ARTICLE – How are higher commodity prices and freight costs affecting inflation in Sweden?

In 2021, commodity prices, and especially prices of metals and food have risen substantially. Costs for sea freight have also increased rapidly. Increasingly strong global demand, combined with supply problems, lies behind this development. Previously, rises in commodity prices have most frequently led to relatively modest effects on consumer prices. Now, however, commodity prices, and also freight costs, have risen rapidly over a short period of time. Consequently, it cannot be ruled out that the current situation may have a greater than normal impact on inflation expectations and consumer prices. In its forecast in April, the Riksbank already expected rising commodity prices and freight costs to contribute to slightly higher inflation over the coming year. The effect is now expected to be a little greater this year and next year but, nevertheless, the assessment remains that the high rates of increase in commodity prices and freight costs will slow down fairly rapidly.

Many commodity prices have risen sharply in 2021. Price increases for metals, industry-related commodities and food products are now taking place at a significantly higher rate than during the economic upturn in the years preceding the pandemic (see Figure 59). The reasons are many, but the main and overall one is the ever-brighter economic situation, which, in turn, is being fed by strong fiscal policy measures, monetary policy stimulation measures, rapid decreases in the spread of infection in several regions and the launch of vaccination programmes around the world.

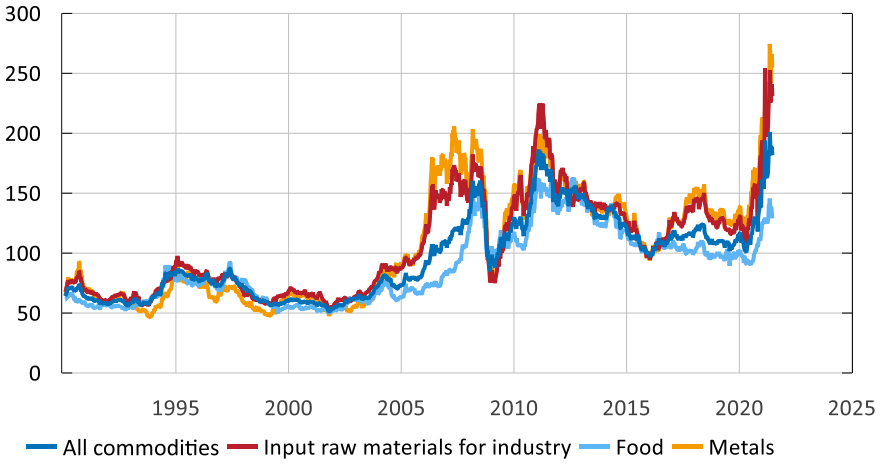
In addition to the improved global economic outlook, the rise in metal prices is being driven by particularly high demand in China, supply shocks and a stronger exchange rate for the US dollar in relation to other currencies. Expectations of high future demand for metals, linked to the gradual shift away from fossil fuels, also explains the trend. The price increases for agricultural and food products are due to pent-up demand for certain products in China and to various supply problems in South America and the United States.[48]

[48] Many of the disruptions in South America are linked to the weather phenomenon La Niña. See for example "Causes and Consequences of Metal Price Shocks", World Bank Group (2021),"*Commodity Markets Outlook*, April 2021.

The costs of sea freight have also risen dramatically recently (see Figure 60). In particular, prices on routes from Asia to Europe have increased rapidly.[49] The costs of freight in the opposite direction have not increased as much, which indicates major imbalances in the transport chains (compare the dark blue and red lines in Figure 60).[50] Rising demand also lies behind the development of sea freight, combined with bottlenecks in the global supply chain, such as overloaded ports and an undersized cargo fleet.[51]

Figure 59. Commodity prices in US dollars

Index, 2015 week 52 = 100



Source: The Economist.

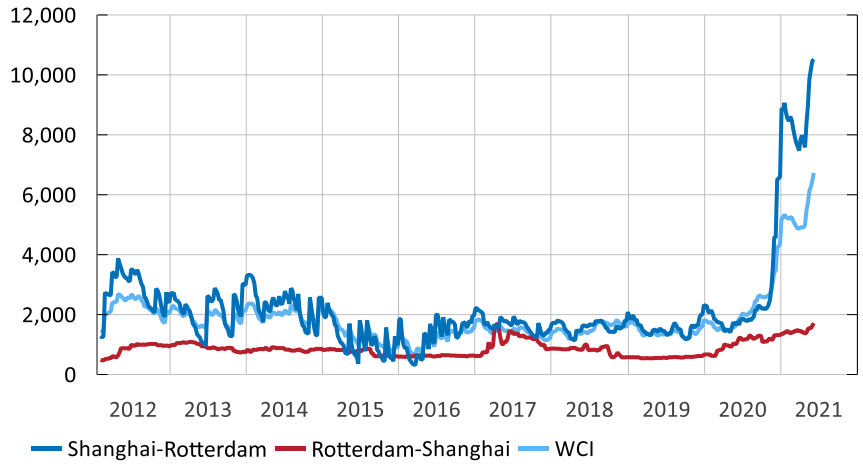
[49] Freight prices to developing regions have risen the fastest, however. Freight costs are currently highest to South America and West Africa. One explanation is that these routes are longer.

[50] However, freight from Europe to Asia always seems to be on a lower price level. Among other reasons, the imbalances depend on differences in import demand and on how fully loaded the return containers are.

[51] However, the causes are many. Demand for container shipping has increased steadily, following the rapid slowdown in the spring of 2020. The pandemic has contributed to changes in consumption patterns and increased e-Commerce. Gradually changed trade patterns are another cause, as are cancellations in air freight. See, for example, H. Ren (2021), "Higher Shipping Costs Are Here to Stay, Sparking Price Increases", https://www.bloomberg.com/news/articles/2021-04-12/.

Figure 60. Freight costs

USD/container



Note. The light blue line (WCI) shows an aggregate index for different tradelines.

Source: Drewry.

The sub-index for prices for input goods in the Purchasing Managers' Index for the manufacturing sector in Sweden also shows that prices have risen significantly recently (see Figure 61) and that this trend can be explained by movements in commodity prices. The covariation with the annual percentage change in the price index for input goods for the manufacturing sector (shown as the level in Figure 59) is also clear. However, from April to May, the sub-index for prices of input goods fell slightly to 90.8, which is still a record high level. The last time it was over 80 was in autumn 2004. The corresponding index for the service sector has also risen rapidly.[52]

[52] The sub-index for suppliers' delivery times also shows the same development over the last six months.

Figure 61. Prices for input goods according to the Purchasing Managers' Index in Sweden and for input commodities to manufacturing

Index and annual percentage change

Sources: Silf/ Swedbank and the Economist.

How long could the rise in commodity prices and freight costs last?

Commodity prices have risen since mid-2019 and the upturn has been particularly rapid since the summer of 2020. Previously, such upturn phases in commodity prices have varied in length from barely a year to about two and a half years.[53]

Fluctuations in raw material prices seem to co-vary with global economic activity relatively well. The correlation between different measures of commodity prices and KIX-weighted growth is also clear. The relationship with economic activity is strongest for metal prices and weaker for food prices.[54] If the Riksbank's assessment of KIX-weighted growth is used to forecast developments in metal prices, the rate of price increases will quite rapidly be restrained.[55] This trend tallies quite well with the commodity price forecasts from other analysts. According to a report from the World Bank, published in April this year, the rate of price increases for metals and minerals is expected to slow down from 30.5 per cent this year to −12.4 per cent in 2022. Part of

[53] An upturn phase in prices is measured here as the distance, in months, from the lowest listing in the annual percentage change for metal prices to the highest listing before the rate of increase begins to slow down again. If it is established that the most recent upturn phase began in May 2019, metal prices have been rising for more than two years. If developments were to follow historical patterns, prices should therefore be restrained soon. However, uncertainty is particularly great now, as the pandemic is deviating strongly from historical cyclical patterns.

[54] Here too, it should be mentioned that the last year and a half have been exceptional and that other driving forces than normal fluctuations in economic activity have affected developments.

[55] A simple time series model is used here, where the quarterly percentage change in metal prices is explained by the quarterly development of KIX-weighted GDP. The equation also includes some lags of the variables included.

the price fall in 2022 is linked to demand being expected to fall when China starts phasing out various stimulation measures.[56]

According to time series of freight costs, the current situation is particularly extreme. It is therefore difficult to draw any conclusions from earlier episodes of higher costs. The co-variation with economic activity is also less clear. Some analysts expect the problems to be corrected relatively quickly once supply has adjusted to demand, while others say that the difficulties in sea freight will be difficult to resolve and that various bottlenecks will remain for a good time to come.[57]

Weak connection with producer and consumer prices

The relationship between commodity prices and prices of consumer goods in the producer channel is not particularly clear, even if one controls for changes in the exchange rate.[58] Neither is it easy to see any systematic time lag in the relationship, which is to say producer prices rising or falling after a certain period of time following the movement of commodity prices in any direction. At present, prices are falling for imported consumer goods in the producer channel. The rate of price increase for consumer goods produced and sold in Sweden remains somewhat higher than its historical average, but has not risen significantly recently.

There are also surveys that ask companies how they plan to change their prices. According to the Economic Tendency Survey, price plans have become normalised recently. Seen across the whole of the business sector, more companies are now planning price rises, but the proportion is increasing from extremely low levels. The proportion of companies in the retail trade planning price rises fell at the beginning of the pandemic but it has since risen and is now at a relatively high level (see Figure 62). However, according to the Riksbank's latest business survey, there are also tendencies towards higher sales prices.[59]

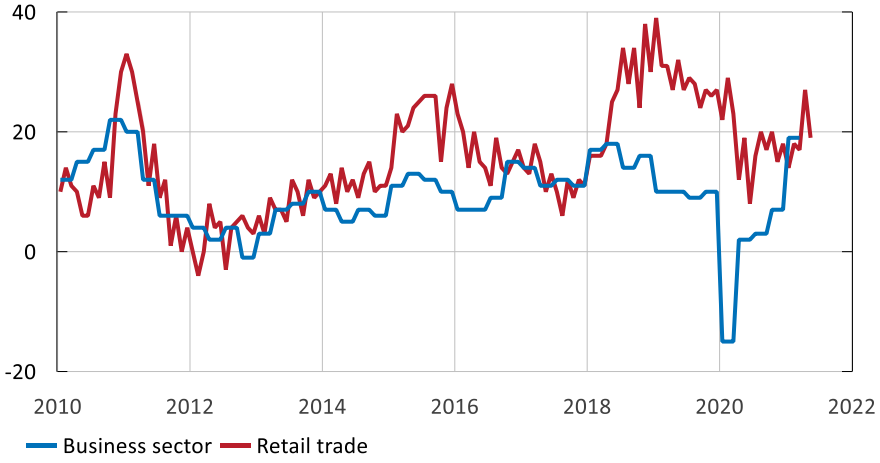
[56] See "Causes and Consequences of Metal Price Shocks", pages 3 and 45, *Commodity Markets Outlook*, April 2021, World Bank Group.

[57] See *the Riksbank's Business Survey*, May 2021 "Demand is not the problem – the troubles are on the supply side", Sveriges Riksbank and H. Ren (2021), "Higher Shipping Costs Are Here to Stay, Sparking Price Increases", https://www.bloomberg.com/news/articles/2021-04-12/ and Box 1 "What is driving the recent surge in shipping costs?", *ECB Economic Bulletin*, 3/2021.

[58] Commodities are usually priced in dollars, while producer prices have been converted into kronor.

[59] Both in the trade sector and among service companies, there are plans to raise sales prices to compensate for increased costs; see *the Riksbank's Business Survey*, May 2021 "Demand is not the problem – the troubles are on the supply side", Sveriges Riksbank.

Figure 62. Price plans according to the National Institute of Economic Research
Net balance



Note. The net balance is the difference between the percentages of companies responding higher and lower selling prices respectively.

Source: National Institute of Economic Research.

The direct relationship between commodity prices and consumer prices has not been particularly strong over the past twenty years. Commodity prices have been able to rise or fall quite a lot without this actually having been noticed in the consumer channel.

However, there are significant links between commodity prices and some of the 70 sub-indices which together make up the CPIF.[60] According to a simple time series analysis, at least 14 sub-indices out of 70 appear to be sensitive to fluctuations in commodity prices and their combined weight in the CPIF is close to 19 per cent.[61] As in the analysis of the relationship between commodity prices and producer prices, this is also checked for exchange rate changes. One explanation for the weak link between commodity prices and the CPIF is that the goods that are clearly affected by commodity prices only form a small part of the CPI basket.

The relationship between freight costs and consumer prices should also probably not be very clear, at least during more normal times. The freight cost is usually a fairly small part of the actual sales price and any increases can probably be managed without having to be passed on to the consumer channel. The result of an analysis of US data also indicates relatively limited impact.[62] Although the price of containers has

[60] According to this analysis, it primarily seems to be various food prices that are affected. Examples include flour, grains and bread, milk, eggs and cheese, cooking fat, vegetables and fruit, coffee, and cocoa.

[61] Quarterly data are used in the analysis and, for each sub-index in the CPIF, the quarterly percentage change is modelled. In a first step, three different models for each price aggregate are estimated to allow the optimal time lag for the resource utilisation (RU indicator), exchange rate (KIX) and commodity price index of the explanatory variables to be identified. A model is then estimated for each sub-index where all explanatory variables are included at the same time. If commodity prices are significantly different from zero at the 10 per cent level and have a positive sign, the index is sorted into the group of consumer prices which appear to be sensitive to fluctuations in commodity prices.

[62] See T. Herriford, E. Johnson, N. Sly and A. Lee Smith (2016), "How Does a Rise in International Shipping Costs Affect U.S. Inflation?" *Macro Bulletin*, December 2016, Federal Reserve Bank of Kansas City.

risen dramatically in recent times, the impact on most physically small consumer goods, such as telephones, should be relatively limited, as each load contains many units. The effect on larger consumer goods, such as white goods, should be greater, but production is often closer to the end market for such products, precisely in order to minimise transport costs.

Earlier periods of rapidly rising commodity prices and freight costs have led to moderate effects on inflation, but the recent upturn is exceptional. Consequently, conclusions drawn from the previous co-variation with consumer prices may be mistaken and there is a risk of underestimating the effects.[63]

The effect on inflation depends on whether the rise in commodity prices and freight costs is temporary or more permanent

The effect commodity or freight prices ultimately have on inflation expectations and consumer prices depends on whether the increase is temporary or more permanent. If cost increases for companies are short-term, they may not have to be passed on to consumers. On the other hand, if the increases in costs are prolonged, it is more likely that this will affect expectations and pricing through delayed effects. One example could be that higher prices for base metals, which are important input goods in various parts of the manufacturing sector, will impact companies' costs. Such a development would probably lead to consumers having to pay higher prices in the end. It is also possible that the delayed effects will be channelled through higher inflation expectations, which, in turn, will generate higher prices and wages. So far survey-based measures of inflation expectations have risen relatively slightly, while market-based measures have moved more. This time aspect may be particularly important now, when other inflationary risks are also being discussed in the media and research circles.[64]

The Riksbank's overall assessment remains that the upturn in commodity prices and freight costs is temporary and will lead to moderate effects on inflation over the next few years. In its forecast in April, the Riksbank already expected developments to contribute to slightly higher inflation over the coming year. The effect is now expected to be slightly higher in 2021 and 2022 before it subsides.

[63] See, "From Supply to Price Pressures—A Flashing PMI Signal?", *News Letter,* 2021, Goldman Sachs.

[64] For a discussion of these, see the article "Inflation outlook during the corona crisis" in *Monetary Policy Report,* July 2020*,* Sveriges Riksbank.