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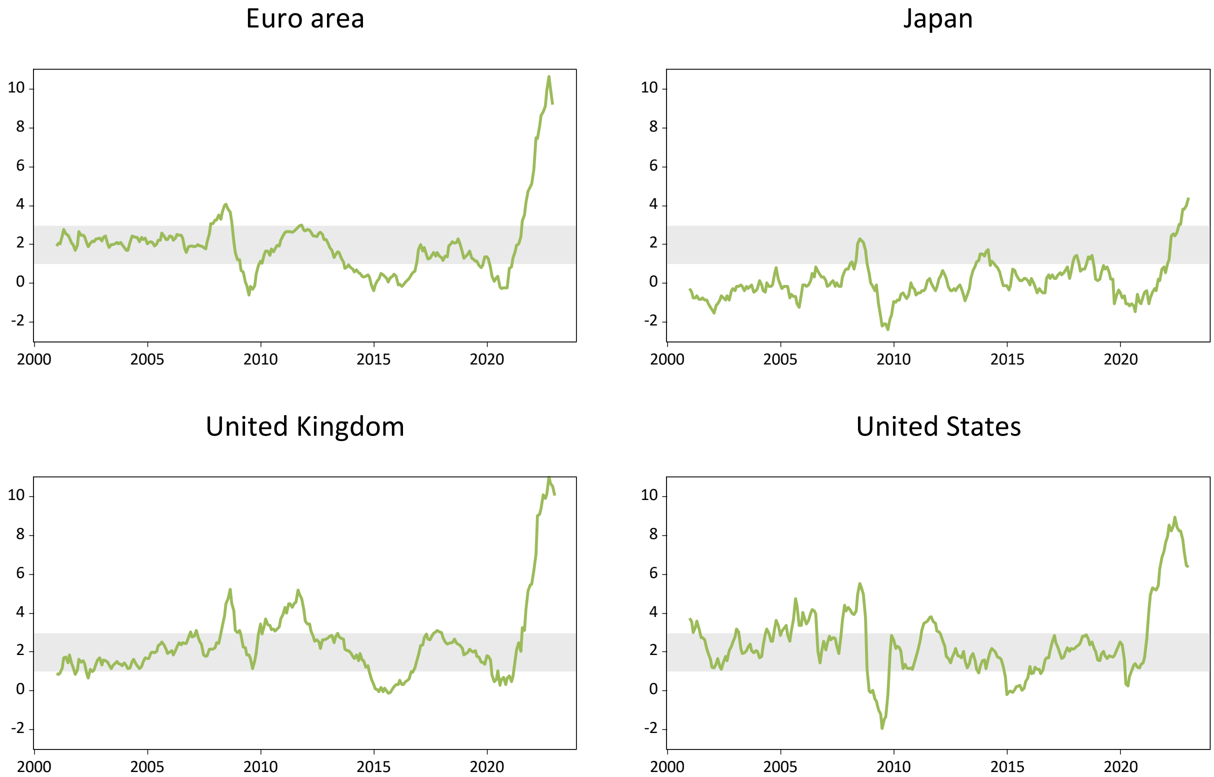
MEMORANDUM

To:	Vector New Zealand
From:	John McDermott
Date:	13 March 2023
Subject	**Update on the Difficulties of Forecasting Inflation**

This note aims to update my Memorandum of March 2020 that examined the issue of forecasting inflation over long horizons. In 2020 when I drafted the original Memorandum, inflation had been low and often undershooting central banks' targets. The current situation is quite different, with inflation high and exceeding central banks' targets, often by a wide margin (figure 1). Given the changed inflationary environment, it is worth confirming which insights are still relevant in the Memorandum.

Figure 1. Inflation in major advanced economies
(target range indicated by shaded area)



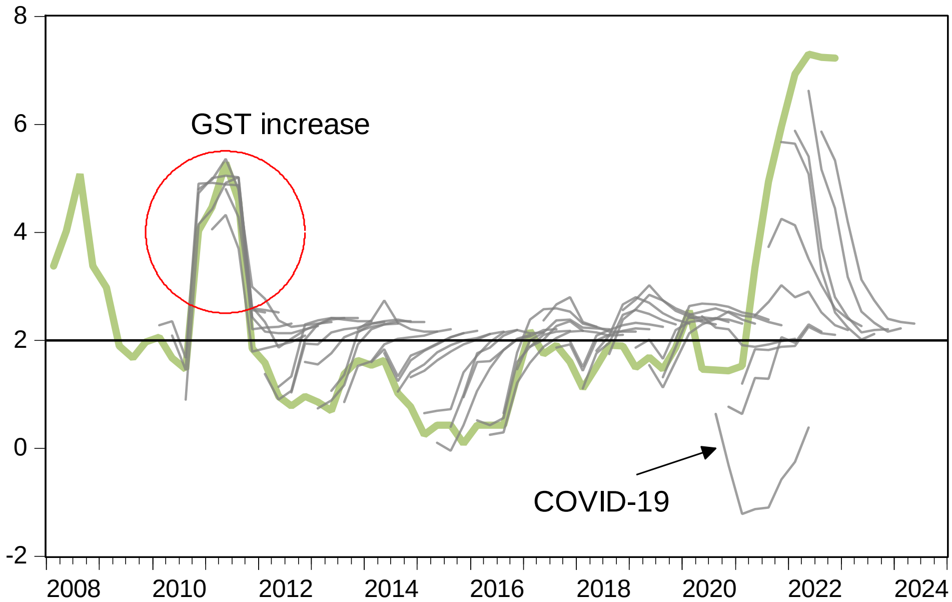
Source: Respective central banks

The principles needed to understand inflation dynamics and methods used to forecast inflation remain the same as in my original Memorandum. Businesses and regulators can access several forecasting methods, each with advantages and disadvantages. The four main methods are (i) model-based forecasts that provide a quantitative specification of theoretical views about inflation, (ii) market-implied measures such as the difference in yields between nominal bonds and inflation-linked bonds, (iii) professional forecasts such as those contained in the publications *Consensus Economics*, and business and household surveys of inflation.

As in my original Memorandum, forecasting inflation over five years remains a near-impossible task to achieve with confidence. Central banks' inflation forecasting methods are unsuitable for a five-year horizon and have recently failed at even short horizons. The four-leading methods of constructing inflation expectations (model-based, market-implied, professional surveys, and business and household surveys) all delivered poor forecasting performances; over-forecasting in the decade before the pandemic and under-forecasting in the post-pandemic period.

New Zealand's experience was no different to other advanced economies. From the five years from about 2010, forecasts tended to revert to two percent even as inflation remained below target (figure 2). Likewise, from the end of the pandemic, inflation forecasts have reverted to two percent despite inflation heading relentlessly higher.

Figure 2. History of Inflation Forecasts in New Zealand
(2010 to 2023)



Source: Reserve Bank of New Zealand and author's calculation

As forewarned in my original Memorandum, forecasting inflation in the 2020s is even more challenging than in the preceding decade. The unprecedented scale of monetary and fiscal policy support provided in the wake of the COVID-19 pandemic has resulted in inflation returning to levels not seen since the 1980s, to the surprise of most professional forecasters.

The many cyclical forces influencing inflation dynamics surprised forecasters. First was the sudden resurgence of household demand, partly from 'revenge spending' in response to pandemic-induced lockdowns and partly a response to the strong demand for labour. Second was the increase in food and energy prices as war broke out in Ukraine. Third, Governments ran up substantial fiscal deficits adding to global demand at a time when supply capacity was severely constrained.

Adding to the cyclical challenges of forecasting inflation are several powerful secular forces absent from nearly all forecasting models. First, globalisation, until recently a development that kept global inflation in check, is in reverse. Second, expensive supply chain resilience is being constructed due to emerging geopolitical tensions and to avoid a repeat of the COVID pandemic experience. Third, climate change mitigation and adaptation will require extensive investment spending, adding to global demand and, thus, inflation since resources are already stretched. Finally, the reversal of China's zero-covid policy will see further global demand pressure spilling worldwide, especially for industrial commodities such as copper and oil. These secular forces could easily add one to two percentage points to global inflation for the next few years. Contrast that to the previous decade when the dominant secular forces subtracted an estimated one percentage point from inflation.

One issue brought up in my 2020 Memorandum that needs correcting is the idea that the forecasting challenge is asymmetric. It was believed that since interest rates cannot go negative (or at least not very negative), central banks can find themselves in a situation where they are sometimes unable to add enough policy stimulus to lift inflation. In contrast, before 2022, there was an entrenched psychology that central banks would never allow high inflation to return. It turned out that business confidence in central banks was unwarranted, with central banks often unwilling to normalise monetary policy until inflation was well above their targets.

Forecasting central banks' resolve seems as complicated as forecasting inflation itself. Now that central banks have broken businesses' belief in price stability, inflation expectations have become unanchored, and the inflation outlook is significantly more uncertain in both directions.

The task of forecasting inflation has always been difficult, and the challenges have not become any easier. In recent times central banks, with a vast arsenal of technical resources, have failed to forecast inflation adequately. Nevertheless, their challenge is only understanding and controlling inflation 12 to 18 months ahead. If such institutions cannot forecast inflation at this limited horizon, it would seem a near-impossible task to forecast inflation at longer horizons.

The information necessary to forecast inflation at a five-year horizon is truly monumental. You would need to predict all cyclical economic developments, such as firms' ability to fill vacancies; international capital movements in response to policy shifts; and geopolitical events, especially those impacts on oil markets. In addition, you would need a deep understanding of many secular forces that shape the environmental environment, including trends in demographics, trade policy, climate, and even public health risks.

Even if you could miraculously predict all the cyclical and secular forces that influence inflation, this would not be sufficient. As recent events have demonstrated, you would also need to know how the psychology of inflation would evolve over the next five to ten years. When central banks failed to respond to the emerging inflation dangers in 2021, they completely changed the prevailing psychology around inflation. Expectations have become highly sensitive to inflation outturns. A new generation of business leaders and financial market participants have now come to the view that it is difficult and costly to bring inflation under control once it has exceeded three percent (roughly the level at which businesses and households notice inflation is eroding their spending power). Inflation now has the characteristic of a self-fulfilling prophecy; it can rise or fall simply because that is what the businesses, who set prices, believe.

As discussed in my original Memorandum, no forecasting approach that is fixed in place while the economic and social environment is changing will be able to forecast well. Unfortunately, the current approach adopted by the Commerce Commission risks generating significant forecasting errors and is undoubtedly not fit for purpose.