Inflation in a Nutshell, a Short Memo.
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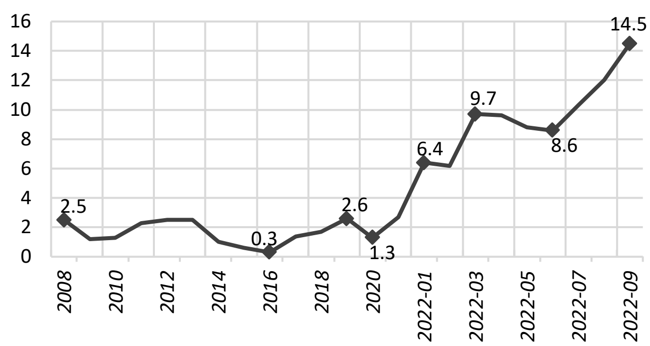
This document is meant to provide dense and to-the-point information regarding; inflation and inflation expectations, the positive and negative effects of inflation on the economy and different sectors, the ECB's reaction to surging inflation, and fiscal-monetary policy coordination.

Inflation and inflation expectations since 2008, Sector decomposition of last year's inflation

Figure 1. % Change in CPI Jan 2008 -- Sep 2022



Consumer prices in the Netherlands tend to remain stable and in line with the 2% target during the period of observation. Nevertheless, the spike in energy prices led to a significant rise in inflation since the end of 2021, ending up at 14.5% in September 2022.[1]

As inflation expectations, *Figure-2,* soaring levels of inflation surprised households. Despite adjusting their own expectations, households expect to return to 5.1% in short-term and 3.2% in the long- term perspective.[2]

The sectors that contributed the most include housing, water and energy sector, food and beverages, transport, and furnishing due to their high reliance on energy resources. Housing, water, and energy are up 30.2% in September 2022 as compared to September 2021, and food and beverages – 12.7%.[3] On top of that, the consumer confidence survey shows that in September 2022 23% does not make ends meet, 11 percentage points more than in September 2021.[4]

Figure 2. Inflation, Short and Mid-term Inflation Expectations, Apr 2020 - Sep 2022, % points

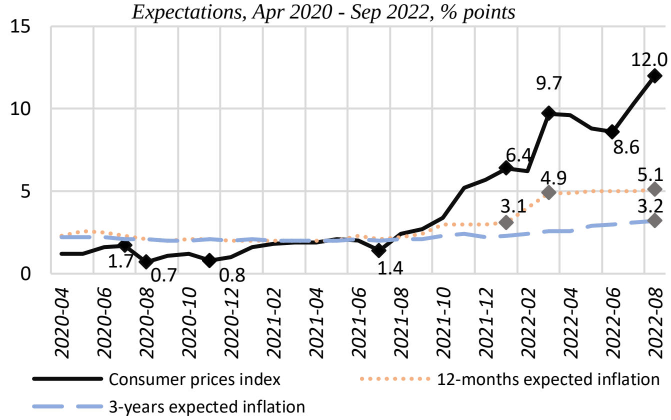
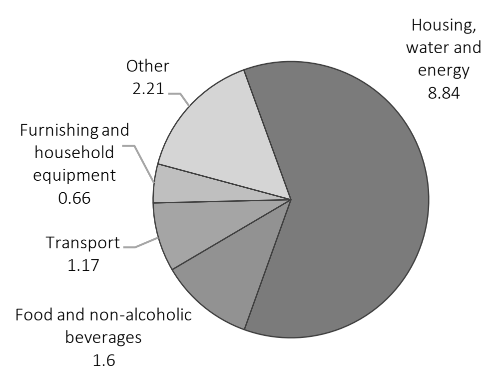


Figure 3. Decomposition of inflation between Sep 2021 and Sep 2022, % points



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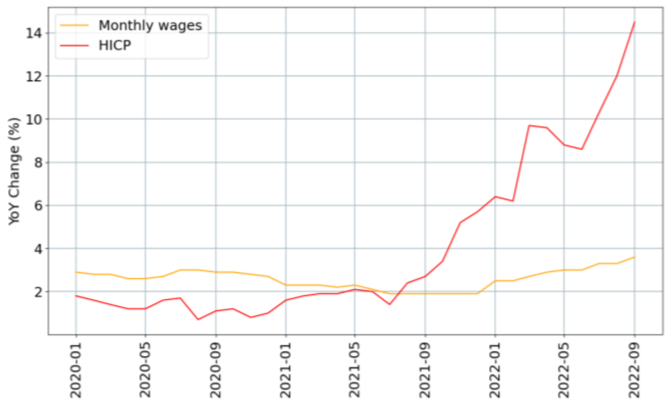
[1] https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=83131ENG&_theme=1125 retrieved on 10 October 2022.

[2] https://www.ecb.europa.eu/stats/ecb_surveys/consumer_exp_survey/html/data_methodological.nl.html retrieved on 14 October 2022.

[3] https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=83131ENG&_theme=1125 retrieved on 10 October 2022.

[4] https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=83694ENG&_theme=1080 retrieved on 16 October 2022

Figure-4 Yearly Changes in Wages and Consumer Prices

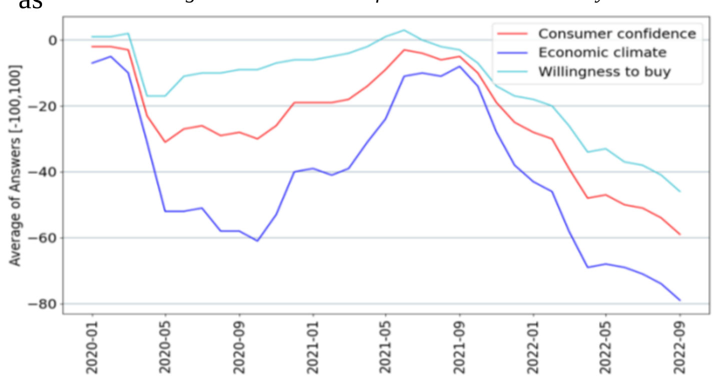


Decreasing purchasing power under inflation. Even though inflation is defined by the overall increase in all prices, wages reflect a much stickier dynamic than price changes in final goods.[5]

Figure-4 implies that the income increase in labor did not catch up with the increase in goods' prices. This divergence leads to welfare loss of households and disruptions in their consumption.

Increasing inequality Social Disturbance. People earning at constant rates such as pensioners and social security transfer dependents are anticipated to be hurt more since the adjustment rates are not likely to catch up with the inflation. Furthermore, in the climate of higher inflation derived from grocery and energy prices; people with higher income and/or savings will be able to compensate for the loss in income by reducing luxury spending and/or spending their savings, while people with low-income face harder times maintaining the same level of expenditure on the essential goods. Higher savings holders can also soften the effects of inflation by obtaining relatively higher returns on their savings with interest rate hikes which lower-income receivers are not able to benefit from as much.

Figure-5 Consumer Confidence on Dutch Economy



Contraction in demand for goods and services. As inflation soars the consumers' tendency to spend decreases[6], as shown in *Figure-5*, and that leads to downward trends in companies' sales and revenues.

Increasing costs and risks might squeeze the firms' profit margins.[7] With accelerated costs of labor, intermediate goods, and energy, companies are subjected to increased prices of final goods. Which provokes a risk of a negative spiral in the pricing mechanism. Also, disrupted expectations and higher levels of inflation causes more volatility in inflation therefore generating a pricing risk for businesses, and to mitigate that risk companies are prone to add a risk premium in their prices.

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[5] https://opendata.cbs.nl/statline/#/CBS/en/dataset/82838ENG/table?ts=1665765925354 retrieved on 12 October 2022

[6] https://opendata.cbs.nl/statline/#/CBS/en/dataset/83693ENG/table?ts=1665949796904 retrieved on 13 October 2022

[7] Kalish, I., & Wolf, M. (2022, February 18). Global surge in inflation. Deloitte Insights. Retrieved October 16, 2022

Tightening financial conditions and escalating costs of financing. In addition to the surging input costs, companies face higher borrowing rates due to elevated interest rates. With surging input and finance costs and decreasing demand, companies with pricing power will be able to adjust their prices to the increased costs mentioned above but increased prices can foster inflation further. On the other hand, companies without the pricing power, and/or companies with debt intensive operations are likely to face higher default risk, labor turnover, and diminishing investments.

Inflation has its own benefits as well. Although high rates of inflation and disruption of inflation expectations hurt the economy, a level of moderate inflation is generally considered a *"better"* choice than *"deflation"*[8]. Low, stable, and most importantly predictable inflation eases price adjustment and therefore does not distort the economy. Moreover, knowing that prices will be slightly higher motivates people to spend sooner and boosts the economy. Lastly, as the value of money diminishes faster exceeding the interest rate hikes, the debt households and firms are holding lowers.

Different Sectors will observe different effects:	**Winners**	**Losers**
Demand's decrease rate will be lower for necessity goods.	Food and Beverages, Health, Energy	Alcohol Tobacco, Household Equipment, Service Sector
Businesses financing its operation with credits will observe higher borrowing rates.	Food and Beverages	Technology, Construction
Competitive sectors face pricing limitations, companies with market power can reflect increasing costs on prices.	Transportation, Retail-Grocery, Health	Construction, Alcohol Tobacco, Household Equipment, Service Sector

Central Banks: Responses, Actions, Communication. To properly understand the efficacy of the ECB's monetary policies regarding current inflation, we must first recognize the path dependency beset by prior monetary policy targeting the COVID pandemic. The threat COVID supposed to European economies was to liquidity, financial stability, and economic growth accompanied by deflationary risk – as sanitary measures to tackle COVID heavily relied on reducing personal interactions, which by extension reduces economic interactions and confidence.[9]

Overview: Context & Response to Inflation. On the 12th of March 2020, the ECB announced its first pandemic-related measures. These compromised of expanding the ECB's quantitative easing program (APP), broadening collateral pools, relaxing conditions for banks and businesses to borrow, and accommodating the terms of existing financing operations.

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[8] Oner, C., & CEYDA ONER is a deputy division chief in the IMF's Finance Department. (n.d.). F&D article. Inflation: Prices on the Rise. Retrieved October 16, 2022

[9] https://www.ecb.europa.eu/press/pr/date/html/index.en.html, retrieved 12 October 2022

Notably the three key ECB interest rates would remain unchanged throughout the pandemic, as they were inherited already at the lower bound (-0.5%, 0%, 0.25%) – presumably a legacy from the European Debt Crisis. Many of the implemented policies came with long and gradual phasing-out plans, extending up to the end of 2024.

These COVID policies, aimed at opposite goals, naturally conflict with eventual policies targeting high inflation. While the ECB first recognizes the Russo-Ukrainian war on the 10th of March 2022, it is not until the 24th that policy announcements are made. These consisted of a 3-step phase-out plan of all pandemic-related policies, occurring in July 2022 (most), June 2023, and March 2024.

The first mention of interest rate hikes occurs on 14.04.22, being conditioned on APP's end – which as previously announced would finish ending 2022's third quarter. The first concrete information regarding rate hikes occurs the 9th of June 2022, where after prematurely deciding to end the APP on July 1st 2022, they suggest rate increases of 25bps in July and higher so in September. Finally on July 21 2022 rate hikes came, but not those suggested – all three key rates were raised 50bps (0.5%, 0.75%, 0%). Between the first and second rate hikes a series of consumer expectation surveys were analyzed by the ECB in which they make public their opinions on said expectations. Reading between the lines, they attempt to reassure consumers and instill confidence through technocratic rhetoric – influence expectations & restore credibility. Accounting for these expectations, on the 8th of September 2022 the ECB raised all rates an additional 75bps (1.25%, 1.5%, 0.75%) & announces future rate hikes to come.

Credible Communication & Prophesized Inflation. Central bank communication is crucial in the setting of expectations and "best responses" of all agents of the economy – as policy instruments (e.g. interest rate) factor into all economic decisions. By extension, the credibility of communications by central banks is crucial in how agents interpret these. When agents believe announcements of the ECB, they anticipate said announced changes and take rational economic in line with these. This trust grants effectiveness to monetary policy, as in turn agents predictably behave in the intended fashion according to policy. Whereas in an absence of trust, agents expect monetary policy to benefit the government (higher than expected inflation to boost output & cheapen debt) – but more crucially face far greater uncertainty within their expectations. This uncertainty, coupled with a lack of guidance from central banks, forces agent expectations to be based on self-perceived expectations. Such "endogeneity" of expectations causes "explosive" reactions to sentiment – leading to the self-fulfillment of expectations. This holds especially literal in the case of inflation, because if all agents in an economy believe that next month everything is 10% more expensive – they too will demand 10% more compensation. In doing so the expectation of higher prices becomes a reality.

The Sobriety of Central Banks Central banks[10] thus play a crucial role in undoing the self-fulfilling prophecy of unguided expectations. However, their capacity to guide expectations (and by extension the economy) hinges on the trust agents have in their ability to make effective decisions and proven credibility. In our opinion, the ECB has mildly tarnished its credibility. As we believe it to be underhanded to condition interest rate hikes on APP presence, announce an APP end-date, to then prematurely end the APP. To prematurely end the APP is to prematurely raise rates.

And while the ECB stated the possibility of the said hike being above 25bps, 50bps is twice what agents anticipated. While it is true that urgency and effectiveness may trump vague prior commitment – the ECB seems far too comfortable indefinitely implementing long-term inflationary policies. Recalling rates of (-0.5%, 0%, 0.25%) by COVID's start alongside quantitative easing, being in a steady boom, it is clear that the ECB's "boy who cried wolf" of recession strategy has hampered the efficacy and credibility of vital monetary instruments in times of true need.

Synergies in Fiscal & Monetary Policy10. Coordination of fiscal and monetary policy or at least, the absence of conflict between the policies is often considered a sound path toward economic growth and price stability. Looking at the Netherlands, the two entities have different objectives and responsibilities for governing their fiscal and monetary policies. The absence of coordination by policymakers can lead to inefficient fiscal and monetary policies for the Dutch economy such as high inflationary pressures and inefficient budget planning. The discrepancy between how quickly monetary policy can be implemented versus how long fiscal policy takes – forces the need for a good balance and strategic framework to coordinate these.

Case Study: Swedish Synergies[11]. We can observe how interconnected two policies are by looking at the interest rate on government debt which makes investors willing to purchase the debt given the probability of default, and the probability of default is the probability that tax revenues are insufficient to pay off the debt. Inevitably effects of policies implemented by decision-makers will affect each other. The best example to look at, where unity in policy coordination was pushed, is Sweden in the early 1990s. High outflows in Swedish currency and falls in real estate prices created a financial crisis in the economy. The fact that many credit providers used real estate as security, coupled with high interest rates created problems for the borrowers who saw the effect of falling asset values. As a result, the Government created a plan for expenditure cuts and revenue increases. Despite this the banking sector was in great danger due to the high interest rates, as the chances of credit loss increased – bank lenders questioned solvency. Thus, the Swedish Government issued guarantees for claims in Swedish banks and mortgage institutions. As the

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10 D.Romer, Advance Macroeconomics 4th edition Government bill, An account of fiscal and monetary policy in 1990s (2000)

11 Government bill, An account of fiscal and monetary policy in 1990s (2000)

IMF research paper concurs[12], if policymakers had coordinated their actions before problems arrived, the crisis would not have had such a big impact on the Swedish economy.

Takeaways. Moreover, effective coordination by Swedish policymakers, increased the efficacy of the policy itself, as weak stances in one policy can diminish the other's effect. 90s Sweden exemplifies how efficient coordination helps in crisis. Despite other issues, the Swedish economy is better off as a result of this interaction between policymakers. In the Netherlands, coordination of both policy objectives at the institutional level remains crucial, to prepare for any crisis that can occur in the future. Any policy that is implemented should be efficient in its effect, as argued, this can be only achieved by the coordination of fiscal and monetary policymakers.

12 T.Balino and C.Enoch, IMF Coordination of fiscal and monetary policy (1998)