance have been added (ECB, 2022a).

Since the start of the age of fiat money some fifty years ago, a central bank is not limited anymore by its gold reserves in creating base money. It can at will increase its balance sheet by accumulating assets; no legal or other limitations apply. With respect to the ECB, this is the consequence of the operational independence the Bank enjoys as laid down in Art. 7 of its Statute (European Union, Protocol (No. 4), 2016). This is an important evolution freeing central banks from the previously existing restrictive monetary framework. As a result, the ECB disposes of powerful monetary tools that it can use without limitations to realize its main monetary objective of price stability. This paper investigates whether the ECB has successfully achieved its prime goal of maintaining price stability. To examine this, we discuss in chapter 2 the monetary policy of the ECB as applied from 2000 to 2022. In chapter 3 we introduce our definition of the effectiveness of monetary policy. Chapter 4 gives a brief account of the use of DSGE-modeling from its origins to this day. In chapter 5 we comment on the use of DSGE-modeling by the ECB and its impact on monetary policy. In chapter 6 we draw some conclusions.

2. Monetary policy of the ECB in practice

According to its Statute, the main objective of the Bank is price stability (European Union, Protocol (No. 4) 2016, op. cit.), originally defined by the Governing Council of the ECB as an annual increase in inflation measured by the Harmonized Index of Consumer Prices (HICP) for the euro-area of less than 2% over the medium term (ECB PR, 1998).[1] In 2003, the Governing Council refined this target by considering an inflation rate (HICP) below, but close to 2% as desirable (ECB PR, 2003). On 8 July 2021 the Governing Council adopted a new inflation target. Rather than pursuing a target below but close to 2%, the new target is a symmetric inflation target of 2% over the medium term, as measured by the HICP of the eurozone. Symmetric means that both negative and positive deviations from the inflation target are undesirable, although inflation can be moderately above or under target during a transitional period (ECB PR, 2021). The fact that the ECB (and all other major central banks) considers an inflation rate of 2% as equal to price stability is, of course, open to debate: real price stability means that over the long run CPI does not change. However, since in this paper we evaluate the effectiveness of the ECB in pursuing its prime mandate and its prime mandate is price stability defined as an increase of HICP over the medium term of 2%, we do not challenge the concept of price stability as defined by the ECB.

Why 2% and not a lower or higher figure? As early as 1887 and 1898, Alfred Marshall and Knut Wicksell investigated the importance of a stable price level for achieving constant economic growth (Haldane, Inflation Target, 1995). In 1989, New Zealand was the first country to introduce an official inflation target (New Zealand

[1] The HICP does not take into account the price evolution of real estate and listed stocks. However, in this paper, we evaluate the effectiveness of the ECB in realizing its objective of price stability as stated in its Statute and as defined by the ECB itself. Hence, we refer to HICP and not to any other measure of inflation.

Legislation, Reserve Bank of New Zealand Act 1989). In the 90s of the last century, several central banks used an unofficial inflation target, including the Bundesbank (Haldane, op. cit.). According to Hammond, the inflation target is not the result of new macroeconomic insights, but is a pragmatic response to the failure of the previously pursued anti-inflationary monetary policy based on monetarism (Hammond, State of the Art of Inflation Targeting, 2012).

According to the narrative of central banks, price stability does not equal flat prices. In 1983 Paul Volcker stated that "*A workable definition of reasonable price stability would seem to me to be a situation in which expectations of generally rising (or falling) prices over a considerable period are not a pervasive influence on economic and financial behavior*". In 1994, Alan Greenspan argued that "*We will be at price stability when households and businesses need not factor expectations of changes in the average level of prices into their decisions*" (both statements are cited in Meyer, Inflation Targets and Inflation Targeting, 2001). During the 90s of the last century, central banks explained price stability in an increasing restrictive way. In the United States, Volcker considered an inflation rate of less than 4% to be acceptable (Meyer, op. cit.), while in the United Kingdom the target was first between 1% and 4% (from 1992 to 1995), then 2.5% (from 1995 to 2003) and since then 2% (Bank of England, 'Key Monetary Policy Rates since 1990', 2007). Today, nearly every central bank uses the 2% inflation target. If consumer prices rise by an average of 2% per year over the medium term, they consider this to be price stability.

The reasons why the ECB considers an average annual increase in the rate of inflation of 2% as price stability are the following (ECB, The Definition of Price Stability, 2022b):

(1) Building in a safety margin against the risk of deflation:

- An average annual inflation increase of 2% gives the Bank room to further reduce interest rates if the economic situation so requires.
- An average annual inflation increase of 2% leaves sufficient room for maneuver to combat inflation differentials between euro area Member States.
- Downward income inflexibility allows for a response, thus avoiding rising unemployment.
- An average annual inflation increase of 2% takes into account that the HICP methodology slightly overestimates real inflation.

(2) An inflation target of 2% provides a clear anchor in terms of inflation expectations. Stable inflation expectations are essential for achieving price stability.

(3) Should inflation be too low, strong, long-lasting monetary measures are mandatory to prevent inflation from settling at too low a level.

Moreover, mainstream macroeconomic thinking argues that constantly rising prices are a prerequisite for sustaining GDP growth,[2] although that reasoning is under pressure (Nakamura et al. 2018).

The monetary instruments used by the ECB to realize its main mandate of price stability are:

- The interest rate charged and paid by the ECB on deposits and loans of and to commercial banks.
- The size of its balance sheet.

We emphasize that the ECB considers credit and debit policy rates and the management of its balance sheet as the essential tools for achieving its objective of price stability (ECB, 2022a, op. cit.). Other instruments of monetary policy (setting the minimum reserve requirements and forward guidance) are less prominent. The minimum reserve requirement on July 31st, 2023 was equal to 1% of specific deposits by commercial banks (Eur-Lex, 2021 and ECB, 2023a).[3] The total amount of minimum reserve requirements on June 20th, 2023 for the Eurosystem was 181.6 billion EUR (ECB, 2023b), corresponding to 0.002% of its consolidated balance sheet at the same date.

[2] The assumption is that constantly slightly rising prices encourage consumers and businesses not to postpone purchases and investments.

[3] On July 27, 2023 the ECB lowered the remuneration of the minimum reserves to 0% (ECB PR, 2023).

According to Weidmann, forward guidance is the subject of increasing criticism and should be used with caution (Weidmann, 2019).

We consider the 23-year period from the beginning of 2000 to the end of 2022. The following table shows the monetary tools deployed by the ECB from 2000 to 2022 and the course of HICP in the eurozone during the same period.

Table 1. Major monetary tools used by the ECB (ECB, 2023c and ECB, 2023d) and evolution of HICP (2000-2022) (Eurostat, 2023).

Year	ECB (weighed yearly average, in %)[4]		Eurosystem consolidated balance sheet	HICP eurozone
	Credit rate	Debit rate	at year end (in million EUR)	(yearly average, in %)
2000	2.91	3.91	835 065	2.1
2001	2.99	3.98	814 662	2.3
2002	2.23	3.21	832 558	2.3
2003	1.21	2.43	835 157	2.1
2004	1.00	2.00	884 233	2.1
2005	1.01	2.02	1 038 152	2.2
2006	1.83	2.92	1 150 980	2.2
2007	2.67	3.56	1 511 244	2.1
2008	2.82	3.55	2 043 465	3.3
2009	0.41	1.26	1 852 463	0.3
2010	0.25	1.00	2 004 432	1.6
2011	0.56	1.23	2 735 628	2.7
2012	0.12	0.79	3 018 198	2.5
2013	0.00	0.59	2 285 399	1.4
2014	-0.07	0.16	2 150 247	0.4
2015	-0.21	0.05	2 767 815	0.2
2016	-0.38	0.00	3 662 901	0.2
2017	-0.40	0.00	4 471 563	1.5
2018	-0.40	0.00	4 669 003	1.8
2019	-0.42	0.00	4 691 998	1.2
2020	-0.50	0.00	6 977 658	0.3
2021	-0.50	0.00	8 566 372	2.9
2022	0.07	0.56	7 955 797	9.2

Source: ECB 2023c, ECB 2023d and Eurostat 2023.

We identify four subdivisions. From 2000 to 2007 the yearly evolution of HICP was in line with the ECB's main monetary policy objective, albeit it marginally too high. In this period credit and debit rates did not vary importantly. Only in 2007 when the first signs of the imminent financial crisis appeared, the balance sheet started to quickly increase. The second subdivision lasts from 2008 to 2012. In these years HICP fluctuated heavily. Policy rates were lowered significantly, while the size of the Eurosystem's balance sheet doubled. The third subdivision (2013-2020) is characterized by negative to ultralow policy rates, a booming balance sheet and HICP that remained well under its stated target of 2%. The final subdivision (2021-2022) sees a strong upswing of HICP together with the end of negative to ultralow policy rates and a stabilization of the Eurosystem's balance sheet at a level of about 10 times higher than in 2000. The graphical representation of the foregoing is as follows.

[4] On March 12, 2020 the ECB went a step further. In the framework of fighting the economic and financial impact of the covid-19 pandemic, it started to provide under certain conditions credit to commercial banks at a negative interest rate of up to -1.0% (ECB PR 2020). The further easing of credit conditions on specific loans means that in reality the resources deployed are larger than shown in Table 1.

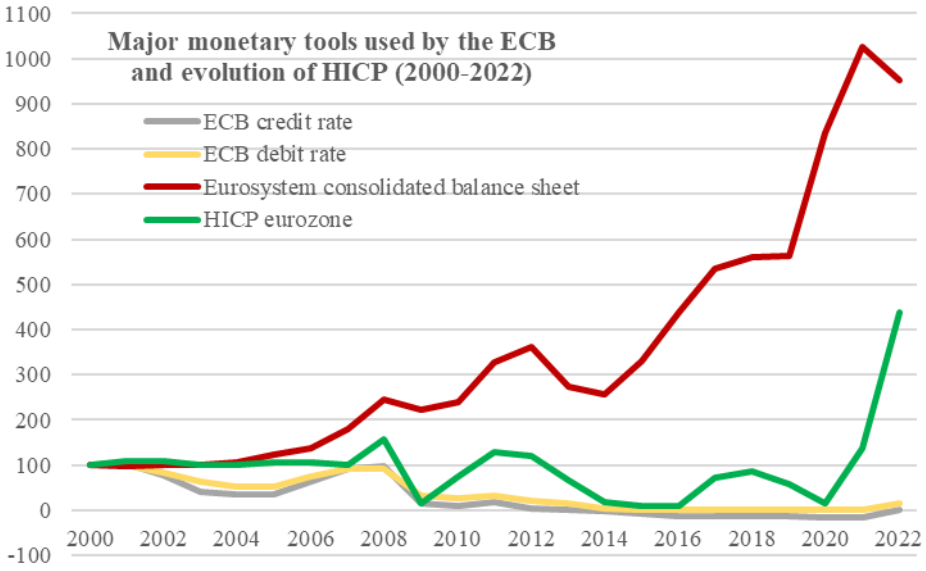

Figure 1. Major monetary tools used by the ECB and evolution of HICP (2000-2022, indexed: 2000=100).

If we calculate the five-year moving average (the main objective of price stability is a medium-term objective), our previous conclusions are to be adjusted: price stability as defined by an annual 2% average HICP rate was realized until 2013, rather than until 2007.[5] Afterwards and till the end of 2022 price stability, was not reached. Can we therefore maintain that with respect to achieving its prime mandate the ECB was performing in an effective way until 2013 and thereafter no longer?

3. Effectiveness

We define the effectiveness of the ECB in realizing its main objective of price stability as the degree to which it is successful in producing the anticipated outcome, *in casu*, a HICP rate for the euro-area of 2% per annum over the medium term. This definition of effectiveness is an aggregate, quantified output definition. The advantage of using such a definition is that if sets a clear target for evaluating the effectiveness realized by the ECB. This approach is contrary to the methodology many researchers use. They assess the effectiveness of the monetary policy of the ECB not by looking to the final main outcome (price stability), but by examining the evolution of a multitude of parameters such as the condition of the financial markets, commercial banks funding, GDP-growth and unemployment. This methodology is in line with the generally accepted view that even if price stability is the major monetary policy objective, a central bank has to perform other important tasks such as facilitating stable economic growth and minimize unemployment (Woodford, 2003).[6] Benoît Coeuré, a former member of the ECB's Executive Board, illustrated this in his speech of 18 December 2019 (Coeuré, 2019), claiming that the ECB performed in an effective way *"...in delivering financial and monetary conditions that are exceptionally supportive of real economic activity."* While one can attempt to measure the effectiveness of unconventional monetary policies using econometric modeling (see infra), you cannot do this in an objective way because of the absence of pre-set effectiveness targets other than the target of price stability. This is the reason why this approach leads to rather simplifying statements such as *"... instruments have been effective in easing financing conditions..."* (Altavilla et al., 2021, page 2) and to the publication of many papers focussing on one or just some aspects of the use of

[5] This is due to the fact that HICP from 2008 to 2012 fluctuated between 0.3% and 3.3%. When calculating the 5-year moving average, the extremes are smoothed out.

[6] A central bank will seek to minimize its loss function, meaning it will aim for an inflation rate as close as possible to its objective (e.g., 2%), while at the same time maximizing economic growth and minimizing unemployment.

unconventional monetary policies without relating outcomes to pre-set effectiveness targets. Examples are Boeckx, Dossche and Peersman (Boeckx et al. 2016), De Santis (De Santis, 2016), Grande, Grasso and Zinna (Grande et al., 2019), Hesse, Hofmann and Weber (Hesse et al., 2018), Mouabbi and Sahuc (Mouabbi and Sahuc, 2019), Neri and Siviero (Neri and Siviero, 2019) and Shirai (Shirai, 2018).

Evidently, the ECB is aware that from 2013 to 2022 and despite its efforts, it was not able to comply with its primary mandate. The Bank maintains that the use of unconventional policies was effective claiming that without them economic growth and employment would have been worse (Altavilla et al., 2021, op. cit.). Similar conclusions previously formulated by i.a. Mandler and Scharnagl (Mandler and Scharnagl, 2020) and Hohberger, Priftis and Vogel (Hohberger et al., 2019) are based on the use of econometric models. Banbura and Christoffel (Banbura and Christoffel, 2019) and the 'Strategic Review of macroeconomic modeling in the Eurosystem' (Strategic Review, 2021) discuss the models used by the ECB. The ECB relies on a portfolio of multiple econometric tools: structural (dynamic stochastic global equilibrium - DSGE), semi-structural and time-series models, The main models are the New Area Wide Model (NAWM-DSGE) and the New Multi-Country Model (NMCM-semi-structural). In the following paragraphs we focus on DSGE-modeling because its main use at the ECB is projecting the impact of monetary policy decisions (Banbura and Christoffel, 2019, op. cit., p. 37).

4. DSGE-modeling

The history of macroeconomic modeling dates back to Henry Thornton (1760-1815), a British banker and economist. In 1810 he published an article that introduced the idea of general economic equilibrium: the central bank determines the price level, the exchange rate and the interest rate by controlling the money supply (Hetzel, 1987). His ideas were further developed in the 19th and 20th centuries by what are now called the classical economists. The Great Depression of the 1930s saw the breakthrough of Keynes' thinking. Afterwards, from the 1950s onwards, the predominance in mainstream economic thinking lay alternately with neoclassical and neo-Keynesian economists. Finally, in the course of the 1990s, the 'new synthesis' emerged, integrating both macroeconomic schools of thought and culminating in the econometric models of the current generation, the dynamic stochastic global equilibrium (DSGE) models (Heijdra, 2017).

The DSGE-model developed by Smets and Wouters (Smets and Wouters, 2004) still serves as the framework of many DSGE-models used by central banks today. It consists of nine equations relating to consumption and investment, to capital stock and accumulation, to inflation and real wages, to the demand for labor and goods and to the reaction of central banks to the foregoing. Reproducing and discussing these equations would go well beyond the scope of this paper. Suffice it to say that the application of the model to the euro area using historical data (1999-2002) showed relatively satisfactory results. Nevertheless, the authors were aware of its limitations. As the three main ones they mentioned its relatively simple structure reflected in its weak microeconomic foundation, the use of rational expectations and its linear character.

Since the seminal work of Smets and Wouters, the common thread in DSGE-modeling has been to further expand and clarify the model equations in attempts to bring them more in line with what reality shows. But real-world events did not facilitate the task of macro-econometricians. So far, the 21st century has seen a series of major crises,[7] all of which undermined the assumed forecasting abilities of DSGE-models. An example is the subprime crisis of 2008-2009. While also the Fed used and uses i.a. DSGE-modeling to forecast future macro-economic developments,[8] it had not seen the crisis coming. The US Financial Crisis Inquiry Commission investigating the

[7] The technology bubble in March 2000, the subprime crisis of 2008-2009, the euro crisis of 2010-2013, the covid crisis of 2020-2021, the economic-financial consequences of the war in Ukraine.

[8] The Fed relies on a proprietary DSGE-model developed by the Federal Reserve Bank of New York. It is used not only to test its relevance based on historical data, but also to make forecasts on inflation and economic growth

causes and origins of this crisis explicitly identified the Fed as its main responsible (Financial Crisis Commission, 2011, p. XVII).

The flaws of DSGE-modeling as reflected in the Fed's actions before and after this crisis resulted in a multitude of critical academic contributions. Blanchard asked in 2016 whether DSGE-modeling still has a future (Blanchard, 2016). Stiglitz published in 2017 a paper summarizing the fundamental criticism of DSGE-modeling in two main conclusions (Stiglitz, 2017). The first one is that the construction of the model that brings together both micro and macroeconomic parameters is based on incorrect assumptions. The second one is that the DSGE-models not only did not forecast the crisis of 2008-2009, but that their basic hypotheses (rational expectations, the definition of exogenous shocks) rule out that such a crisis even could occur.

The advocates of DSGE-modeling disagreed. In 2018, Christiano, Eichenbaum, and Trabandt (the first two contributed to the construction of the Fed's DGSE-model) published a paper rejecting Stiglitz's criticism (Christiano et al., 2018). In their conclusions the authors recognize the shortcomings of DSGE-models from before the 2008-2009 crisis. However, they argue that since then significant improvements were made resulting in much better performing DSGE-models.

But then came the covid-19 pandemic, followed by strong catch-up demand, logistic bottle-necks and rising inflation, aggravated by the Russian invasion of Ukraine. DSGE-models - though further developed and improved - failed to predict the sharp rise of inflation. History repeated itself, including a new wave of criticizing academic research on the use of macroeconomic DSGE-modeling (Storm, 2021).

5. The ECB and DSGE-modeling

Despite its limitations, DSGE-modeling is still the most widely used tool to describe and investigate macroeconomic events and relationships. At all universities, DSGE-modeling is taught as the most significant, if not the only, correct way to understand macroeconomic coherence and relations. The number of scientific publications referring to DSGE has sharply increased since 2000.[9] Central banks continue to rely on this methodology as an important tool for calculating and forecasting the impact of monetary policy decisions (see supra).

Formulating hypotheses, incorporating them into a DSGE-model and finally testing them against historical or hypothetical data, has different consequences when applied in a research environment than when used for making monetary policy decisions. In the first case, erroneous assumptions have no impact on the real world. In the second case, building on a flawed DSGE-model can, among other things, increase income and wealth inequality, distort capital markets and favor speculative behavior (Anderson et al., 2021 and Ashworth, 2020). When a central bank adopts a monetary policy such as quantitative easing partly based on the outcome of DSGE-modeling and this policy leads to negative developments in the real economy, its responsibility is addressed.[10]

An important additional consideration is the significant use in DSGE-modeling of complex statistical and mathematical formulas and tools. The result is the 'mathematicalisation' of macroeconomics. To non-economists the significant use of mathematics and statistics creates the impression – in the same way as laws of nature do – that these econometric models always generate the anticipated results. However, economics is not an exact science,

(https://www.newyorkfed.org/research/policy/dsge#/overview).

[9] When entering the search queries 'DSGE-Modeling' and 'DSGE-Modelling' into Google Scholar, we registered 8,400 results for the period 2000 to 2010, 20,500 results for 2011-2020 and 9,710 results for the years 2021 to June 2023.

[10] This points to the discussion how far the operational independence of a central bank should go. If the ECB pursues monetary policies that could be categorized as improper, should the European Parliament then take corrective actions? Today, this is not possible, given the legally established operational independence of the ECB. But independence does not mean everlasting universal monetary wisdom. This is a captivating subject that goes well beyond the topic of this paper.

but a social one. Moreover, the number of increasingly complex DGSE-models is growing rapidly, so that hardly anyone is able to maintain the overview.

The shortcomings of DSGE-modeling in forecasting i.a. inflation, did not make the ECB to ban them. Given the sharp rise of HICP starting in the second half of 2021, this leads to rather curious statements, for example from Lagarde, the president of the ECB. On 28 October 2022, she commented during an interview on Irish television RTE that *"...inflation had come from nowhere*." (Burns, 2022).[11] That's a bold statement from the president of a leading central bank that deploys a lot of resources - including DSGE-modeling - to peg inflation levels at 2% per year. If inflation, one of the key variables in DSGE-models-picks up sharply, Lagarde implies in this interview that the econometric models used by the ECB for forecasting inflation have no practical value or meaning.

DSGE-modeling is based on the assumption that macroeconomic relationships can be formulated with some accurateness so that it becomes possible to forecast the impact of the change of one or more variables on the others within the limits of an acceptable statistical error. More specifically, central banks could direct economic growth and inflation by manipulating variables such as interest rates and the money supply. The past decades have shown that reality does not comply: real data deviated significantly from the expected one. But time and again, macro-econometricians dismiss these facts by stating that the methodology of DSGE modeling is not yet sufficiently developed.[12]

An effective DSGE-model explains macroeconomic events and makes predictions about future developments within a statistically acceptable range. No DSGE-model so far has been able to do this, primarily because it is until today impossible to integrate human interactions in mathematical formulas. The reaction of central banks including the ECB is to blame 'black swans' such as the covid-19 pandemic, as the cause for their models not to deliver the projected outcomes. This is simply unacceptable. A model that aims to reproduce the past and forecast the future must, by definition, be reliable under all circumstances.

While today DSGE-modeling is the most advanced approach to understanding macroeconomic relationships, one should not disregard the fact that since its emergence the track record of the ECB and other major central banks in managing inflation and maximizing GDP-growth is far from exemplary as the different economic and financial crises of the 21st century have demonstrated (see footnote 7). Turning to the pre-DSGE-modeling days the reaction of central banks to adverse macro-developments such as high inflation, was more straightforward. From the 1970s onwards and till the rise of DSGE-modeling, the Fed based its monetary policy to a large extent on the Taylor rule (Judd and Rudebusch, 1998). To fight inflation, under chairman Volcker, the federal funds effective rate was increased to a maximum of 19.1% in June 1981, (Board of Governors, 2023) causing a severe recession. But inflation was broken: CPI fell to 3.8% in December 1982 coming from 14.6% in April 1980 (US Bureau of Labor Statistics, 2023). We refer to these historical events to contrast to the hesitating reaction of the ECB when confronted with the sudden surge in HICP starting in the second half of 2021. Instead of reacting in a decisive way - and exemplified by the supra mentioned statement of its president wondering where inflation might have come from - the Bank chose to increase its policy rates too late and too little allowing higher inflation to take root (Darvas and Martins, 2022). In the words of Isabel Schnabel, member of the Executive Board of the ECB, *"...a narrow reliance on projections can lead to large policy mistakes, and that, as a result, giving more weight to observable data, in particular at times of high uncertainty, can improve the quality of policy decisions.*" (Schnabel, 2023). Putting less weight on sophisticated econometric modeling and reacting more rapidly to real-life observations and trends, might have resulted in the ECB realizing more closely in the period under review its main policy objective of price stability.

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[11] This newspaper article refers to the interview with Christine Lagarde on RTE-television.

[12] The British economist Ronald Coase described this practice as "*If you torture the data long enough, it will confess*" (https://en.wikiquote.org/wiki/Ronald Coase).

If a central bank cannot depend on econometric models such as DSGE to help formulate monetary policy, what can it do? Hold on to assumptions that have proven to be wrong?[13] For example, Christiano, Eichenbaum and Trabandt maintain with reference to DSGE-modeling (Christiano et al., op. cit., p. 136): *"There is simply no credible alternative to policy analysis in a world of competing economic forces operating on different parts of the economy."* That conclusion not only is incorrect, but also lacks a solid scientific foundation. Incorrect because there are other methods than DSGE-modeling to describe macroeconomic relationships.[14] Lacking a solid scientific foundation because DSGE-modeling continues to rely on assumptions that repeatedly have failed the test of reality.

6. Conclusions

Although the ECB deployed massive monetary tools and resources, it did not realize from 2013 onwards its prime statutory objective of price stability. In the years from 2013 to 2020 HICP was too low, thereafter too high. While the ECB relies on a portfolio of different econometric tools to build and substantiate its monetary policy, it considers DSGE-modeling as a major one.

DSGE-models create a theoretical basis of macroeconomic relationships using all kinds of assumptions and interpretations. That typically is a research environment as can be encountered in universities. But to use DSGE-modeling – together with other forward-looking econometric tools – to predict inflation and to determine monetary policy accordingly, misses scientific footings: repeatedly contradicted by historical data, all current DSGE-models still use the same inaccurate basic assumptions. The main erroneous assumption is that there is a stable causal relationship between the variables that determine economic reality. That is not the case. Economics is a human science and human interactions are constantly changing i.a. under the influence of risk and uncertainty. Unpredictable events have a similar impact.

Referring to DSGE-modeling to investigate the behavior of macroeconomic variables such as inflation, GDP-growth and unemployment under hypothetical macroeconomic circumstances (e.g., a lasting deflationary environment), is a theoretical exercise. But its practical value is marginal, since no-one can ever know how businesses, the general public and the government would in reality have reacted.[15]

Instead of continuing to rely on complex econometric modeling leading time and again to results defying reality, we advocate a return to a more prudent and less tortuous approach in formulating monetary policy. The ECB like any central bank, has a too prominent role in managing the economy to adventure in 'apprentice-wizard-like' monetary thinking.

Finally, in this paper we followed a descriptive, factual approach. According to its Statute, the ECB has only one main objective, price stability. Therefore, from this perspective, turning to other variables affecting monetary policy such as the output gap or income inequalities, has little merit. To be able to include these, the Statute of the ECB should be revised. Next to the main objective of price stability, a second main objective can be added and quantified: e.g., the desired level of GDP growth.[16] But until then, in a factual approach, we must limit ourselves to the main stated objective of the ECB.

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[13] Behavioral economists call this the 'commitment bias'.

[14] The two main alternative macroeconomic schools of thought are the post-Keynesian school and the Austrian school. Discussing these non-mainstream views goes beyond the scope of this paper.

[15] Such research contains elements used in science fiction novels. But this is masked by building on complex mathematical and statistical reasoning.

[16] As suggested by Debortoli, Kim, Lindé and Nunes (Debortoli et al., 2017).

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Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

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