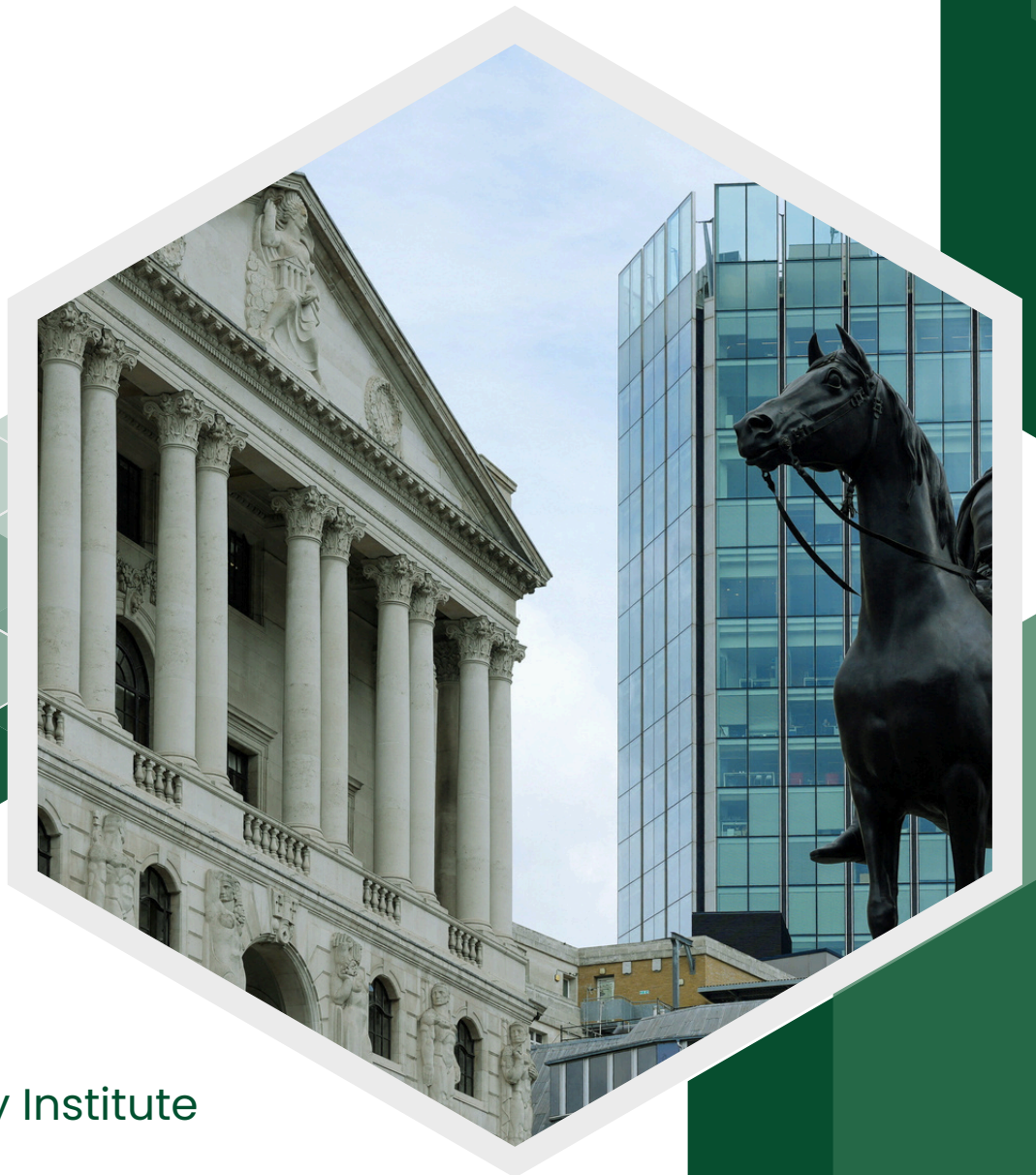


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Inflation, Money Growth, and Second-Round Effects: How Effective has the Bank of England's Monetary Policy Been?

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About Leeds Policy Institute

Leeds Policy Institute (LPI) is the first student-run policy unit and think tank located at the University of Leeds. Founded in April of 2023, LPI has united over 60 students across the University of Leeds from a large range of undergraduate and postgraduate degrees to tackle and research both local and national issues that are encapsulated within our six policy divisions of Macro Policy, Social Policy, Urban Planning and Transport, Energy and Environment, Financial Regulation, and Market Interventions.

LPI is dedicated to producing data-driven research from an initial non-partisan position to attract a wide range of talent with varying political beliefs and backgrounds from the University. Through this, we generate organic research conclusions while extending opportunities to all students across the University of Leeds. LPI's research is reviewed by our academic advisory council consisting of lecturers and researchers from the University of Leeds and through this, LPI ensures that all published research conclusions have undergone their respective review process.

The core mission of LPI is to create opportunity and to develop the professional academic, research, and interpersonal skills of students at the University of Leeds. In this year alone, LPI has created opportunities with members presenting at LSE's British Conference of Undergraduate Research while being published in external newspapers such as the Financial Times. LPI is a testament and example to the resilient and innovative spirit that is fostered and shared by all students at the University of Leeds, and we hope that our newly published research will reflect the values and mission of Leeds Policy Institute.

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Abstract

With UK inflation remaining higher than other advanced economies, the recent inflationary episode has proved particularly sticky. Several commentators have provided suggestions behind why such has been the case, with explanations ranging from record-high wage growth, Brexit, and firms increasing mark-ups on goods. However, most fail to explain the severity of these factors or even the mechanisms through which they operate. To fill this gap, this report aims to determine and explain the leading factors driving the UK's recent inflationary episode by examining second-round effects propagated through a conflict between the interests of workers and firms. The report finds that, by failing to account for this conflict, policymakers at the Bank of England held an erroneous view of inflation as 'transitory', suggesting that it would soon dissipate without any policy response. To show this, the report provides a review of the Bank of England's monetary policy reports from May 2020 and November 2023, displaying them in a timeline of events that demonstrates clear evidence of such a benign view. The report's findings suggest that the Bank of England raised interest rates and ceased its quantitative easing six months later than it optimally should have. Through identifying the factors cultivating inflation and critically analysing the Bank of England's monetary policy, the report provides several policy suggestions to avoid future monetary mismanagement and mitigate the impact of second-round effects.

'Inflation, Money Growth and Second-round Effects: How Effective has the Bank of England's Monetary Policy Been?'

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Recommendations for the Bank of England

- 1. Improve forecasting:** The mistakes made by the Bank in its policy response were, above anything else, the product of its forecasting errors, which was most definitely attributed to its benign view of inflation as transitory (see **Section 5**). As the Bank failed to consider the potential for second-round effects to transpire and the impact of its own QE programme, this benign view delayed the Bank of England's policy response by six months. Through understanding inflation as a conflict between the interests of households and firms, the Bank could better understand the response of households to firms' price-setting behaviour.
- 2. Avoid second-round effects:** Had the Bank of England identified the prospects of a steepening Phillip's curve and price-wage spiral, it would have ideally begun its interest rate hikes and halted its QE operations in May 2021, just before inflation began accelerating consistently.
- 3. Manage inflation expectations:** As seen in **Section 4**, the price-setting behaviour of firms caused inflation expectations to spike up, which led to households demanding higher wages amid a tightening labour market. To avoid inflationary pressures in this context, it is imperative to prevent inflation expectations from becoming completely 'adaptive' or de-anchored through imposing a swift and effective monetary policy response (IMF, 2022). However, while the Bank of England can maintain inflation expectations by actively suppressing inflation with conventional tools (i.e. interest rates and QE/QT), it may also do so through more unconventional means such as effective forward guidance - something which it has evidently failed to do effectively in its expressed promises of inflation being transitory. Some academics have gone as far to propose the active management of inflation expectations through targeted information campaigns by the central bank as a new unconventional monetary policy in its own regard (Coibion et al., 2020).



Recommendations for the Government

4. **Decrease firms' price-setting power:** By decreasing the mark-ups firms set through imposing greater regulatory measures that establish more competitive markets, firms become increasingly unable to set prices above and beyond their costs and are thus unable to exacerbate any inflationary conflict (see **Section 4**). For instance, some have pointed towards legislation within digital markets for establishing an exemplary competitive market structure, specifically the EU's Digital Markets Act and the UK's proposed Digital Markets, Competition and Consumer bill (Jung and Hayes, 2023, p.26).
5. **Impose a windfall tax on the energy sector:** Taxing windfall profits and redistributing them to workers would preserve their real incomes and act as a deflationary measure through mitigating their wage demands by increasing their real incomes amid rampant inflation (Wildauer et al., 2023, p.13). This fares as a more tailored solution towards solving inflation arising from conflict compared to any other form of taxation, which in contrast could have a significant negative impact on output, employment, and the real incomes of workers (Wildauer et al., 2023, p.13). As regulating a natural monopoly such as the energy sector is an incredibly difficult task due to the risks of regulatory capture, a windfall tax may serve as a suitable solution to supply-side shocks originating from this sector.
6. **Loosen the labour market:** The most prominent factors tightening the UK's labour market have been attributed to the unique circumstances following the pandemic. While there is evidence that those who pursued education in the aftermath of the pandemic are now slowly returning to the labour market and less people are choosing to retire, those reporting withdrawal due to long-term illnesses remain a persisting issue (see **Section 4.3**). To address this, the government should pay closer attention to funding and reforming its struggling National Healthcare Service (see Freedman and Wolf, 2023) to provide the long-term sick with the treatment they require to return to the labour force. Alternatively, while Brexit's contribution to the tightening of labour markets has been more than offset by the recently high positive net migration (see **Section 3.2**), relaxing restrictions to let more labour from the EU into the UK also serves as a step in the right direction. In implementing measures to loosen the labour market, the government should not decrease the demand for labour but should instead aim to maximise its supply.

1 Introduction

1.1 Historical Understanding

Before examining Britain's inflationary episode and the Bank of England's response, one must have a historical understanding of the events that transpired both during and after the COVID-19 pandemic.

The timeline of UK COVID-related restrictions begins in March 2020 with the royal assent of the



Coronavirus Act of 2020 (Institute for Government, 2022) and the joint introduction of the Furlough Scheme (Francis-Devine et al., 2021). From this point, the UK entered a lockdown period, which, while sometimes interrupted by temporary schemes such as 'Eat Out to Help Out', remained persistent (see Institute for Government, 2022). Expectedly, the country saw a fall in economic activity and policymakers at the Bank of England predicted the pandemic to be broadly disinflationary, with inflation falling to near zero and unemployment rates peaking at 10% in 2021 (Bank of England, 2020e). These expectations continued until the February and May 2021 monetary policy reports, where the Bank's attitudes shifted towards the belief that demand and output would recover quickly (Bank of England, 2021f; Bank of England, 2021g); a change that logically coincided with the easing of lockdown restrictions in April 2021 and onwards (Institute for Government, 2022). From here, Bank economists stated that the UK would see a strong demand-led recovery attributed to large pools of savings (Bank of England, 2021f). Crucially, while policymakers believed that this would raise inflation to a higher level, it would only be transitory as these savings would eventually disappear (Bank of England, 2021g). **Figure 1.1** indeed shows that UK inflation began picking up after April 2021 as lockdown restrictions eased:

Figure 1.1: UK CPI Annual Inflation Rate and Import Price Inflation Rate (%), January 2019 - April 2024



Source: Macrobond (2024)

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However, inflation has turned out to be *not-so-transitory*. As **Figure 1.1** illustrates, after an initial uptick in CPI inflation from the second half of 2021, the Russian invasion of Ukraine in February 2022 caused import prices to leap before falling back down a year later. With this, UK inflation began accelerating rapidly, reaching an over 40-year peak (Smith, 2022), and remaining stubbornly high (or ‘sticky’) afterwards. Despite this, the Bank’s narrative of transitory inflation continued throughout a majority of 2022, with only a cession made clear in the November 2022 monetary policy report where it acknowledged that inflation was stickier than initially anticipated (Bank of England, 2022h). Given this poor track record of forecasting and how persistent UK inflation has been, one must ask: how effective has the Bank of England’s monetary policy response been to the recent inflationary crisis? This report seeks to answer this question through assessing the various factors that contributed to the UK’s high and sticky inflation which the Bank mistakenly ignored. Specifically, **Section 2** examines the high growth of the money supply throughout the pandemic that was stimulated by the Bank of England’s quantitative easing (QE) programme, which generated surging demand in the recovery period that overwhelmed suppliers. **Section 3** then examines the supply bottlenecks that ensued, which initiated rising inflation following the second half of 2021, before the price shock caused by Russia’s invasion of Ukraine led to inflation surging. **Section 4** analyses the second-round effects that followed, explaining why UK inflation has been higher and stickier than that of other advanced economies. **Section 5** considers these factors and evaluates the Bank’s policy response, before **Section 6** provides concluding policy recommendations for both the Bank of England and government.

2 Demand-Side Factors: Money Growth in the Pandemic

2.1 Money Growth as Inflationary

To understand the demand-side inflationary pressures following the pandemic, it is imperative to first understand the theoretical mechanism through which money growth in the economy can translate into inflation. Standard monetarist interpretations view money as an exogenous variable (Godley,



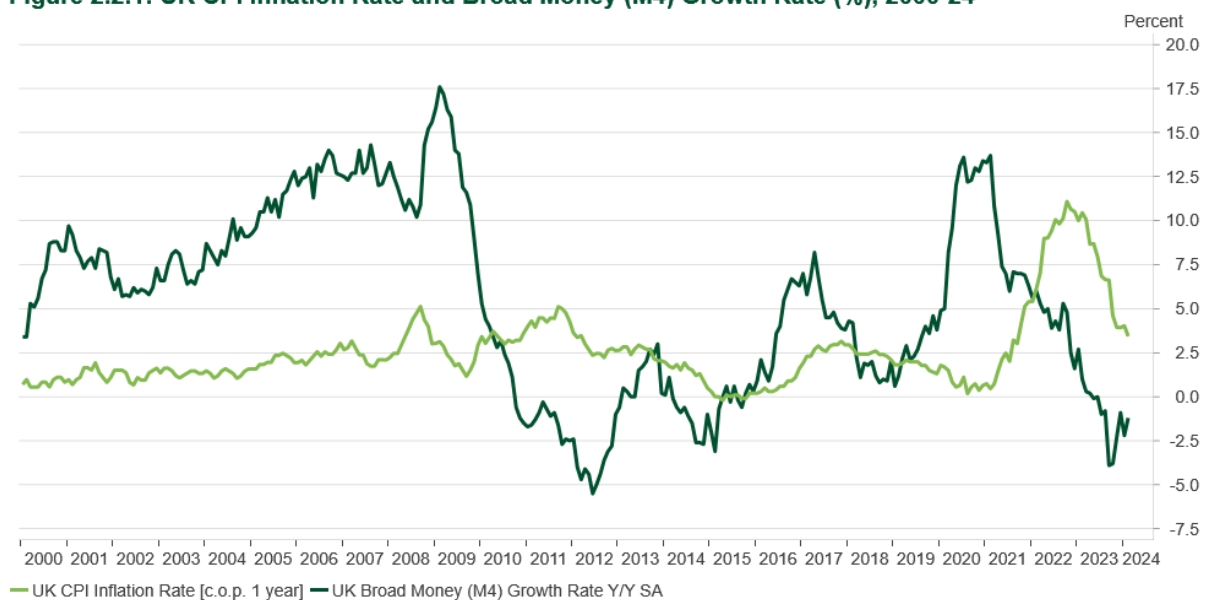
1999), relying on the money multiplier theory of commercial banking which dictates that commercial banks 'multiply up' central bank reserve money into additional loans (McLeay et al., 2014). However, in reality, this is not how the banking system works. Instead, money creation is endogenous: the central bank sets an interest rate and commercial banks loan at the said interest rate as the supply of reserve money is perfectly elastic and can meet any level of loan demand (McLeay et al., 2014). Given this reliance on the exogeneity of money, policymakers and academics have distanced themselves from monetarist thinking (e.g. Kaldor, 1985) despite the fundamental tenet of monetarism - that inflation is a monetary phenomenon (Friedman and Schwartz, 2008) - not being mutually exclusive with the endogeneity of money. Say the Bank of England, as it did during the pandemic (see Section 5.2), embarks on a huge programme of quantitative easing (QE). On one hand, the standard monetarist interpretation argues that this programme functions similarly to a 'helicopter' drop of money into agents' bank accounts. Realising that they hold 'too much' money, these agents readjust their portfolios by spending their excess money balances on goods and services, thus generating demand-pull inflation. On the other hand, the endogenous interpretation states that there is no such thing as 'too much' money, as the supply of money within an economy is determined by the demand for money itself (Kaldor, 1985). Therefore, how can agents have too much of something that they already want? And so, how can QE become inflationary? While endogenous money theory indicates that money supply is determined by money demand (Caiani et al., 2016; Sieroń, 2019), it does not exclude the fact that expansionary policies like QE can stimulate money demand (and, by implication, increase the money supply) and that this transmission can have inflationary consequences (McLeay et al., 2014). Thus, inflation can manifest from an expansion in the supply of money even with endogenous money, but this expansion crucially comes from an increase in money demand. Considering this, inflation still holds as a monetary phenomenon, and so an increasing money supply can be used to predict coming inflationary pressures.



2.2 Why Did Central Banks Ignore Money Growth?

Given that money growth can be inflationary, why did the Bank of England and other central banks embark on large QE programmes and virtually ignore money growth? There are two particular reasons, the first of which has already been described; academics and policymakers alike have failed to understand that inflation is a monetary phenomenon even when money creation is endogenous. On the other hand, the second reason is more empirical, and it is down to the inconsistent relationship between the money supply and inflation:

Figure 2.2.1: UK CPI Inflation Rate and Broad Money (M4) Growth Rate (%), 2000-24



Source: Macrobond (2024)

As shown in **Figure 2.2.1**, despite the Global Financial Crisis seeing a huge expansion in broad money, inflation did not follow whereas the same cannot be said for the pandemic post-lockdown period. While this suggests an inconsistent relationship between broad money (M4) growth and inflation, it is not solid ground for denying the causal mechanism between the two as this inconsistency can be explained by analysing M4's components:



Figure 2.2.2: Breakdown of UK Monetary Aggregates (GBP, billion), 2000-24



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Source: Macrobond (2024)

Figure 2.2.2 shows that all of the increase in M4 that occurred throughout the Global Financial Crisis had manifested itself as an increase in wholesale M4 liabilities to the private sector, or, in other words, an increase in interbank lending. Given this, the liquidity increase from QE did not pass through into the industrial circulation and instead remained within the financial sector as banks lent money to one another to keep their balance sheets stable (Riley et al., 2014). This lack of lending and financial assistance to actual households and businesses can be easily explained as, throughout the Global Financial Crisis, the UK government failed to offer adequate fiscal support to the industrial circulation (Hodson and Mabbett, 2009). Consequently, high rates of unemployment persisted (see Office for National Statistics [ONS], 2024a), meaning that banks - who were already unwilling to lend - had no customers to lend to (a lack of money demand from the industrial circulation). Hence, QE failed to stoke inflation, leading the Bank to hold erroneous doubt over the effectiveness of the policy in doing so over the years since. Instead, the Bank simply views QE as an asset swap, with any increases in M4 being down to higher savings (see Broadbent, 2023).

2.3 The Impact of Money Growth on Recent Inflation

Drawing attention to the pandemic recovery period, the quick recovery of the financial sector and fiscal support provided by the government through the Furlough Scheme meant that QE manifested



itself in the form of increased retail M4 liabilities, which represents lending to households and businesses (see **Figure 2.2.2**). Here, households and businesses, who were willing to borrow, were met with banks that were willing to lend, and so QE was inflationary. The total repo lending of QE banks was 33.6% higher than that of non-QE banks (Fatouh et al., 2024), and it has been estimated that QE and money growth have had inflationary effects two to four times larger than those of conventional monetary policy (Wieladek, 2024). Given this, several authors have argued how this overzealousness paired with fiscal stimulus explains a portion of the inflationary surge (Castañeda and Congdon, 2020; Jałtuszyk, 2022; de Soyres et al., 2022). In fact, when accounting for money growth, it is found that central bank forecasting errors are resolved (Borio et al., 2023), and this is an expected result. With QE effectively raising money demand (and, by extension, the supply of money in the economy), it also stokes demand-side economic activity the same way that lower interest rates can, albeit through different channels (Fatouh et al., 2024). As such, central bankers should view QE, specifically QE that seeps into the industrial circulation, as an expansionary monetary policy that can stimulate output remarkably above the natural rate. Overall, the rise in money growth exacerbated the positive demand shock brought by the recovery of animal spirits following the pandemic significantly, overwhelming suppliers and thereby providing the context for the first of two supply-side disruptions that followed.

3 Supply-Side Factors

3.1 Inflationary Supply-Side Disruptions

The post-pandemic recovery period had been characterised by two supply-side disruptions which initiated rising inflation in the UK. The first of these was the supply chain bottlenecks arising as the economy emerged out of lockdown over the second half of 2021. Many sectors in the economy, including the energy sector (Bolton and Stewart, 2024), were unable to meet the surge in demand following the lockdown that had been stimulated by the Bank of England's QE programme, thus causing increasing prices on many goods (Bank of England, 2021h). Hence, as **Figure 1.1** illustrated, the

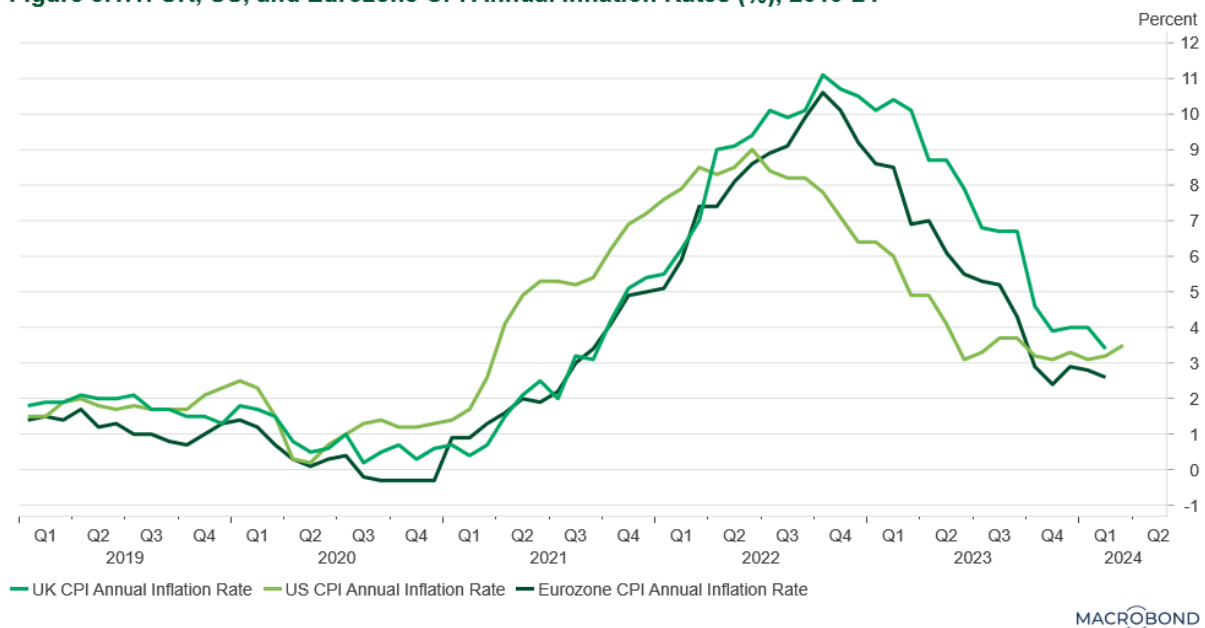


upward trend in UK CPI inflation became sharper following the second quarter of 2021. The second of these supply shocks was the product of Russia's invasion of Ukraine in February 2022, which caused UK import prices and, by extension, the CPI inflation rate to soar (see **Figure 1.1**). This was down to the embargo on Russian oil and cuts in the supply of Russian gas to Europe, which increased the prices of imported oil and gas (Bolton and Stewart, 2024). As oil and gas represent over 90% of the UK's energy imports (Department for Energy Security and Net Zero, 2023), this significantly amplified the preceding increase in energy prices (Bank of England, 2022h) and set the precedent behind UK inflation peaking in 2022.

It is important to note that the impact of supply chain bottlenecks in 2021 (Bank of England, 2022i) and Russia's invasion of Ukraine in February 2022 (The World Bank, 2022, pp.79-90) was not exclusive to the UK but affected the global economy. Despite this, UK inflation has been higher and more persistent than that of other advanced economies following the war in Ukraine. As **Figure 3.1.1** demonstrates, UK inflation accelerated more rapidly than that of the US and Eurozone after February 2022, and remained comparatively higher hovering between 9 -11% for an entire year during Q2 2022 - Q2 2023. In stark contrast, US and Eurozone inflation never reached the peaks seen in the UK and fell significantly quicker. With US inflation being on a downward, albeit slow trajectory since the middle of 2022, Eurozone inflation peaked in tandem with UK inflation in the middle of Q4 2022 and continued to fall sharply soon after, unlike UK inflation which remained close to its peak until Q2 2023:



Figure 3.1.1: UK, US, and Eurozone CPI Annual Inflation Rates (%), 2019-24



Source: Macrobond (2024)

Given the global impact of these shocks, why is the UK experience so different? Commentators, including former Bank of England governor Mark Carney (Rawlinson, 2023), have cited Brexit as the reason behind UK inflation being comparatively higher than that of its advanced counterparts (e.g. Keegan, 2023). With the impacts of Brexit being unique to the UK, it is logical to suspect that the policy has had unique inflationary consequences and so it is important to consider and critically evaluate these claims.

3.2 Is Brexit Causing the UK's Comparatively Higher Inflation?

There are two main reasons that commentators have used to argue that Brexit is behind the UK's comparatively higher and stickier inflation. First, they argue Brexit has contributed to increasing import prices (Keegan, 2023). Indeed, Brexit has brought with it additional non-tariff barriers (NTBs) encompassing comprehensive customs checks, rules of origin requirements, and sanitary measures for animal/plant trade (KPMG, 2023). Since December 2019, these have added a total of £6.95 billion to UK households' food bills (Bakker et al., 2023)¹. Second, they have argued that Brexit enabled inflation

¹ As of May 2023.



to persist by reducing the UK's supply of labour from the EU, thereby tightening labour markets and enabling persistent wage growth to maintain higher inflation (Fleming and Strauss, 2023; Keegan, 2023). It is easy to see how commentators have reached this conclusion, considering that net migration of EU citizens into the UK has been negative under the new post-Brexit immigration rules introduced in 2021 (Cuibus, 2023).

While there is some validity to these claims, they fail to provide a significant explanation. Specifically, these commentators fail to acknowledge that the effects of Brexit on the UK economy have been greatly overshadowed by the aforementioned supply shocks and subsequent second-round effects. For instance, the contribution of Brexit to food bills pales in comparison to the additional £50-60 billion in wholesale gas costs the UK has experienced since the Russian invasion of Ukraine (Energy & Climate Intelligence Unit, 2023) and the consequences this has had on firms' price-setting decisions (see **Section 4.1**). Moreover, despite UK net migration of EU citizens remaining negative under the new post-Brexit rules (Cuibus, 2023), overall, UK net migration has actually been '*unusually high in 2022 and 2023*' due to an influx of non-EU citizens arriving in the UK (Sumption et al., 2024, p.6). Although net migration of EU citizens in YE² December 2022 was -51,000 (Cuibus, 2023, p.5), this has been more than offset by the overall UK net migration over the same period, which was a staggering +745,000 (ONS, 2023e). As such, citing Brexit as a driving factor of the UK's tightening labour market and rapid wage growth is erroneous. Instead, these issues have been principally caused by domestic labour force dynamics (see **Section 4.2**; also see Springford, 2022). Therefore, although Brexit has certainly contributed to UK inflation, it is not the determining factor behind its abnormally high and persistent inflation. Instead, inflation has been initiated by the aforementioned supply shocks, and has accelerated and persisted due to the second-round effects that followed, which have been exacerbated by the UK's unique economic landscape.

² YE: 'Year Ending'.



4 Second-Round Effects

4.1 Second-Round Effects as Drivers of UK Inflation

As mentioned, the global supply shocks have initiated the UK inflationary episode and set the precedent for second-round effects to flourish and thereby prolong it. By the time of the second supply shock, the UK inflation rate had reached the 6 - 8% level (see **Figure 1.1**). When this occurs, households no longer suffer from money illusion (Akerlof and Shiller, 2010) and the slope of the Phillips curve - which remained historically flat before the pandemic (Bernanke and Blanchard, 2023) - steepens (Castle et al., 2023; Ciccarelli et al., 2022; Harding et al., 2023; Hendry et al., 2022). In other words, UK inflation accelerated more rapidly following the second supply disruption as it exceeded the 6 - 8% level. This is because of the second-round effects that have materialised in the form of a price-wage spiral (see Wildauer et al., 2023). Specifically, surging prices in the upward energy sector increased production costs in downward sectors, incentivising firms within this sector to increase prices (Weber and Wasner, 2023). In response, households - who no longer suffer from money illusion and possess heightened inflation expectations - respond by demanding higher wages as they become increasingly concerned with preserving their real wages. This inadvertently increases the production costs of these firms further and exacerbates inflation. As such, following the second supply shock, the drivers of UK inflation shifted from 'too much money chasing too few goods' towards households and firms seeking contradictory goals over relative prices (see Lorenzoni and Werning, 2023). This section unveils that specific features of UK markets enabled firms to increase prices above and beyond the means necessary to only cover increased costs which distorted the inflation expectations of households significantly. In response, households demanded and received persistently high wage increases due to several domestic factors tightening the UK's labour market, such as more workers becoming economically inactive and fewer unemployed people per vacancy than usual. By observing both perspectives, it becomes evident that Britain's second-round effects were uniquely severe, and so the comparatively high and persistent inflation it experienced is best explained by this conflict.



Importantly, the Bank of England's lack of consideration towards these second-round effects explains why it held the misconception that inflation would be 'transitory'.

4.2 Understanding Firms' Perspective

The price-setting behaviour of firms in recent times has come under scrutiny and criticism, as they have increased their prices above and beyond the means necessary to cover their elevated production costs and thus exacerbated inflation further (Jung and Hayes, 2023). Indeed, average nominal quarterly profits for stock-listed firms have risen between 32-44% across the EU, UK, US, South Africa, and Brazil since the start of the pandemic (Jung and Hayes, 2023, p.7), yet average profit margins for these firms have risen by 2.6% in the UK throughout the same period (Jung and Hayes, 2023, p.12). Had these firms transferred costs - and only costs - through prices, their profit margins would have remained constant despite nominal profits having increased. However, they have increased slightly, implying that these firms have inflated prices to not only maintain previous margins but exceed them (Jung and Hayes, 2023, pp.12-13). Although these stock-listed, larger firms may not represent smaller, non-stock listed firms, they crucially hold a significant share of overall profits in the economy (Jung and Hayes, 2023, p.12) as they typically hold higher market shares. As such, the recent price-setting behaviour of these firms has impacted households more significantly, incentivizing demands for wage increases through heightening their inflation expectations.

How come firms have been able to do so? Supply-side shocks in the upstream energy sector enable energy firms to increase prices and generate windfall profits (Weber and Wasner, 2023), as their status as a natural monopoly allows them to set prices far above their costs (Jung and Hayes, 2023, pp.13-14)³. This increases the costs of firms in downstream sectors, as many of these utilise inputs from the upstream energy sector in their production processes (Weber and Wasner, 2023). As such, in an attempt to preserve their profit margins, firms within downstream sectors exploit their pre-existent

³ It is arguably for this reason that firms in the energy sector such as Shell and BP have experienced record-high profits in recent years (Jung and Hayes, 2023, p.22; Wildauer et al., 2023, p.1).



market power to set prices higher, thereby aggravating inflation (Weber and Wasner, 2023). However, large firms in the UK have been able to set prices beyond the means of covering their higher production costs and thereby *increase* their profit margins due to their historically increasing market power. Indeed, mark-ups in the UK had increased from approximately 20% to 60% between 1987 - 2017 across a myriad of sectors, indicating higher market power and thus price-setting power among UK firms (Aquilante et al., 2019, pp.4-5). Furthermore, amid the supply bottlenecks following the pandemic, firms in downward sectors were able to, in a sense, tacitly collude on increasing their prices simultaneously. Knowing that all other competitors would increase prices to preserve their profit margins under such circumstances, firms in downward sectors would respond by increasing their own prices simultaneously (Weber and Wasner, 2023, p.186). As such, a conflict arises where workers begin demanding higher wages to protect themselves against these price hikes (Weber and Wasner, 2023).

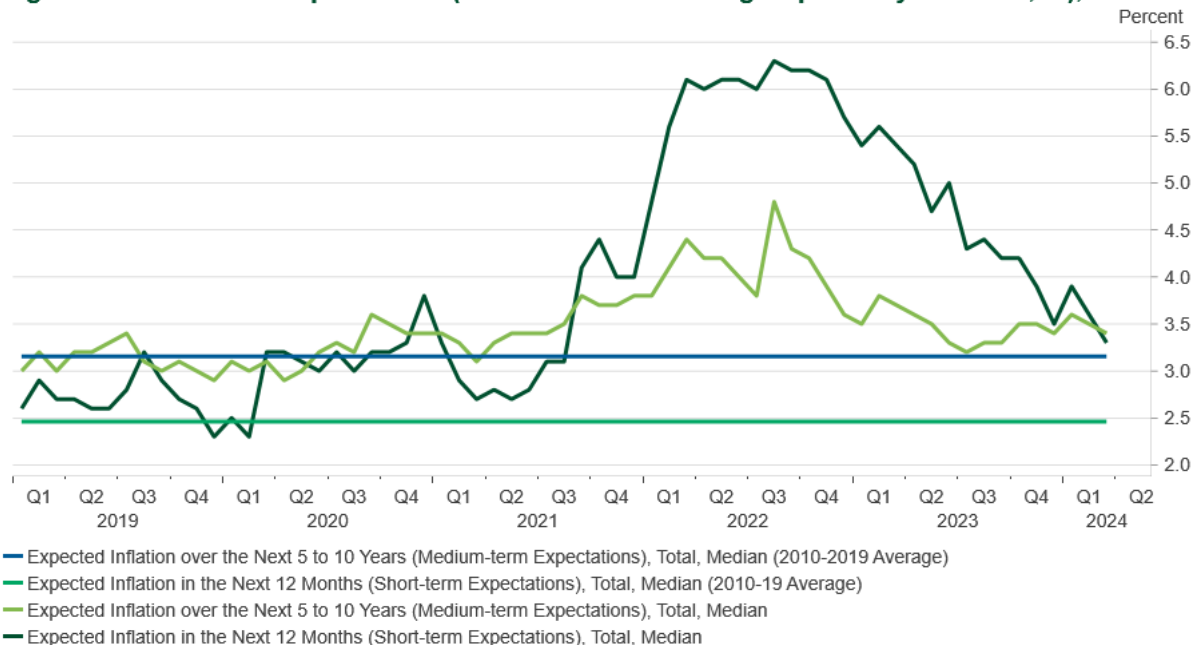
4.3 Understanding Households' (or Workers') Perspective

The academic literature identifies a significant causal relationship between agents' expectations of future inflation and their decision-making (Coibion et al., 2020), with increasing inflation expectations incentivising agents to take defensive action (Albanesi et al., 2003). Given this, the recent price-setting behaviour of firms described in **Section 4.2** has distorted the expectations of households. By increasing prices beyond levels representing a pass-through of increased costs *only*, households now hold significantly higher inflation expectations than they would have had this not been the case. Indeed, the distribution of UK households' five-year inflation expectations between the second quarter of 2021 and 2022 had not only shifted but also widened, suggesting that a larger share of households expected significant inflation in the near future (see International Monetary Fund [IMF], 2022, p.17). Furthermore, **Figure 4.3.1** shows that twelve-month inflation expectations and five- to ten-year expectations surged and peaked in 2022. While the latter fell quickly following their peak and stabilised around their 2010 -19 average from 2023, the former only began gradually falling then and remains



considerably higher than their own previous average. The Bank of England (2023h, pp.61–62) November 2023 monetary policy report also provides similar insights using its own similar data.

Figure 4.3.1: Inflation Expectations (Based on YouGov/Citigroup Survey Answers, %), 2019-24



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Source: Macrobond (2024)

These heightened inflation expectations coincided with levels of current inflation (see **Figure 1.1**) that exceed the level at which workers no longer suffer from money illusion. Considering this, it comes with no surprise that annual growth in nominal regular pay has increased significantly over the same period to meet workers' increasing wage demands as they seek to preserve their real wages. Throughout three subsequent monthly statistical bulletins between August – October 2023, the Office for National Statistics (2023b, 2023c, 2023d) found that annual growth in nominal regular pay from April - June to June - August 2023 remained stable at 7.8%. This was 'the highest regular annual growth rate since comparable records began in 2001' (ONS, 2023b, 2023d). Annual growth in nominal regular only began to fall considerably from September, yet remains comparatively higher than that before the pandemic:



Figure 4.3.2: UK Average Weekly Earnings Annual Growth Rates, (Seasonally Adjusted, %), 2019-23



Source: Macrobond (2024)

Figure 4.3.2 clearly illustrates that a consistent upward trend in the nominal regular pay annual growth rate began around May 2022, coinciding with peaking 12-month inflation expectations (see **Figure 4.3.1**). While 12-month inflation expectations began to fall from 2023, annual growth in nominal regular pay remained stable at its peak throughout much of that year. This is because of the persistent negative *real* wage growth from the year before. As inflation remained at elevated levels and households continued to not suffer from money illusion, they continued to be concerned with recovering their purchasing power. This abnormally high and persistent wage growth did not necessarily heighten inflation but explains why it remained persistently sticky throughout 2023 even after its peak, as wage increases further inflated firms' costs and thus provided them with the precedent to sustain price increases. Indeed, the Office for National Statistics (2023a) has reported a positive correlation between wage and price increases, with firms experiencing the highest growth in their wages between FYE⁴ 2022 to FYE 2023 also seeing the highest price growth. This had a particularly noticeable impact in service industries, where labour costs are more significant and thus wage increases are more notably passed through prices (ONS, 2023a). This also explains why the

⁴ FYE: 'Financial Year Ending'.



contribution of services to inflation has risen since the end of 2021 (Bank of England, 2023h, p.57). Overall, heightened inflation expectations induced increased demand for higher wages from workers, while a lack of money illusion sustained this demand.

Although increased inflation expectations set the precedent for workers to demand higher wages, it was the UK's particularly tight labour market which enabled them to receive those. **Figure 4.3.3** shows that, after the pandemic, the UK unemployment rate followed a downward trend, meanwhile the number of vacancies in the UK surged. Although vacancies have fallen from their peak of 1.304 million between March - May 2022 for 21 consecutive periods since, they remain slightly higher than before the pandemic at approximately 916,000 as of January – March 2024 (ONS, 2024b). Moreover, as **Figure 4.3.3** shows, despite the unemployment rate spiking upwards slightly in 2023, it has since fallen back down:

Figure 4.3.3: UK ILO Unemployment Rate (inc. All Aged 16 and Over, %) and Total Number of Vacancies in the UK (Seasonally Adjusted, million), 2019-23



Source: Macrobond (2024)

These trends have meant that the number of unemployed people per job vacancy has remained low at an average of 1.10 between 2022-23, compared to an average of 2.91 over the whole period since records began in 2001 (ONS, 2023f). With there being little available labour to cover many jobs, workers possessed higher bargaining power, meaning firms had to increase wages to attract new



workers and retain current employees. This dynamic has been aggravated by a reduction in the supply of labour due to a substantial number of workers withdrawing from the labour market following the pandemic. Much of this has been attributed to the pursuit of education, early retirement, and long-term illness (Bank of England, 2023g, p.52; ONS, 2023g), with the number of working-age individuals withdrawing from the workforce for these reasons having been approximately 664,000 between July - September 2019 and July - September 2022 (ONS, 2023g). While an increasing number of students have returned to the labour force since mid-2022 and fewer people have retired, the number of those suffering from long-term illnesses has persisted (Bank of England, 2023e, p.53; Bank of England, 2023h, p.49). Nevertheless, the overall high number of vacancies considering low unemployment and decreasing labour market participation has been key to workers receiving record-high wage growth in recent times.

5 The Bank of England's Monetary Policy Response

5.1 The Bank's Problematic Interpretation of Recent Inflation as 'Transitory'

In analysing the Bank of England's monetary policy response to the recent inflationary episode, it is imperative to understand the thought process behind its decision-making. The Bank's response to recent inflation was influenced by the false notion that inflation would be transitory. During his opening remarks at the November 2021 monetary policy report press conference, the Bank's governor Andrew Bailey stated that its monetary policy would always focus upon '*medium-term prospects for inflation*' due to the lag between monetary policy and its impact on inflation (Bailey, 2021, p.3). At the time, these medium-term⁵ prospects projected that CPI inflation would '*fall back materially*' from the second half of 2022 as '*supply disruption eases, global demand rebalances, and energy prices stop rising*' (Bailey, 2021, p.2). The Bank generally did not suspect supply disruptions to permanently 'scar' the economy, instead adopting the view that a strong policy response was unnecessary since inflation

⁵ Economists often define the 'medium run' as a period of 2-5 years.



would fall back to the 2% target on its own. This expectation was a product of traditional New Keynesian thinking, which assumes that inflation is elevated during a supply shock, but ultimately falls back to trend post-shock (Fornaro and Wolf, 2023, S19). Yet, the Bank of England was not the only institution guilty of making this erroneous judgement. In 2021, the term 'transitory' was used globally by important figureheads and institutions, no less the Biden administration and the Federal Reserve, who used the term to explain the high inflation following the pandemic (Tretina, 2022). This international narrative surrounding transitory inflation was paired with overpowering opinions of senior economists within the Bank of England, with Andrew Bailey insisting throughout the second half of 2021 that the Bank mustn't react too extremely (see Bruce and Schomberg, 2021).

The Bank's ignorance of money growth (see **Section 2**) and subsequent failure to foresee the long-term impacts of inflation that materialised in the form of second-round effects (see **Section 4**) led it to believe that inflation was transitory. Had the Bank of England recognised the inflationary risks of its excessive monetary stimulus throughout the pandemic, it would have engaged in contractionary monetary policy much earlier given the risk of a steepened Phillip's curve cultivating the aforementioned second-round effects. However, the Bank's ignorance instead led it to tolerate higher inflation, as it perceived inflation as the joint product of a 'normal' catch-up effect in early 2021 and 'temporary' supply shock (Reis, 2022). Central bankers' tolerance towards a slightly higher inflation rate was also likely fueled by previous concerns of inflation being too (Reis, 2022, p.2). Yet, no matter the justification, it remains true that a 'normal' catch-up of the price level in early 2021 turned into sustained acceleration by the second half of that year, gaining significant momentum in early 2022 due to higher energy prices (Reis, 2022; also see **Section 3**). Had central bankers paid closer attention to money growth and the risk of a price-wage spiral, they would have not interpreted supply-side bottlenecks as 'transitory'. Acknowledgement of these issues would have enabled them to impose a more effective monetary policy response, thereby mitigating the severity and length of the UK's recent inflationary episode.

5.2 Overview and Timeline of the Bank of England's Monetary Policy Response

Before evaluating the Bank of England's policy response, it is essential to provide an overview of its decisions since the pandemic. As such, **Table 1** presents a timeline of every monetary policy report published by the Bank of England between May 2020 and November 2023, along with the minutes of every Monetary Policy Committee (MPC) meeting between then, summarising their key conclusions:

Table 1: Bank of England Timeline

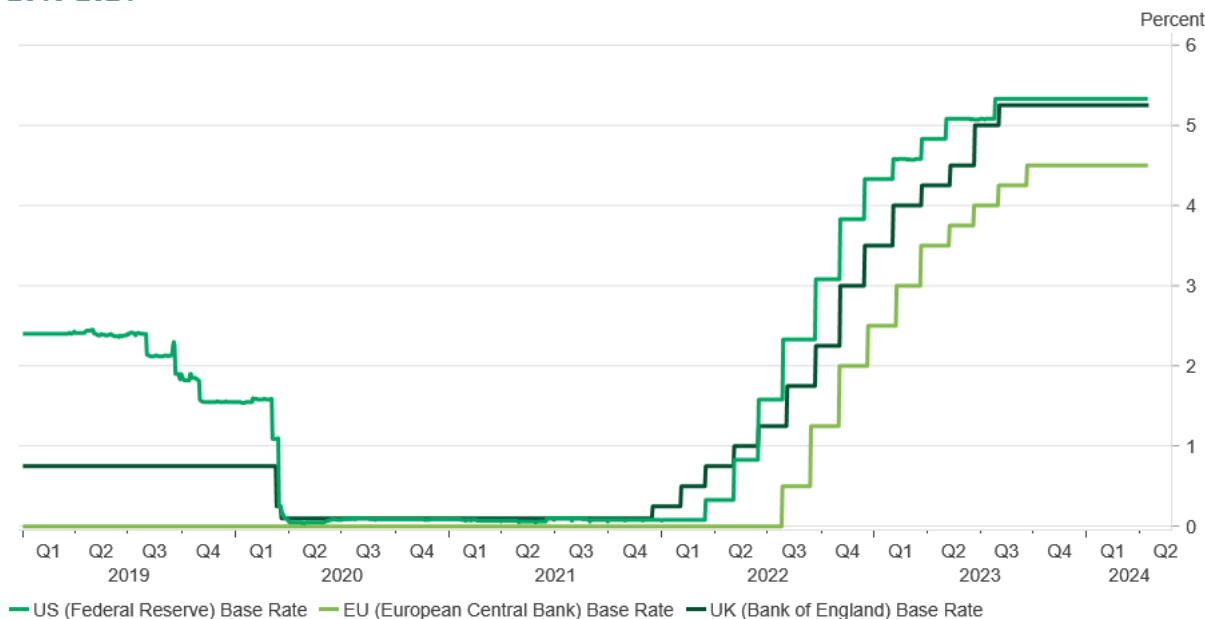
Publishing Date	Inflation (CPI)	Interest Rate	MPC Vote	Analysis
May-20	0.50%	0.10%	Unanimous vote for maintaining rates with 7-2 vote for increasing QE by 200bn	Negative growth expectations with inflation predicted to return to target level in 2022. BoE forecasts suggest inflation falling to near zero with unemployment rates peaking at 10% in 2021
Aug-20	0.20%	0.10%	Unanimous vote for maintaining rates and QE target	Continued negative growth expectations with inflation predicted to return to target level in 2022. BoE recognises potential for volatility but forecasted inflation is predicted to not exceed over 3% or fall much under 1% at a 90% confidence interval
Nov-20	0.30%	0.10%	Unanimous vote for maintaining rates and accelerating QE	Continued negative growth expectations with different methodology to reflect potential volatility and uncertainty. BoE expects labour market slack to continue into the future with unemployment rates to peak at around 8% in 2021 at a 90% confidence interval
Feb-21	0.40%	0.10%	Unanimous vote for maintaining rates and maintaining QE	Negative growth expectations continue with Bank of England expecting higher vaccination rates to revive the economy and for inflation to return to target level
May-21	2.10%	0.10%	Unanimous vote for maintaining rates with 8-1 vote for maintaining QE	Bank of England considers a recovery whereby households spend substantial savings when confidence increases, however, the MPC judges that risks to supply growth are unlikely to affect inflation outlook over the medium term and so demand-imbalances will be low
Aug-21	3.20%	0.10%	Unanimous vote for maintaining rates with 7-1 vote for maintaining QE	Bank of England reports on the energy shock but rules that while global inflationary pressures are strong, they are likely to be transitory
Nov-21	5.10%	0.10%	7-2 vote for maintaining rates with 6-3 vote for maintaining QE	Bank of England continues to state that the energy shock is transitory, and that inflation will return to target on its own
Feb-22	6.20%	0.50%	5-4 vote for increasing interest rates with a unanimous vote for beginning QT	Bank of England states that inflation is expected to increase to 7% but underlying wage growth is expected to ease and as so raising rates is unnecessary
May-22	9.10%	1.00%	6-3 vote for increasing interest rate. The Committee had therefore asked Bank staff to work on a strategy for UK government bond sales, and would provide an update at its August meeting	Bank of England readjusts peak inflation forecast to 10% and state that the labour market is tighter than expected which is leading to excess demand, providing justification for an increase in the interest rate
Aug-22	9.90%	1.75%	8-1 vote for increasing interest rates, Committee has asked the Bank to be in a position to begin a sales programme before end of September	Bank of England continues to raise rates as UK labour market tightness increases and as second-round effects begin manifesting from initial price shocks
Nov-22	10.70%	3%	7-2 vote for increasing interest rates with first gilt sale operation of £750 million taking place on 1 November	The Bank of England makes a clear judgement that inflation is stickier than initially anticipated
Feb-23	10.40%	4%	7-2 vote for increasing interest rates with no decisions made on QT	Bank of England states that price inflation remains high but expects that it has now peaked with labour market showing signs of easing as survey information indicates a deceleration in wage growth.
May-23	8.70%	4.50%	7-2 vote for increasing interest rates with no decisions made on QT	Bank of England begins examining credit markets given SVB collapse but continues to commit to tight monetary policy
Aug-23	6.70%	5.25%	6-3 vote for increasing interest rates with no decisions made on QT	Bank of England states that there has been excess demand in the economy but an increasing degree of slack is expected to emerge. The Bank also states that the cooling down of second-round effects may take longer than expected. Interestingly, the Bank begins paying attention to money growth in this report
Nov-23	3.90%	5.25%	6-3 vote for maintaining interest rates with QT programme finishing	Bank of England continues paying attention to money growth which is now on a negative trajectory while keeping monetary policy restrictive to bring inflation back to target

Source: authors' analysis of Bank of England (2020a, 2020b, 2020c, 2020d, 2020e, 2020f, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f, 2021g, 2021h, 2022a, 2022b, 2022c, 2022d, 2022e, 2022f, 2022g, 2022h, 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g, 2023h)



The Bank of England's monetary policy response to the pandemic began with a huge reduction in the policy interest rate down to 0.1%, along with a corresponding renewal of QE (see **Table 1**). In contrast, at the end of 2021, the policy rate began increasing again due to rising inflation, meanwhile the Bank stopped actively purchasing bonds around the same time (Bank of England, 2024b). **Figure 5.2.1** shows the several interest rate hikes that the Bank of England has introduced since, along with those of the European Central Bank (ECB) and the Federal Reserve. The Bank's policy rate increments began comparatively early but were far more gradual, arguably due to the strong sentiment that inflation was transitory. Moreover, the Bank of England began its programme of quantitative tightening (QT) when it stopped reinvesting proceeds from maturing bonds in February 2022 (Bank of England, 2024b) and began selling corporate bonds (Ramsden, 2023), before starting to sell government bonds in November of that year (Bank of England, 2024b).

Figure 5.2.1: Bank of England, European Central Bank, and Federal Reserve Base Rates (%), 2019-2024



Source: Macrobond (2024)

5.3 Evaluating the Bank of England's Monetary Policy

The timeline presented in **Table 1** exposes several errors in the Bank of England's forecasting. Between May 2020 - February 2021, the Bank broadly assumed that the pandemic lockdowns would be



disinflationary, with a modest increase in inflation ensuing as the economy opened back up. In retrospect, this was in fact not the case, largely because of the price shock brought by the Russian war in Ukraine. Of course, this was purely an exogenous event and not a forecasting error made by the Bank itself. However, the Bank failed to consider the effect of its preceding QE programme and the money growth it stimulated in exacerbating the impact of supply-side bottlenecks. Had the Bank of England recognised that QE and high money growth enabled high demand amid supply constraints to worsen price pressures, it would have identified the risks of a steepened Phillips curve and the distributional conflict between firms and households which accelerates inflation. This would have prompted the MPC to start preemptively raising the policy rate and ceasing QE operations in May 2021 – six months earlier than the Bank of England’s actual policy decisions – to mitigate the risk of a price-wage spiral developing. As such, this makes the Bank of England responsible for the high rates of inflation that the UK has experienced. Had it identified these risks, the MPC would have raised interest rates and implemented QT early enough to prevent accelerating and sticky inflation, which was evidently perpetuated by second-round effects from the August 2022 Monetary Policy Report and onwards (see **Table 1**).

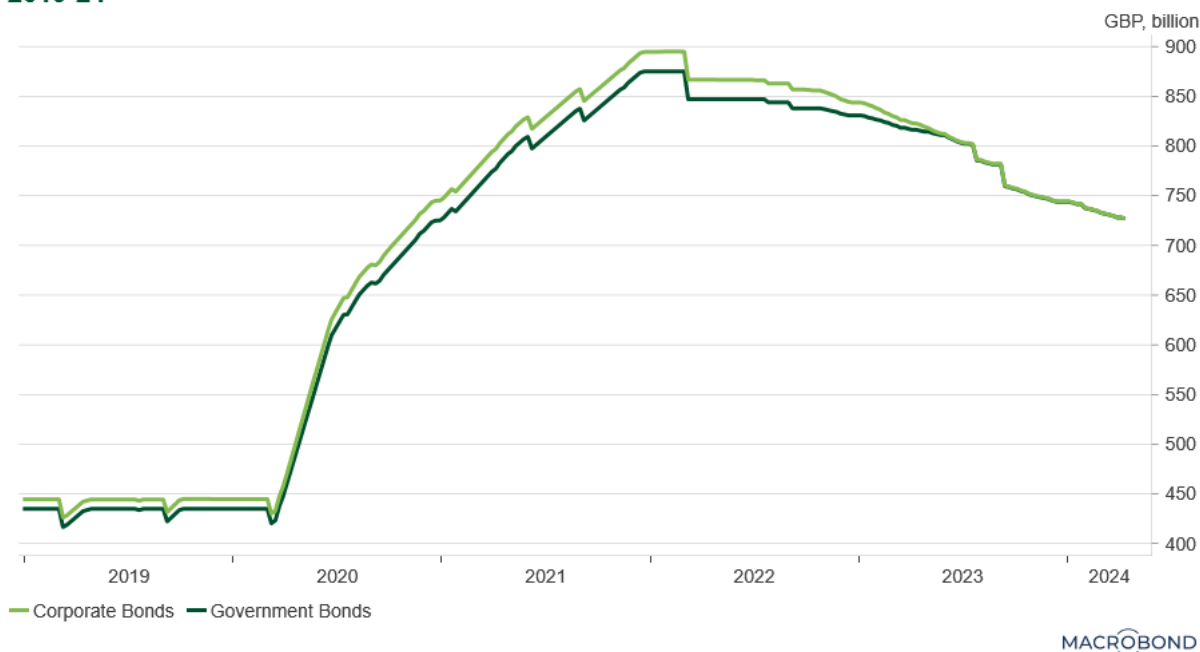
5.4 Evaluating Quantitative Tightening

As opposed to QE, QT involves the selling of bonds by the central bank (primarily to non-financial institutions) to increase the medium to long-term policy rate so that the Bank has greater flexibility in responding to future crises by avoiding the Effective Lower Bound (Ramsden, 2023). Considering the Bank of England’s QT programme, monetarists have expressed worries of the Bank now overtightening (e.g. Institute of Economic Affairs, 2024) following its sluggish rollout of the policy. The Bank’s Asset Purchase Facility (APF) peaked at £895 billion towards the end of 2021, with £875 billion of this being government bonds and the remaining £20 billion being corporate bonds (see **Figure 5.3.1**; also see Ramsden, 2023). Hence, with corporate bonds constituting only 2.28% of the overall APF stock, the start of QT in February 2022 involving the sale of corporate bonds equated to a mere 4.5% decrease



in the quantitative measures implemented since the onset of the pandemic (Ramsden, 2023). However, as **Figure 5.3.1** shows, the Bank's stock of APF holdings began shrinking considerably with the sale of government bonds from November 2022. With this corresponding to negative money growth (see **2.1.1**), monetarists have argued that the Bank should cease its current QT programme, as it runs the risk of bringing the UK into a disinflationary - and even deflationary – spiral (Institute of Economic Affairs, 2024).

Figure 5.3.1: Bank of England's Stock of Asset Purchase Facility Holdings (GBP, billions), 2019-24



Source: Macrobond (2024)

While inflation has been falling since the Bank began selling government bonds in November 2022, this is unlikely to be attributed to QT given the time-lag between the implementation of the policy and its impact (see Neely, 2019). This feature of QT raises questions on its impact in reducing recent inflation, and places greater weight on the influence of other factors such as falling inflation expectations (see **Figure 4.3.1**) easing demands for higher wages and thus lowering wage growth (see **Figure 4.3.2**). Regardless, in the long term, it is difficult to determine how QT will impact inflation. Even if one holds an altered monetarist perspective focusing on QT depressing the demand and (by extension) the supply of money (see **Section 2**), the potential for significant disinflation as a direct result of the policy is unlikely. UK labour markets remain relatively tight (see **Section 4.2**), and money



growth is recovering (see **Figure 2.2.1**), suggesting that economic activity will persist, albeit at a lower level.

6 Conclusion Remarks and Policy Proposals

6.1 Proposals for the Bank of England

Given the turbulent economic and geopolitical landscape the world currently finds itself in, avoiding mistakes of the past is of paramount importance. Upon inspection of the UK's recent inflationary experience and an evaluation of the Bank of England's response, we propose the following guidelines for the Bank to avoid a repeat of the severity and longevity of any similar supply-side shock that could potentially arise in the future:

- **Improve forecasting:** The mistakes made by the Bank in its policy response were, above anything else, the product of its forecasting errors, which was most definitely attributed to its benign view of inflation as transitory (see **Section 5**). As the Bank failed to consider the potential for second-round effects to transpire and the impact of its own QE programme, this benign view delayed the Bank of England's policy response by six months. Through understanding inflation as a conflict between the interests of households and firms, the Bank could better understand the response of households to firms' price-setting behaviour. In doing so, it could better foresee the development of price-wage spirals and thus predict the trajectory of future inflation more accurately, thereby allowing for a more optimal response. Adapting these heterodox concepts to the Bank's New Keynesian modelling frameworks is far from unrealistic, considering that academics have incorporated conflict theories of inflation into New Keynesian models before (e.g. Lorenzoni and Werning, 2023). Indeed, the recently published Bernanke review offers some crucial, similar suggestions towards revamping the Bank of England's forecasting framework. These include the inclusion of models of wage-price determination with causation from prices to wages and vice versa,



detailed models of different sectors (including, crucially, the energy sector), and greater attention and ongoing review of supply-side factors and their implications (Bank of England, 2024a). While some MPC members such as Jonathan Haskel (2023, p.16) hold similar views and have identified the need for 'behavioural model[s] of wages, prices, and their interaction with monetary policy' at the Bank of England, its official response to the Bernanke review worryingly lacks much discussion of incorporating these nuanced features into their frameworks (see Bank of England, 2024c).

- **Avoid second-round effects:** As already discussed, had the Bank of England identified the prospects of a steepening Phillip's curve and price-wage spiral, it would have ideally begun its interest rate hikes and halted its QE operations in May 2021, just before inflation began accelerating consistently. By delaying its response, the Bank allowed for inflation to surge and for second-round effects to sustain stubbornly high inflation long after its peak. Some academics have argued that a harsh contractionary monetary policy response, whilst reducing inflation, could induce significant unemployment and reductions in output, raising suspicions that *'the disease is better than the cure'* (Wildauer et al., 2023, p.13). Regardless, if the Bank of England is to fulfill its duty of bringing inflation down to its 2% target, a contractionary response in the form of increased interest rates and quantitative tightening is the only means it could do. The quicker inflation is alleviated, the quicker any temporary suffering is alleviated.
- **Manage inflation expectations:** As seen in **Section 4**, the price-setting behaviour of firms caused inflation expectations to spike up, which led to households demanding higher wages amid a tightening labour market. To avoid inflationary pressures in this context, it is imperative to prevent inflation expectations from becoming completely 'adaptive' or de-anchored through imposing a swift and effective monetary policy response (IMF, 2022). However, while the Bank of England can maintain inflation expectations by actively suppressing inflation with conventional tools (i.e. interest rates and QE/QT), it may also do so



through more unconventional means such as effective forward guidance - something which it has evidently failed to do effectively in its expressed promises of inflation being transitory. Some academics have gone as far to propose the active management of inflation expectations through targeted information campaigns by the central bank as a new unconventional monetary policy in its own regard (Coibion et al., 2020). Moreover, the Bernanke review also emphasises the need to include modeling of inflation expectations in any revisions of the Bank's forecasting framework, but also crucially exclude the assumption that longer-term expectations are always well-anchored (Bank of England, 2024a). By doing so, the Bank can, once again, more effectively forecast the possibility of second-round effects transpiring from any future inflationary shock. By forecasting second-round effects more accurately, the Bank can in turn offer more compelling forward guidance and thus anchor inflation expectations more effectively, thereby preventing future second-round effects.

6.2 Proposals for the Government

While much of this report has focused primarily on the Bank and its monetary policy, there are several policy recommendations that the government should take note of in mitigating the factors that have perpetuated the recent second-round effects:

- **Decrease firms' price-setting power⁶:** By decreasing the mark-ups firms set through imposing greater regulatory measures that establish more competitive markets, firms become increasingly unable to set prices above and beyond their costs and are thus unable to exacerbate any inflationary conflict (see **Section 4**). For instance, some have pointed towards legislation within digital markets for establishing an exemplary competitive market structure, specifically the EU's Digital Markets Act and the UK's proposed Digital Markets, Competition and Consumer bill (Jung and Hayes, 2023, p.26).

⁶ On a sidenote, the Memorandum of Understanding between the Bank of England and the Competition and Markets Authority (CMA) (Bank of England, 2024d) is encouraging. Closer collaboration with the CMA could allow the Bank to identify the wider macroeconomic implications of firms' behaviour.



- **Impose a windfall tax on the energy sector:** Taxing windfall profits and redistributing them to workers would preserve their real incomes and act as a deflationary measure through mitigating their wage demands by increasing their real incomes amid rampant inflation (Wildauer et al., 2023, p.13). This fares as a more tailored solution towards solving inflation arising from conflict compared to any other form of taxation, which in contrast could have a significant negative impact on output, employment, and the real incomes of workers (Wildauer et al., 2023, p.13). As regulating a natural monopoly such as the energy sector is an incredibly difficult task due to the risks of regulatory capture, a windfall tax may serve as a suitable solution to supply-side shocks originating from this sector.
- **Loosen the labour market:** The most prominent factors tightening the UK's labour market have been attributed to the unique circumstances following the pandemic. While there is evidence that those who pursued education in the aftermath of the pandemic are now slowly returning to the labour market and less people are choosing to retire, those reporting withdrawal due to long-term illnesses remain a persisting issue (see **Section 4.3**). To address this, the government should pay closer attention to funding and reforming its struggling National Healthcare Service (see Freedman and Wolf, 2023) to provide the long-term sick with the treatment they require to return to the labour force. Alternatively, while Brexit's contribution to the tightening of labour markets has been more than offset by the recently high positive net migration (see **Section 3.2**), relaxing restrictions to let more labour from the EU into the UK also serves as a step in the right direction. In implementing measures to loosen the labour market, the government should not decrease the demand for labour but should instead aim to maximise its supply.

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