Economics Focus

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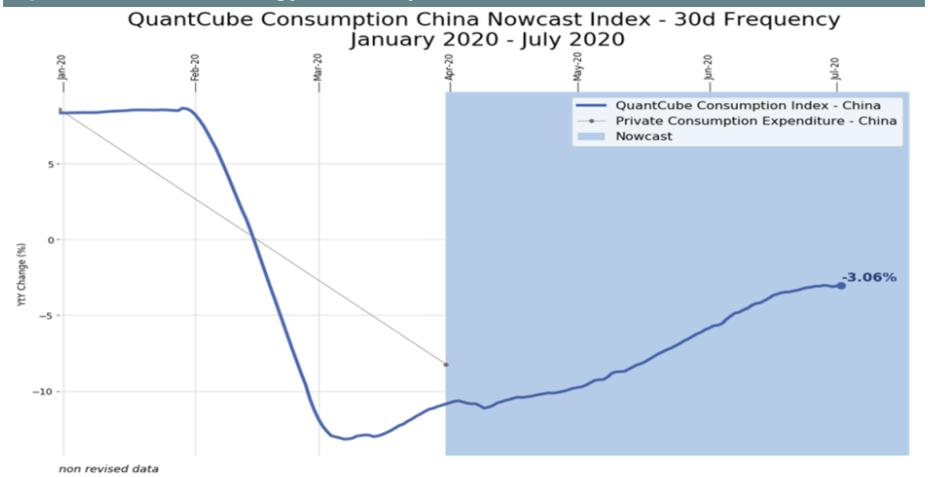
Recovery shape: leveraging the power of big data

- **The surge in new Covid-19 cases has reduced macroeconomic visibility drastically both in the US and in emerging markets. With market valuations still on the high side, downside risk is on the rise.**
- **The shape of the recovery will critically depend on how household consumption expenditure evolves. However, this factor is highly uncertain, as we do not know how households will adjust their spending behaviour, and it is difficult to track with the official data.**
- **Rather than guessing the shape of the recovery in consumer spending using historical behaviours as templates, Crédit Agricole CIB Research has decided to leverage QuantCube Technology's nowcasting expertise.**
- **In this first focus in a series, we present QuantCube Technology's consumption nowcast indexes, which we will use to track household consumption expenditures in real time for the major global economies (the US, China and the Eurozone) and major Eurozone countries (Germany, France, Italy and Spain).**

Since the start of the pandemic, personal consumption expenditure data should have, in our view, been the single strongest indicator for assessing the dynamism of the recovery and explaining market risk appetite, but that has not been the case. Why? The reason is simple: it is outdated by 30 to 90 days depending on the country. Rather than relying on previous behavioural models, our research team decided to work with QuantCube Technology to measure the strength of the recovery in key markets such as the US, China, Germany, France, Italy and others.

QuantCube Technology consumption China nowcast index



Source: QuantCube Technology

With limited headroom under current risky asset market valuations according to our models, whether the private consumption trend is confirmed or flattens will become critical for market risk appetite (if it is not already). This is probably even truer in a context where rising case numbers have clouded the picture since the end of lockdowns in Asia, Europe and the US.

From now until the end of the year, we will provide updates on these measures and propose trade ideas based on opportunities created by the gap between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About QuantCube Technology

QuantCube Technology is a start-up specialised in AI and Alternative Data Analytics for macro predictions and financial market trends, focusing especially on macro nowcasts based on multiple data sources such as social media, Earth observation and radar satellite data, maritime traffic, employment data, oceanographic & meteorological data and other data sources, in order to extract valuable economic intelligence market consensus, implicit risk appetite and the result of the nowcasting models calculated by QuantCube Technology.

Why and how to focus on household consumption expenditures

Consumption expenditures will be one of the most important drivers of the recovery

During the usual economic cycles, personal consumption expenditure is not the main market focus because it is released with a long lag and it is not the main driver the cyclical reversal. Indeed, consumption is historically less volatile than most of the other GDP items and not a forward-looking component. But we think that consumption is one of the most important factors to track during this cycle, for cyclical and structural reasons.

- In terms of cycle, the Covid-19 shock is unusual. Household consumption expenditure has been more volatile than GDP. Indeed, Eurozone personal consumption expenditure shrank by 4.7% QoQ in Q120, when GDP declined by 3.6%. Conversely, during the global financial crisis, personal consumption expenditure declined by 'only' 1.5% from peak to trough vs a 5.7% decline for GDP. This is because (1) lockdowns have physically constrained consumer spending (at least as much as production); (2) consumers have chosen to reduce their social interactions and so their consumption expenditure out of fear of being exposed to the coronavirus; and (3) they have chosen to increase precautionary saving given the uncertain prospects. The recovery of consumption is very uncertain because it will depend on how three previous factors contribute to the decline in consumption in H120, which is not clear, and on how they evolve in the coming months. The mechanical effect of the lockdown is likely to fade quickly as economies reopen, but fear is likely to remain present until a long-term solution to the Covid-19 crisis is found, in the form of effective and widely available treatment, a vaccine or herd immunity. The precautionary motive could linger for a long time given that two expected effects of this unprecedentedly rapid and wide-reaching shock are sustainably weak labour markets and permanently changed behaviour.
- Structurally, we think that household consumption expenditure is likely to be a more important driver of the economic dynamic in the current context than over the past decade, especially for the Eurozone. External demand has become less dynamic and more uncertain because global growth is slowing, fewer countries are willing to run trade deficits and globalisation has been challenged, all of which will likely been reinforced by the Covid-19 shock. This is a hurdle for the Eurozone, which is the economy most reliant on external demand: it has been the biggest net exporter globally since 2013. This implies that the Eurozone needs to rely more on its domestic demand. Given that business investment is currently mainly constrained by the weakness of demand prospects rather than by access to capital, as evidenced by the extremely low level of interest rates in the Eurozone, consumer spending (and public demand) will be the main driver of domestic demand.

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QuantCube Technology Consumption index

Nowcasting macroeconomic aggregates has proven extremely useful for policymakers and financial investors, a means of getting reliable, real-time information to monitor a given economy or sector. This is especially the case for household consumption expenditures, as official numbers on private consumption are available on a monthly basis (in the US) or on a quarterly basis (in China and Europe). With delays of publication ranging from one to three months, alternative data sources provide valuable information to track not only aggregated private consumption but also granular components of consumption in real time.

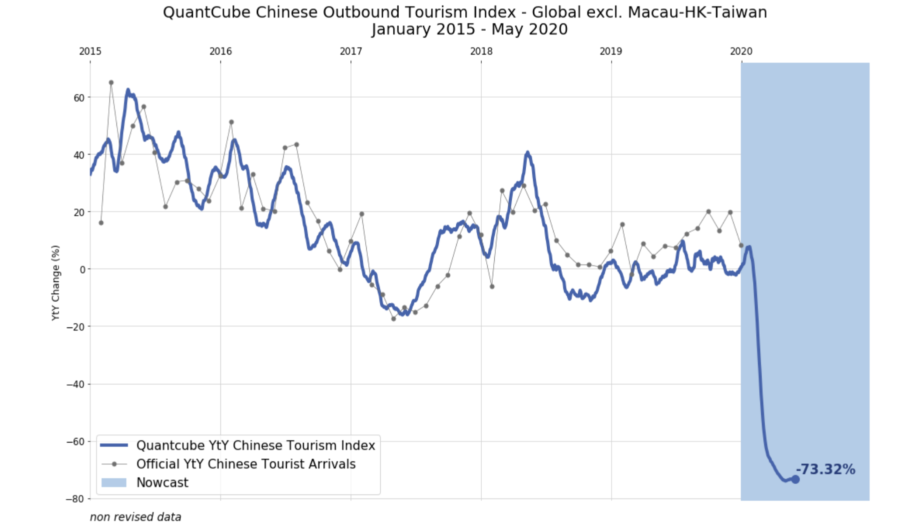
QuantCube Technology has developed a methodology to nowcast growth rates of private household consumption in YoY terms using the flow of information coming from alternative massive data sources from the Internet, social media, satellites, fixed sensors, texts and more. In this publication, we present innovative alternative indicators to monitor in real time, with daily frequency, consumption in China, the US, France, Germany, Italy and Spain.

To construct the QuantCube Technology Consumption Index, the first step has been to analyse a detailed breakdown of consumption to identify the components with the highest explanatory power (depending on their weight in total consumption, their volatility and their correlation with the other components). A distinction is made between important durable goods (vehicles, furniture, household or leisure equipment), semi-durable goods (textiles, clothing) and non-durable goods (food, energy), as well as between goods and services.

Then, **QuantCube Technology defines relevant alternative data sources to estimate each selected component.** For example, leisure and tourism are subcomponents of the discretionary component of private consumption: there are plenty of alternative data sources to track tourists traveling, eg, air traffic data, hotel prices and reviews and search engine queries. For the other components or those with no alternative data available, QuantCube Technology estimates a SARIMA model and collects the forecasts.

Finally, by aggregating those key consumption components, a combination of alternative data and official forecasted data, it is possible to estimate global private consumption in real time. The real-time QuantCube Technology estimators are highly correlated with the official private consumer expenses published with some delay by governmental institutions.

QuantCube Technology Chinese Tourism Index - Year-to-Year variation



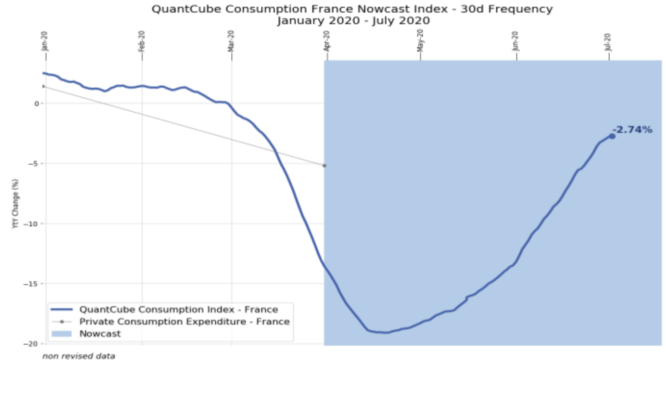
Source: QuantCube Technology

QuantCube Technology Consumption index by country

Eurozone: France, Germany, Italy and Spain

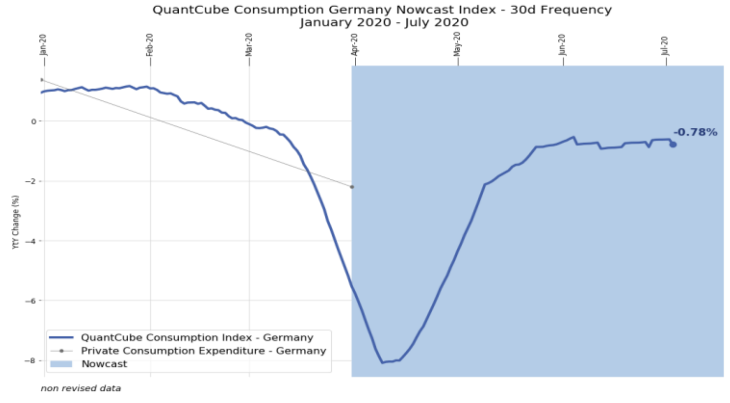
Household consumption expenditure is the biggest part of the Eurozone economy (53.5% of GDP). The contribution is higher in Spain (57%) than in France and Italy (52%) or Germany (50.5%). This component of GDP is difficult to track with official data because Eurozone total household consumption expenditure is only available at a quarterly frequency and is released with a three-month lag. For the countries for which QuantCube Technology currently computes daily consumption indexes, total household consumption expenditure is also only available at a quarterly frequency and is released with a lag of one month for France and Spain and a lag of two months for Germany (with the official GDP data). Contrary to the US, there is no monthly series. To track household consumption expenditure more readily, economists and markets use proxies for the consumption of goods that are released at a monthly frequency with a one-month lag (household consumption expenditure on goods for France and retail sales for Germany and Spain), but these series cover less than 50% of the total consumption expenditure (not the services).

QuantCube Technology France Consumption Nowcast index (YoY)



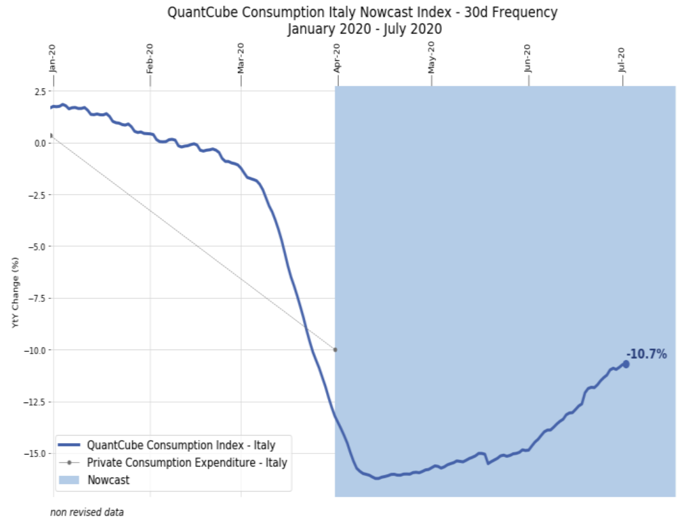
Source: QuantCube Technology

QuantCube Technology Germany Consumption Nowcast index (YoY)



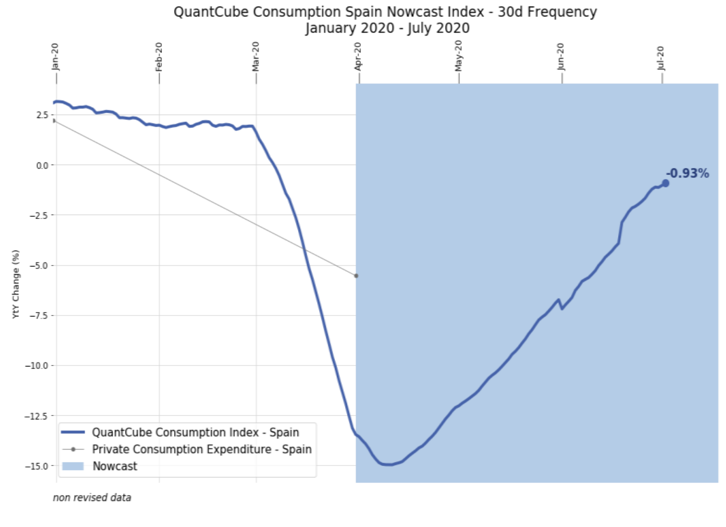
Source: QuantCube Technology

QuantCube Technology Italy Consumption Nowcast index (YoY)



Source: QuantCube Technology

QuantCube Technology Spain Consumption Nowcast index (YoY)



Source: QuantCube Technology

For the Eurozone, the G4 Consumption Nowcast indexes point at a strong rebound of consumption in May and June after it collapsed in March-April. This is consistent with the 4.7% QoQ decline in Q1 private consumption and the rebound in May retail sales, from -21% to -7% compared to their February level. For June, the continuation of the strong recovery is consistent with the easing of lockdown measures, which has continued at the same pace as in May. This is also consistent with the rebound of car sales in G4 countries, from -80% YoY in April and -52% in May to -20% in June.

By country, the QuantCube Technology Germany Consumption Nowcast index indicates that German consumption is almost back to its pre-crisis level, which is above our expectations even if we expected German consumption to outperform. For France, Italy and Spain, the Consumption Nowcast indexes confirm that the drop in consumption in March and April was of comparable order of magnitude in these countries (-6.6% QoQ in Q1 and retail sales one third below their trend in April) but suggest that the rebound in May/June is stronger in Spain and weaker in Italy. This is surprising given that May retail sales and June auto sales rebounded more strongly in Italy than in Spain and point at downside risk for our Italy 2020 GDP growth forecast and at upside risks for our Spain growth forecast (that are at -10.5%). we need to see if those risks will be confirmed by the QuantCube Technology Consumption Nowcast indexes during Q3.

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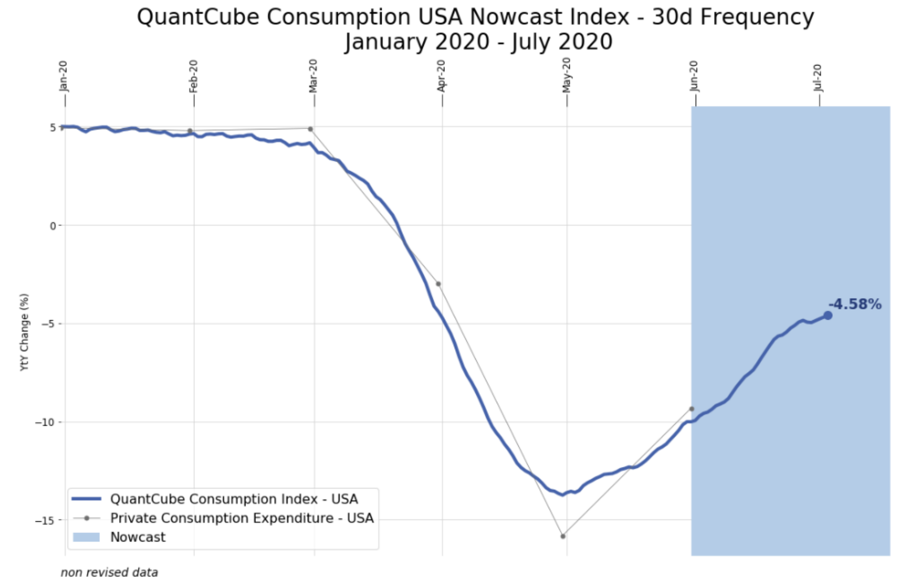
US

Personal consumption expenditures are key to forecasting and analysing the US economy as they make up nearly 70% of GDP, representing by far the largest single component.

As such, the path of personal consumption has an outsized influence on GDP growth and is almost always the largest driver of economic growth or contraction. As personal consumption is published monthly in the US and not just quarterly, the early months in a particular quarter will help to provide a preliminary picture of how GDP is shaping up well before the actual release. While retail sales are generally more of a market-mover, likely due to the fact they are released around two weeks prior to personal consumption and can therefore provide an earlier signal of what is likely to come, personal consumption is more comprehensive as it includes a wider variety of purchases including many in the services category which are not included in retail sales.

QuantCube Technology US Consumption Nowcast index - Year-to-Year variation



Source: QuantCube Technology

Personal consumption in the US has provided a good signal as to where overall growth has headed, starting to drop in mid-to-late March before plunging further in April and slowly beginning to recover beginning in May. As lockdowns began in mid-March in much of the country, consumption began to fall off, dropping 6.6% MoM to a level around 3.0% lower than the year prior. With lockdowns in full force and many businesses shuttered and consumers hunkered down for most of the month of April, consumption plummeted further at a record-setting 12.6% MoM pace, representing a YoY decline of 15.8%. As lockdowns began to ease in May, consumption started to recover, indicating that April may have represented a trough. Personal consumption jumped 8.2% MoM in May, though given the magnitude of the declines in prior months, still has a ways to go to catch up to the pre-crisis level as it remains down 9.3% YoY.

QuantCube Technology's US Consumption Nowcast index suggests that personal consumption has continued to rebound strongly in June, even after the number of new cases started to raise strongly again in mid-June. That said, the level of the index at the end of June indicates that consumer spending remains well below its normal level. Going forward, we expect the recovery to continue but at a relatively slow and gradual pace. QuantCube Technology's US Consumption Nowcast index will help us to check if we are right in a timely manner.

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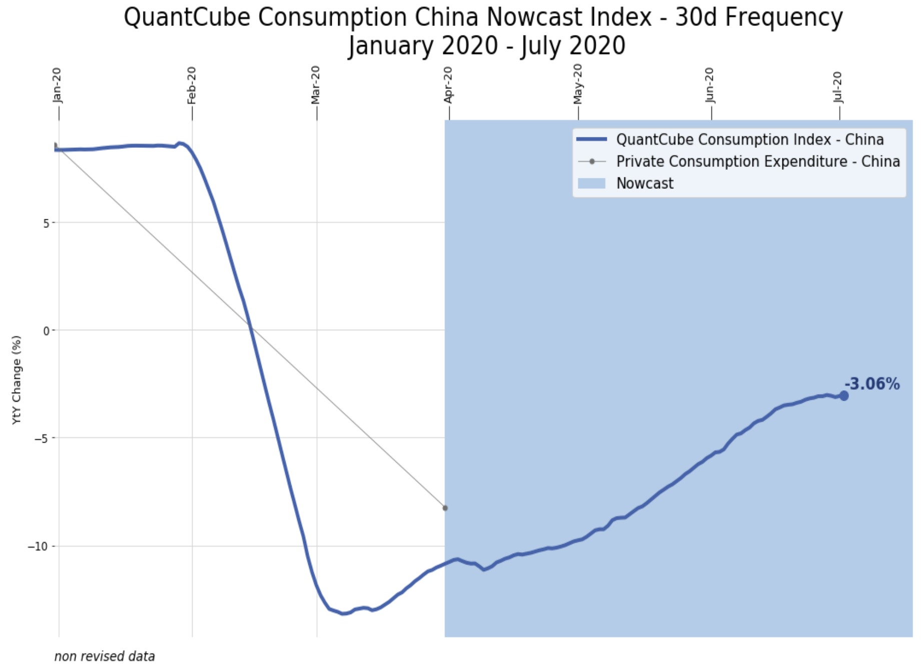
China

Private consumption expenditures are important for forecasting China's economy and analysing its performance. This is because they correspond to 21.7% of GDP: they account for 56.1% of final consumption expenditures by households, which in turn make up 38.7% of total economic output. Hence, predicting the evolution of private consumption expenditures makes it possible to get a good grip on how this key segment of the economy is performing. This is particularly relevant for the assessment of GDP growth sustainability, since, ultimately, household consumption is what underpins overall demand in the economy. Nota bene, markets do not pay as much attention to this indicator as they should, perhaps due to its low (quarterly) frequency and its relatively short history.

QuantCube Technology China Consumption Nowcast index - Year-to-Year variation



Source: QuantCube Technology

The China Consumption Nowcast index points to continued sharp contraction of nominal private consumption expenditures in Q2, by about 7% YoY p.c. This would be a somewhat smaller decline than in Q1, when expenditures shrank 8.2% YoY p.c., but still a very negative result. Such an outcome would be worse than what many other traditional indicators of economic activity, both hard and soft, point to. For example, manufacturing production, car sales and PMIs have already returned to positive growth, some as early as the beginning of Q2.

That said, even traditional data shows that demand is lagging supply, and household demand in particular. For example, in the first two months of Q2, nominal retail sales growth averaged a negative 5.2% YoY, although trends point to a smaller contraction than for the whole of last quarter than the Nowcast results suggest. However, the gap can be explained by the fact that retail sales include a portion of government spending, which could have been stronger than private sector demand.

Overall, the recent performance of the China Consumption Nowcast index creates some downside risks to our Q2 GDP forecast of an expansion of 2.5% YoY. It also casts a degree of doubt on the overall strength of Chinese recovery suggested by a broad swathe of other data. However, the results are not too detached from these other indicators to change the favourable big picture, especially considering that private consumption expenditures account for only approximately a fifth of GDP.

Market implications of the continued contraction of private consumption expenditures is that the recent bout of risk-on sentiment towards RMB assets may have been excessive. In particular, investors' belief that there will likely be no further traditional monetary easing in the near term contradicts the economy's needs for further stimulus.

This would imply that the PBoC may well still reduce the required reserve ratio soon, and that, hence, the current levels of CNY ND IRS rates and China Government Bond yields are probably too high, especially at the short end of their curves. After their recent rally, it may be a good time to receive the rates and buy the bonds.

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