S&P Global
Ratings

White Paper

Introducing Our Credit Cycle Indicator

June 27, 2022

This report does not constitute a rating action

Abstract

We are trialing a proprietary Credit Cycle Indicator (CCI) at the macro geographical level. This tool consolidates information about indebtedness, asset prices, and financing conditions by geography. It has five components: corporate and household debt leverage, equities and house prices, and our proprietary Financing Stress Indicator (FSI).

We believe the CCI could provide a leading indicator of credit stress. Comparisons with various indicators including credit spreads, net rating downgrades, and bond defaults show the peaks in the CCI tend to precede negative credit developments by six to 10 quarters. This holds regardless of which stress indicator the CCI is tested against. Moreover, when the CCI's upward trend is prolonged or the CCI nears upper thresholds, the associated credit stress tends to be greater.

This tool does not capture all risk factors, such as exogenous shocks and industry-specific elements. The CCI is also not rating criteria. Rather it is intended, at this stage, to initiate discussion about macro credit risks at our Credit Conditions Committee meetings.

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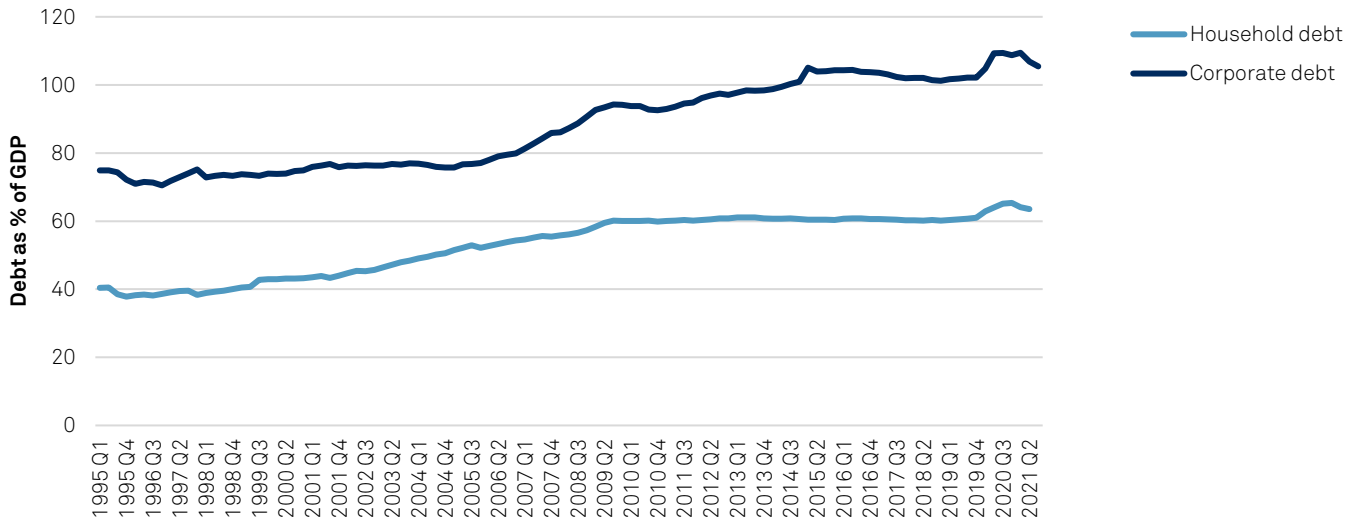
1. Introduction

1.1 Developing A Leading Indicator For Credit Stress

Since the global financial crisis, major central banks have generally kept accommodative monetary policies in place to help the global economy and financial markets find a more solid footing. Until recently, these policy stances had been extended or further eased during COVID-19 to counter the pandemic's economic and financial disruptions.

Chart 1

Household and Corporate Credit As Percentage Of GDP--Global Average



Source: Bank for International Settlements, S&P Global Ratings.

Most market participants would agree that central banks helped to avert deeper recessions and market stresses. Nonetheless, the prolonged favorable financing conditions may be contributing to the buildup of leverage across corporates and households (see chart 1) and inflation of asset prices. Rising leverage and asset prices tend to increase the risk for periods of high credit and economic stress.

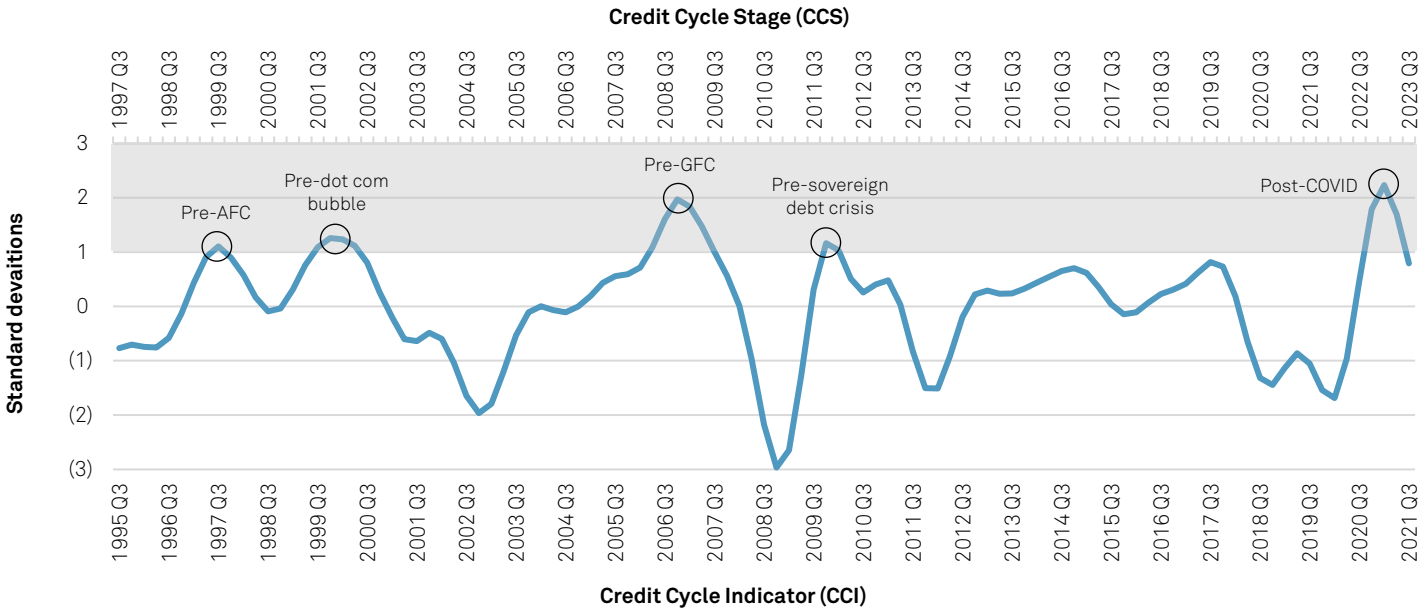
Given such correlations, S&P Global Ratings developed and is trialing its proprietary Credit Cycle Indicator (CCI). This tool tracks and consolidates leverage, asset prices, and market liquidity by economy and region, and is designed to be a leading indicator for potential credit stress. The CCI will serve to facilitate discussions and provide another input at our Credit Conditions Committee forums. We hold these forums quarterly, or sometimes on an event-driven basis, to assess macroeconomic forecasts, credit risks and their potential rating impact on various asset classes, as well as borrowing and lending trends.

In terms of intended usage, the CCI consolidates signals of trends in credit quantity, asset prices, and financing conditions over time, as well as on the buildup of potential credit stress. As a scaled, consolidated measure, the CCI is presented in units of standard deviations away from the long-term average, which is represented as 0 (see detailed methodology in the following sections). For example, chart 2 shows the global CCI level from first quarter (Q1) 1995 to third quarter (Q3) 2021.

Large peaks in the CCI tend to precede major episodes of credit stress by 18 months to three years, and most of these peaks were more than 1 standard deviation away from the long-term average. To highlight this, most graphics have two scales, with the top scale representing the Credit Cycle Stage (or CCS)—this is simply the period eight quarters forward from CCI's inputs.

Chart 2

Global Credit Cycle Indicator



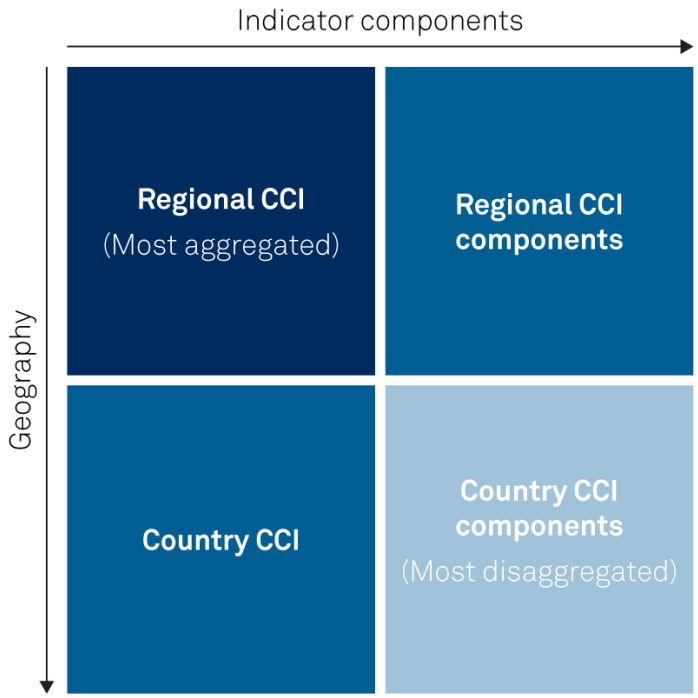
Source: S&P Global Ratings. Note: AFC--Asian Financial Crisis, GFC--Global Financial Crisis. CCI sample period ends in 2021 Q3. Credit Cycle Stage (top x-axis) refers to the date 8 quarters after the concurrent reading of the CCI or its components (at the time indicated on the bottom x-axis). This is meant to emphasize that potential credit stress outcomes as suggested by the CCI's movement typically happen with a lag.

We note that the CCI has increased to relatively high levels since the onset of COVID-19. In our view, these observations warrant detailed examination.

Secondly, the CCI can be disaggregated over multiple levels and across dimensions to help identify individual countries and/or areas (e.g., debt leverage, asset prices, financing conditions) where risks may reside (see chart 3). There is also a global CCI and four regional CCIs, covering Asia ex-Japan, emerging markets, the eurozone, and North America. From the regional CCIs, a particular country or indicator component can be examined by further dissecting the data (e.g., non-financial private sector leverage and asset prices, by households or corporates).

Chart 3

Disaggregating The Credit Cycle Indicator



Source: S&P Global Ratings.

We intend to update the CCI data quarterly, analyze any signals and nuances it might provide, and use it as a tool to support the discussion of key macro-credit risks at our regular internal Credit Conditions Committee forums. It is important to note that the CCI is not S&P Global Ratings criteria.

The rest of this white paper goes as follows. The remainder of Section 1 provides the academic grounding for the CCI. Section 2 describes the data sources and quantitative approach in detail. Section 3 presents back-testing results. Section 4 concludes with the interpretation of the CCI and its limitations.

1.2 Foundations Of The CCI In Academic Research

Before we detail the inputs and methodology for building the CCI, we highlight some key research papers that helped inform these decisions. This is by no means meant to be a comprehensive literature review, nor does it attempt to note the seminal works in this area. The purpose is to lay out our foundational basis for the CCI.

Greenwood et al (2021) suggest that credit-to-GDP growth beyond a certain threshold, either to households or non-financial corporates, can raise the probability of entering a financial crisis in the next three years. This probability increases further if asset price growth (house prices for households, equity prices for corporates) goes beyond a certain threshold at the same time.

Drehmann, Borio and Tsatsaronis (2012) focus instead on identifying peaks in the medium-term cycles of the levels of credit/GDP and house prices, but similarly find that these peaks tend to be followed by financial crises.

These papers examine the role played by debt accumulation and asset price inflation in building up to financial crises. While our focus is not on predicting financial crises, these research results and the references therein nonetheless shed light on what indicators could provide leading information on credit risks.

2. Approach

2.1 CCI Inputs

Given the foundations provided by academic research, the CCI takes into account five inputs (see table 1). In selecting the specific sources for each of these inputs, we prioritize those that provide quarterly time series for at least the past 15 years (preferably with longer histories), and cover as many countries as possible based on consistent definitions per concept.

Table 1

CCI Inputs

Input	Database	Source
Credit to the household sector, as a % of GDP	Credit to the non-financial sector	Bank for International Settlements
Credit to the non-financial corporate sector, as a % of GDP	Credit to the non-financial sector	Bank for International Settlements
Real house-price indices	Property prices: selected series	Bank for International Settlements
Equity price indices, deflated by CPI	Bloomberg, International Financial Statistics	Bloomberg, International Monetary Fund
Financing Stress Indicator		S&P Global Ratings

Source: S&P Global Ratings.

Our proprietary Financing Stress Indicator (FSI) aims to include a measure of regional market liquidity.

Only households and non-financial corporates are captured in the analyses. While financial institutions are important components of the economy, it is households and businesses that ultimately take on debt that can build up, with spillovers to the health of the financial sector. This is also similar to the approach taken by both Greenwood et al (2021) and Drehmann, Borio and Tsatsaronis (2012).

We exclude sovereign debt due to counter-cyclical practices to increase government spending when the private sector is ailing. Including sovereign debt could thus distort underlying trends. We also think credit data inclusive of sovereign debt masks private-sector credit imbalances in the country-level CCIs.

As such, for analyses of credit imbalances in the financial and sovereign sectors, we recommend S&P Global Ratings' Banking Industry Country Risk Assessment and sovereign ratings research, respectively.

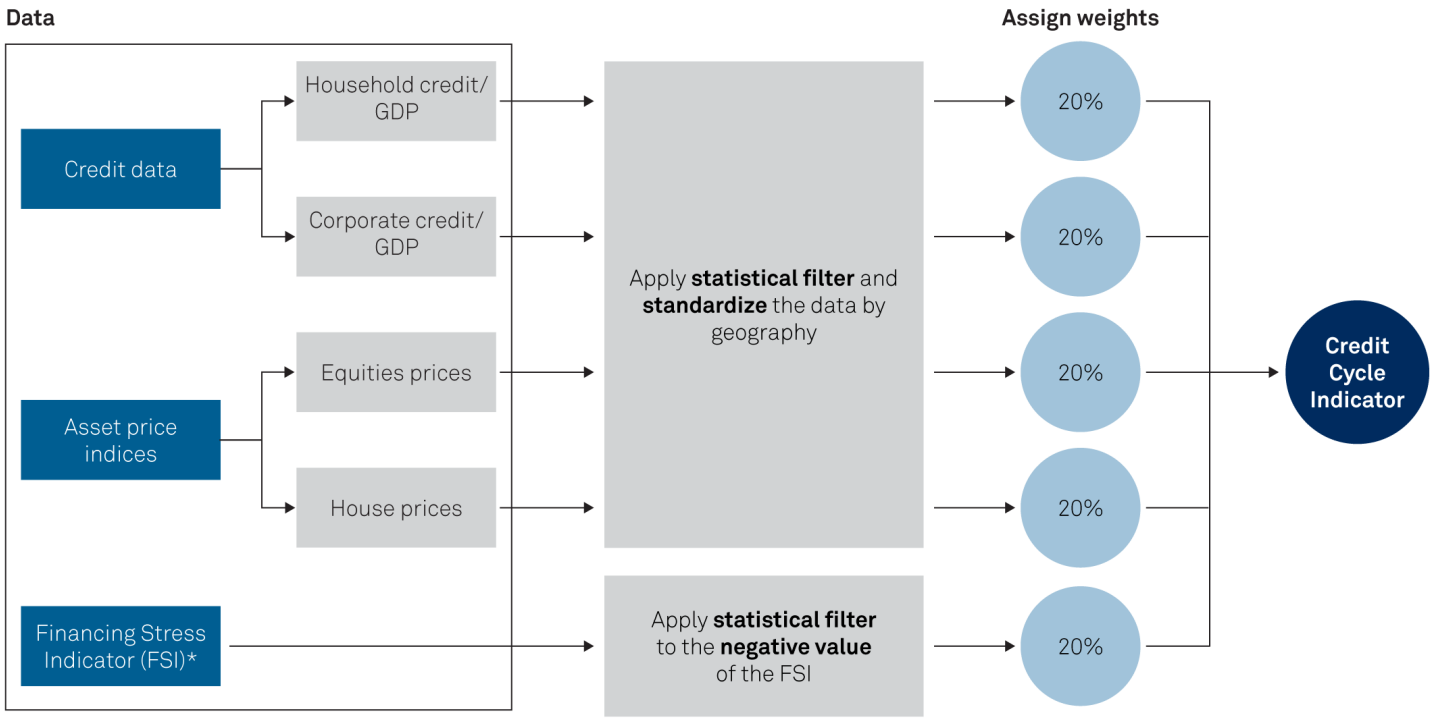
2.2 Credit Cycle Indicator: Approach

Chart 4 provides a schematic for the approaches taken to calculate the Credit Cycle Indicator. These take three phases:

- Raw data
- Data transformations
- Weighted sum and final standardization

Chart 4

Credit Cycle Indicator Schematic



*This is an in-house proprietary tool. Source: S&P Global Ratings.

2.2.1 Raw Data Organization

Raw data on credit and asset prices are organized by economy, as this is the first stage of aggregation for the CCI. Regional and global CCIs are then calculated as simple averages of each country-level CCI.

However, FSIs are only computed at a regional level: the U.S., Eurozone, Asia ex-Japan, Australia and New Zealand (AXJ), Emerging Markets, and Global. As such, each country takes the most relevant regional FSI input. Countries that do not fit in the above regional classifications are assigned the Global FSI input (for example, the U.K., Japan, Australia, Czech Republic).

The first two columns of Table A1 in the appendix list the countries covered and the FSI input that each one takes for the CCI.

2.2.2 Data Transformations: Statistical Filter

When working with time series, it is important to be cognizant of properties that could cause spurious inferences in analyzing them. Long-term trends, high-frequency noise, and seasonal patterns are not relevant for cyclical analysis. Moreover, structural shifts and other things can cause statistical properties of a time series to change over time and invalidate the inferences made about their trends (more technically referred to as unit roots).

To address all these issues, we use the statistical filter suggested by Christiano and Fitzgerald (2003) on all inputs. Specifically, the filter we apply:

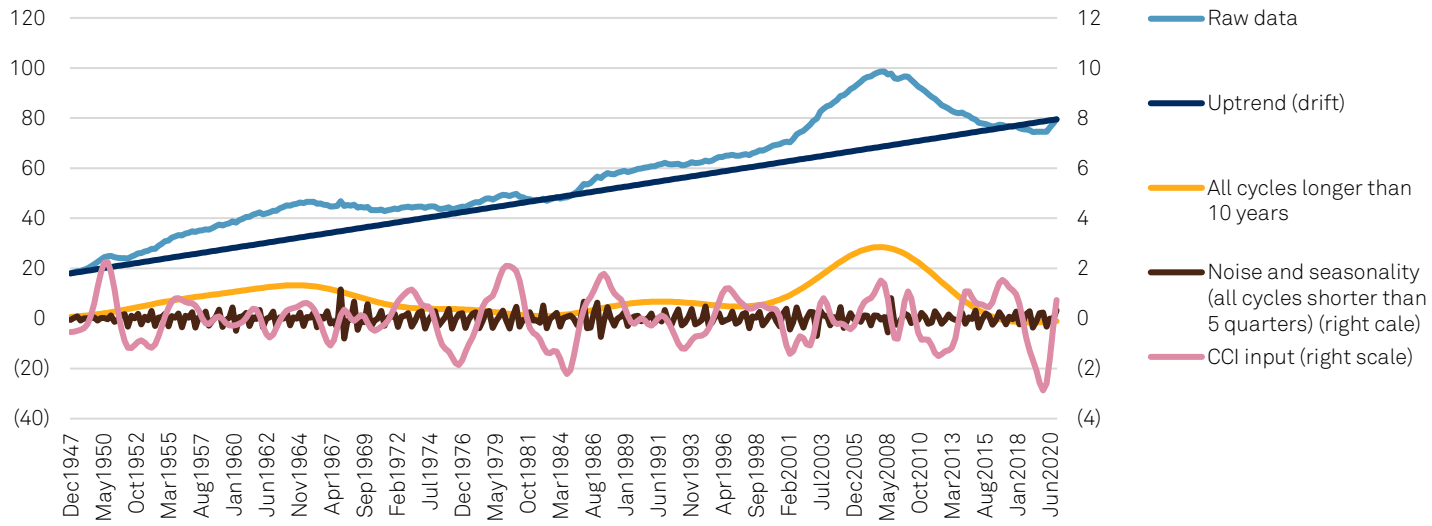
- Removes the drift or long-term trend;
- Removes cycles in the time series that happen at periodicities of less than five quarters (noise and seasonality);
- Removes cycles in the time series that happen at periodicities of greater than 10 years.

Chart 5 further illustrates what the filter achieves, using the example of U.S. household debt as a percentage of GDP. The blue line is the raw data, which the Christiano-Fitzgerald filter splits into various components that sum up to that original time series.

The dark blue line is the long-term trend and the yellow line is the set of cycles in household debt that happen at periodicities of over 10 years. These are informative about developments over very long stretches of time, but their relatively large movements could obscure some key changes over shorter periods. The brown line shows the noise and seasonal components, which due to their fleeting nature are not relevant to the analysis of the broader credit cycle. After removing all these, the pink line is kept for use as an input into the CCI, representing the short-to-medium-term cyclical components of credit quantity and asset price developments.

Chart 5

Christiano-Fitzgerald Filter Applied To U.S. Household Debt To GDP



Source: Bank for International Settlements, S&P Global Ratings.

This filter has the advantage over other band-pass filters in that it does not require cutting out the first and last few observations of the sample. It also has the advantage over the widely used Hodrick-Prescott (HP) filter in that it solves the latter's end-point bias problem.

Note that business cycles are often described as happening at frequencies of between 1.5 and 8 years. We chose to keep cycles of between 1.5 and 10 years, slightly longer. This is in keeping with the results of Drehmann, Borio and Tsatsaronis (2012), which noted that medium-term movements are as important in analyzing the credit cycle. However, we capped the length of the cycle we analyze at 10 years, as periodicities over that might not be as informative on the basis of quarter-to-quarter monitoring. We recommend looking at these in conjunction with the raw data series levels of the various inputs to generate a fuller understanding of the overall credit picture.

2.2.3 Data Transformations: Further Specifics

Various transformations are performed on the individual time series inputs before applying the Christiano-Fitzgerald filter. These are detailed in Table 2, along with how the transformation affects the units of the input after the filter.

Table 2

Transformations Of The Inputs Before Applying The Christiano-Fitzgerald Filter

Input	Transformation Before Filter	Units After Filter
Credit/GDP (Households and Non-financial Corporates)	None	Deviation from long term cycles, in percentage points of GDP
Asset Prices (Equity and House Price Indices)	Natural logarithm	Deviation from long term cycles, in %
Financing Stress Indicator (FSI)	Negative of the natural logarithm	Positive readings indicate how much looser conditions are than historical average, measured in standard deviations from the long term cycle

Source: S&P Global Ratings. Note: To avoid taking log of a negative number, the FSI is subjected to a level shift upwards, with the magnitude of the shift determined by its most negative reading.

After transforming and filtering each input, the resulting time series are all scaled to a 0 mean and standard deviation of 1, to ensure that they all have comparable units.

2.2.4 Weighted Sum And Final Standardization

We then take all five inputs for each country and calculate the country CCI as their equally weighted sum[1]. This calculation is only done beginning from the time period in which all five inputs are available–i.e., the maximum available history for any CCI begins in Q1 1995, when the FSIs begin. Sub-indicators for households and corporates are also calculated as the average of the relevant filtered inputs for credit and asset price.

[1] We tried other weight schemes, but the back-testing results were the best under equal weighting.

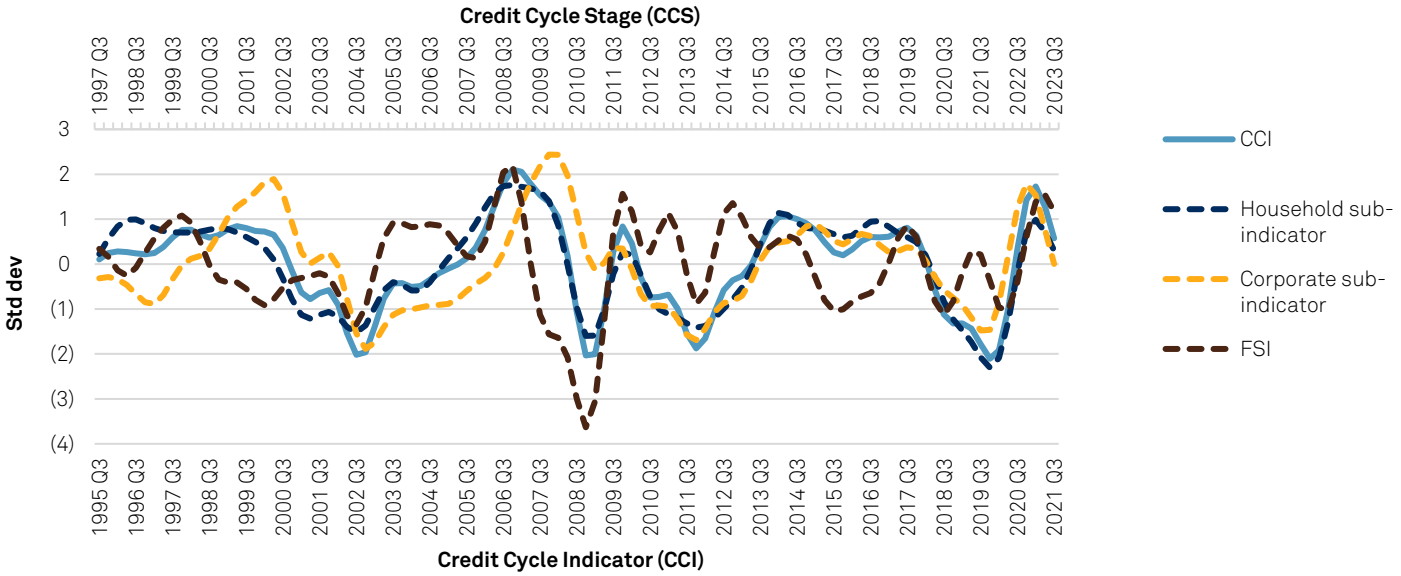
These other weights were: i) principal components-based, ii) 25% each for household/corporate credit and house prices and 12.5% each for equity and FSI, iii) 1/3 FSI, 1/6 each for the rest, iv) 30% for each credit variable, 15% for each asset price, 10% for FSI.

One possible area for further exploration is to use different weights per region.

The country CCI and the sub-indicators are then scaled as well, to ensure that they all have mean 0 and standard deviation 1. As such, all CCIs are in units of standard deviations away from historical average. Chart 6 gives an example of the outputs for the U.S.

Chart 6

Country-Level CCI And Its Sub-Indicators: U.S. Example



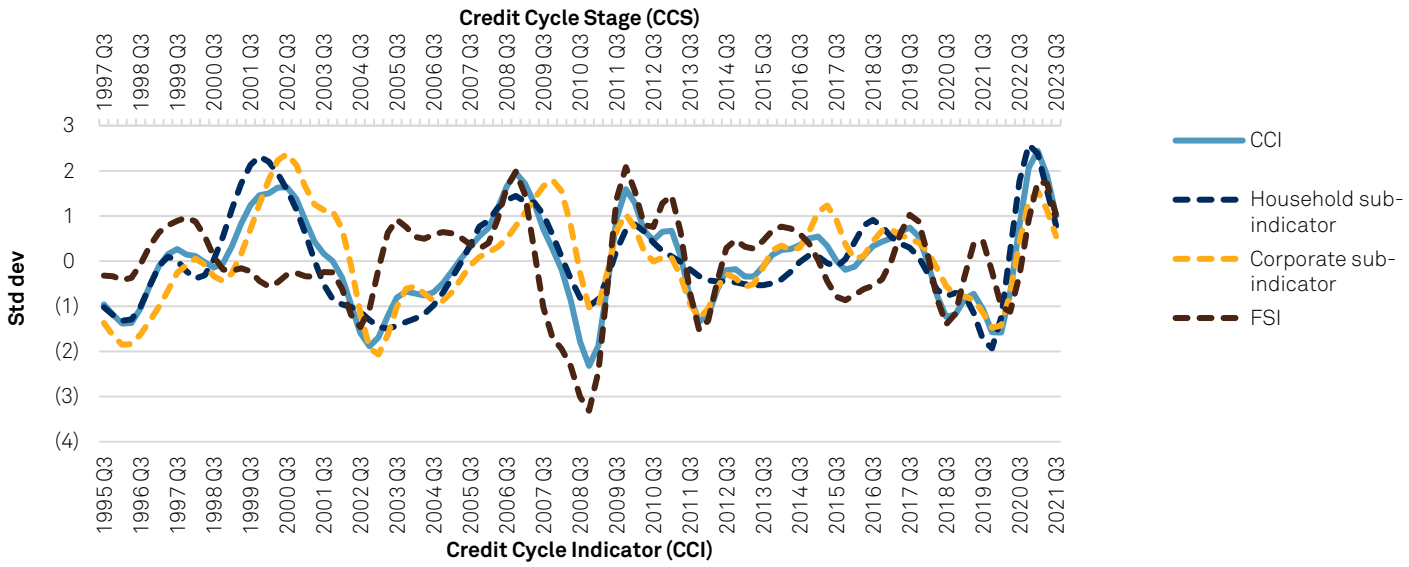
Source: S&P Global Ratings. Note: CCI sample period ends in 2021 Q3. Credit Cycle Stage (top x-axis) refers to the date 8 quarters after the concurrent reading of the CCI or its components (at the time indicated on the bottom x-axis). This is meant to emphasize that potential credit stress outcomes as suggested by the CCI's movement typically happen with a lag.

Country-level CCIs or their sub-indicators are then averaged across country groupings to come up with the regional and global versions. If a country CCI is not available in a certain time period, the region's CCI for that period is calculated as the average of the remaining ones. The resulting time series are then rescaled one more time.

See table A1 in the Appendix for the set of countries included in each regional CCI. Chart 7 shows the Eurozone CCI as an example of a regional aggregate.

Chart 7

Regional CCI And Its Sub-Indicators: Eurozone Example



Source: S&P Global Ratings. Note: CCI sample period ends in 2021 Q3. Credit Cycle Stage (top x-axis) refers to the date 8 quarters after the concurrent reading of the CCI or its components (at the time indicated on the bottom x-axis). This is meant to emphasize that potential credit stress outcomes as suggested by the CCI's movement typically happen with a lag.

3. Testing

In this section, we explore the properties of the Credit Cycle Indicator with a focus on its ability as a leading indicator for credit stress. We do so in three ways:

- Comparison between CCI peaks and the most well-known stress periods in each region.
- Graphical comparison between CCIs and either rating actions or interest rate spreads.
- A simple statistical test of the lead-lag relationship between the CCIs and either rating actions or defaults.

All these back-testing procedures are done only on the regional level, except for the U.S. This is because the data that we are comparing the CCIs against are either widely available only for regional aggregates (e.g., interest rate spreads), or that country-level ratings data are thin in a number of geographies.

The sample periods used for the last two are from 1995 Q1 to 2021 Q3.

3.1 CCIs And Well-Known Stress Periods

While this tool is not designed to predict financial crisis per se, given the overlap with credit stress, we explore its prediction ability in this area. We start with a preliminary "sense check" to see if the CCI provides some information on the most well-known stress periods in each region. This is done graphically, given a limited number of major stress periods since 1995 (when the CCIs begin) to derive strong statistical results from such a comparison.

As noted above, chart 2 showed that the Global CCI peaked at readings above +1 standard deviation well ahead of the Asian Financial Crisis, the dot-com bubble, the Global Financial Crisis, and the European sovereign debt crisis.

We replicate this exercise for each region (see chart 8):

Chart 8

Regional CCIs And Well-Known Stress Periods

Chart 8a

North America

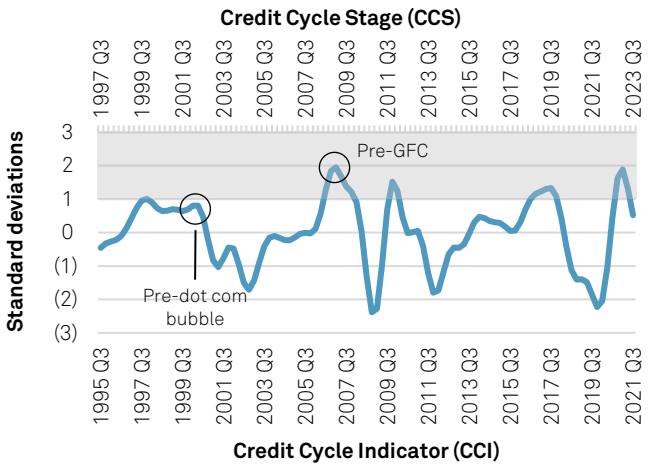


Chart 8b

Eurozone

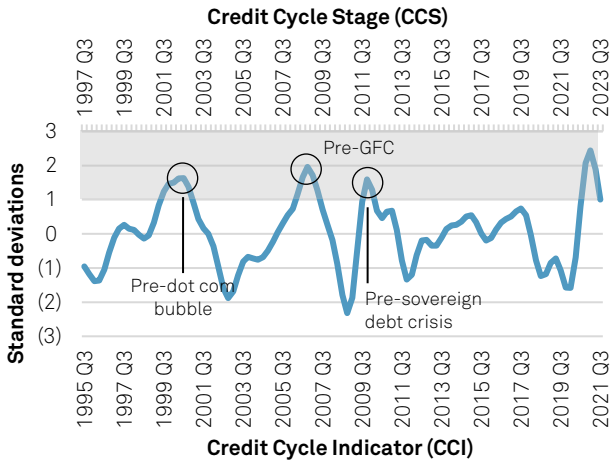


Chart 8c

Asia ex-Japan

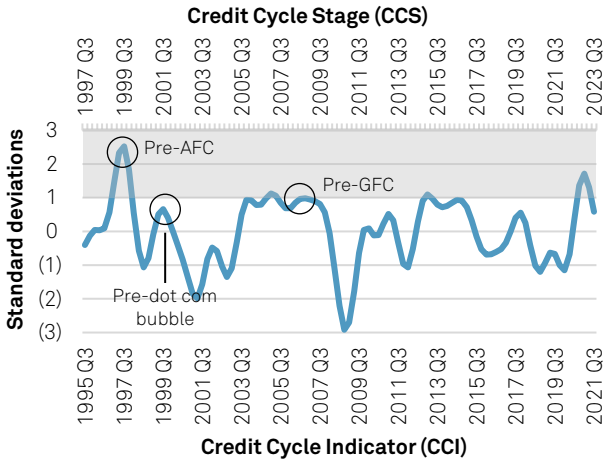
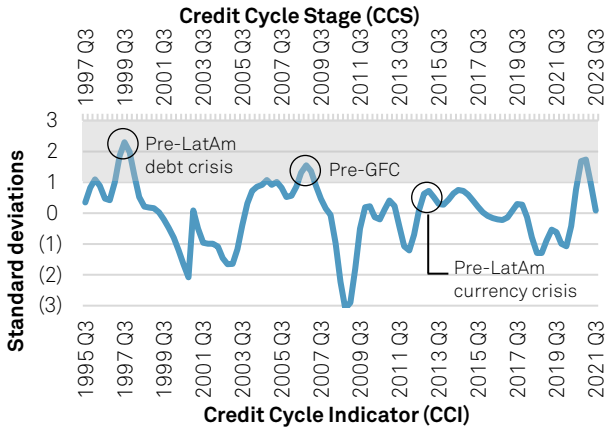


Chart 8d

Emerging Markets



Source: S&P Global Ratings. Note: CCI sample period ends in 2021 Q3. Credit Cycle Stage (top x-axis) refers to the date 8 quarters after the concurrent reading of the CCI or its components (at the time indicated on the bottom x-axis). This is meant to emphasize that potential credit stress outcomes as suggested by the CCI's movement typically happen with a lag.

Overall, peaks in the CCI appear to indicate future stress periods, especially when they surpass a certain threshold. For example, all regional CCIs peak at or above +1 standard deviation ahead of the GFC. Key regional stresses are also preceded by CCI peaks. The Asian Financial Crisis shows up primarily in the AXJ CCI, and is also the highest peak for that region's history. The South American economic crisis in the late 90s and early 2000s, the burst of the dot-com bubble in early 2000s, and the European sovereign debt crisis are all reflected in a similar manner in the respective regions' CCIs.

However, not every CCI peak is associated with major stress periods. This may point to limitations of the tool which, again, is not expressly designed to predict financial crises. Or it may warrant more examination to understand why economies can sometimes safely pass through periods of credit stresses--and what mitigating factors allowed such relative safe passage. We discuss further below.

3.2 Comparison Of CCIs With Spreads And Ratings Actions

In fact, while CCI peaks do not always precede financial shocks or other well-known stresses, they still correspond with some form of strain in the credit markets. This is demonstrated by overlaying the CCI with real market data such as risk premiums (as measured by interest rate option-adjusted spreads) or our own rating actions.

Chart 9 shows the regional CCIs plotted against the corresponding high-yield spreads. In each case, major peaks in the CCIs tend to be followed by spikes in high-yield spreads after one to three years. Higher CCI peaks tend to be followed by higher spikes in spreads.

Chart 9

Credit Cycle Indicator And High Yield Spreads

Chart 9a

U.S.

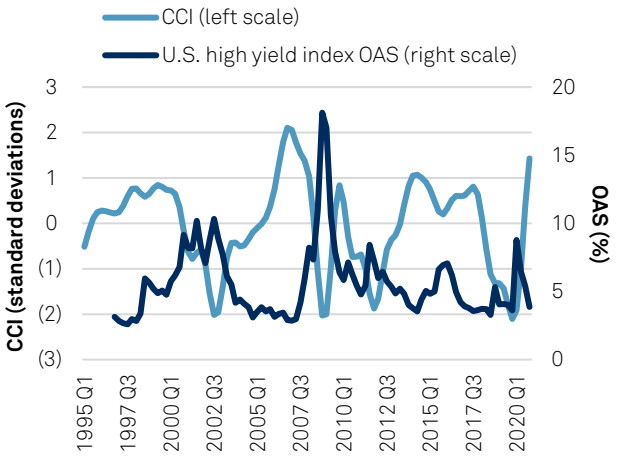


Chart 9b

Eurozone

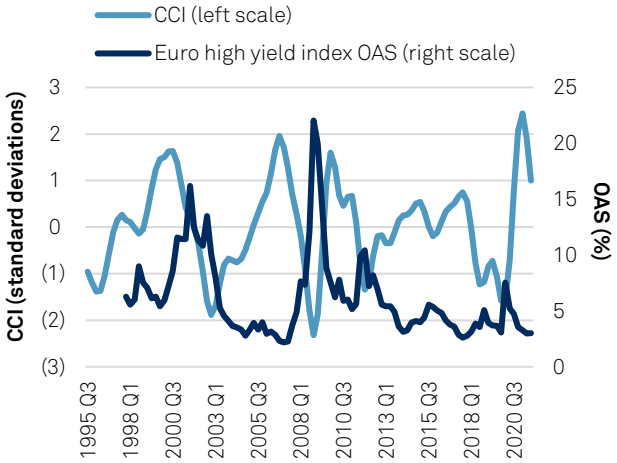


Chart 9c

Asia ex-Japan

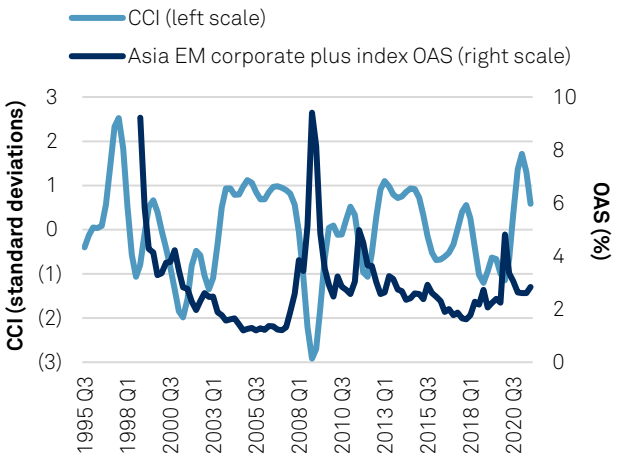
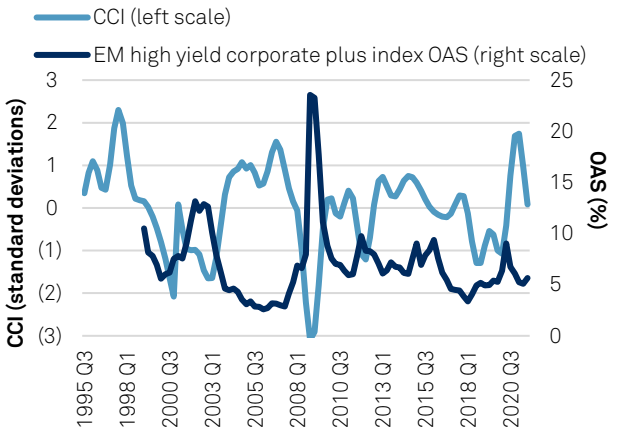


Chart 9d

Emerging Markets



Source: ICE BofA, Federal Reserve Bank of St. Louis, S&P Global Ratings. Note: Sample period ends in 2021 Q3. EM--emerging markets. OAS--option adjusted spreads.

Net downgrades–the number of downgrades plus defaults minus upgrades among the financial and non-financial corporates we rate–could also indicate difficult periods in credit markets. In Chart 10, we plot net downgrades in each region with the corresponding CCIs. Once again, peaks in the regional CCIs tend to be followed by peaks in net downgrades after one to three years. This relationship is much weaker for the EM and AXJ CCIs especially before the mid-2000s, when the ratings universe there was far smaller.

Chart 10

Credit Cycle Indicator And SPGR Net Downgrades

Chart 10a

U.S.

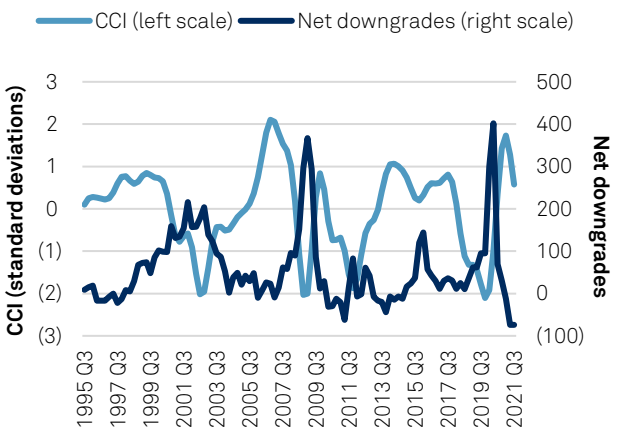


Chart 10b

Eurozone

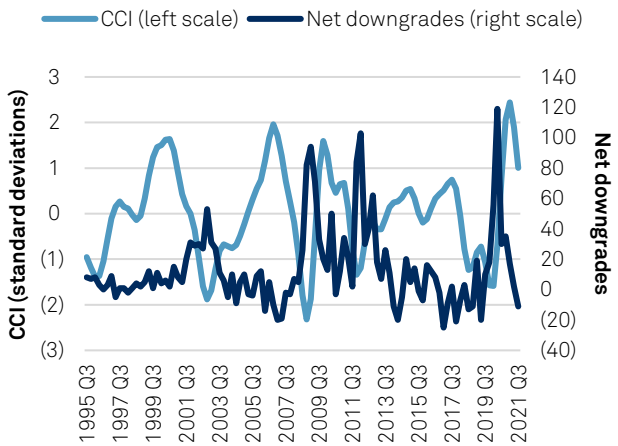


Chart 10c

Asia ex-Japan

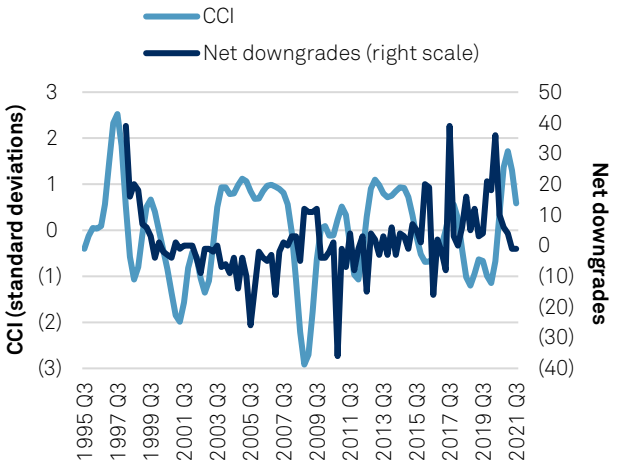
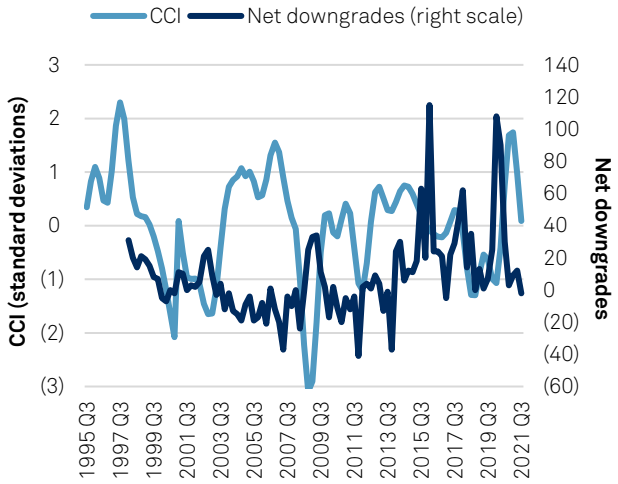


Chart 10d

Emerging Markets



Source: S&P Global Ratings. Note: Sample period ends in 2021 Q3. Net downgrades is number of downgrades + defaults – upgrades.

Note that the spikes in spreads and net downgrades in 2019-2020 do not correspond to the CCIs of the same year but to the peaks in the CCIs in 2017-2018. The 2020 increases in downgrades and spreads were definitely pandemic/oil price related, but the impacts appear to have been amplified by the peak in CCIs two years prior.

3.3 How CCIs Lead Credit Stresses

The previous sections showed how CCIs tend to peak well-ahead of credit stress periods–but how long is this lead relationship? We conducted two statistical procedures to help illuminate this.

Chart 11 shows parts of the cross-correlation matrices between each regional CCI and the corresponding net downgrades. These present the correlation of current CCIs with net downgrades at various numbers of quarters later. Due to the far smaller total number of rated entities (<100) at the beginning of the sample for EM and AXJ, we restrict the samples below to Q1 1998 onwards for these two regions.

Chart 11

Cross-correlations Between The Credit Cycle Indicator And Future Net Downgrades

Chart 11a

U.S.

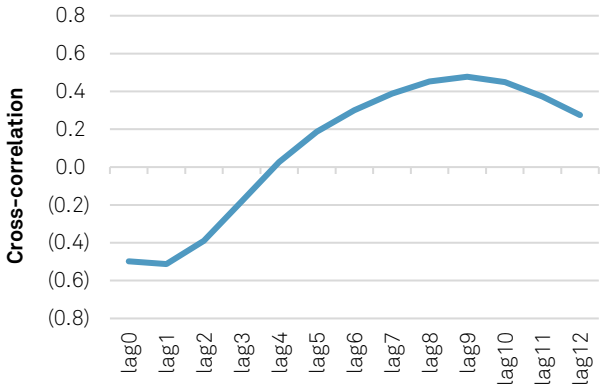


Chart 11b

Eurozone

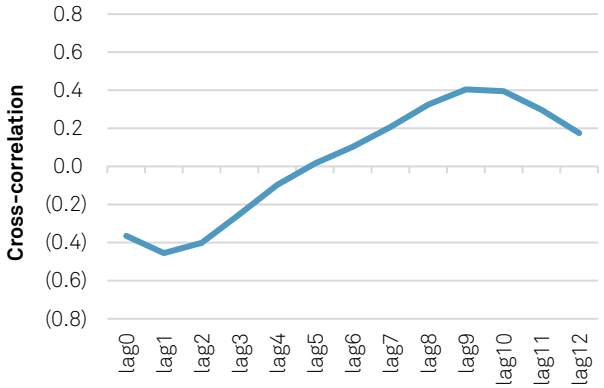


Chart 11c

Asia ex-Japan

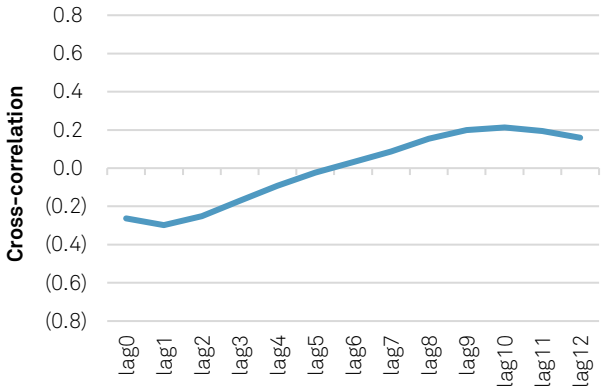
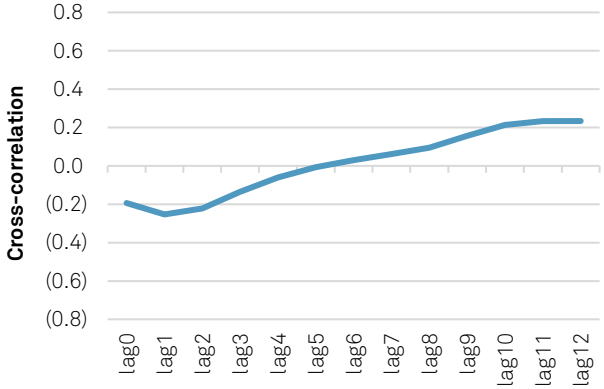


Chart 11d

Emerging Markets



Source: S&P Global Ratings. Note: Net downgrades is number of downgrades + defaults – upgrades. Sample is quarterly from Q11995 to Q32021 for the U.S. and Eurozone, and from Q11998 to Q32021 for EM and AXJ.

The concurrent correlations (at lag 0) and the first few lags are all negative. This could be explained by the fact that credit excesses tend to start building up during "good" times with characteristics such as healthy economic growth and improving business conditions, and as a result, with fewer net downgrades. However, as credit excesses accumulate, they tend to lead to higher credit stress down the road. Indeed, a CCI peak precedes a rise in net downgrades a number of quarters later. For the U.S., the cross-correlation is statistically significantly positive six quarters later and onwards. In the eurozone, a lag of seven to 11 quarters. For EM, from lag 10 onwards, while for AXJ, it happens for lag 10.

The peak cross-correlation coefficients for the U.S. and the eurozone are relatively high at 40%-50%. For AXJ and EM, these peak at lower levels due to the far smaller rated universe in these regions, even in the shorter, more recent sample[2].

Another way to look at the lead-lag relationship might be gleaned from conducting the cross-correlation exercise with the quarterly default rates instead (measured as the defaulters on the pool of existing ratings at the beginning of each quarter). These are shown in chart 12. The results are qualitatively similar to those for net downgrades, especially for the U.S. and the eurozone. However, correlations for EM and AXJ are much lower and not statistically significantly different from zero. For these regions, the much smaller number of rated issuers adds a lot more noise to the default-rate data.

[2] We also conducted Granger causality tests between the regional CCIs and their corresponding net downgrades series. For the U.S. and the eurozone, which have far better coverage of data, the CCI granger causes net downgrades, but the reverse is not true. There is no significant granger causality either way for EM and AXJ, potentially due to the small rated universes there.

Chart 12

Cross-Correlations Between The Credit Cycle Indicator And Future Quarterly Default Rates

Chart 12a

U.S.

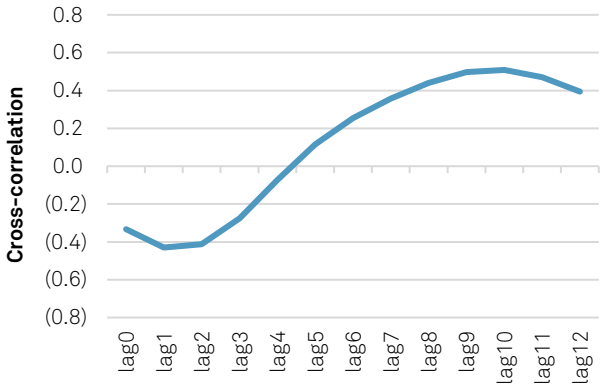


Chart 12b

Eurozone

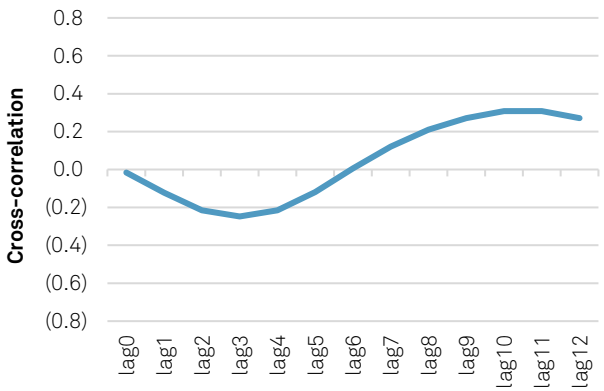


Chart 12c

Asia ex-Japan

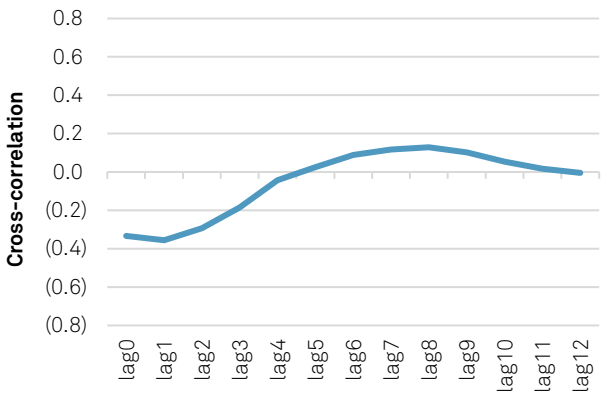
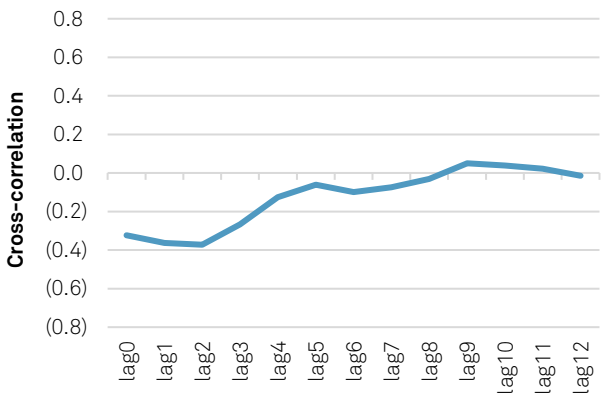


Chart 12d

Emerging Markets



Source: S&P Global Ratings. Sample is quarterly from Q11995 to Q32021 for the U.S. and eurozone, and from Q11998 to Q32021 for EM and AXJ.

Overall, these statistical results confirm our graphical sense checks, in that CCIs do tend to lead periods of credit stress, measured either with net downgrades or defaults. This lead time tends to be six to 10 quarters, with EM and AXJ more likely to be at the upper end of that range (although as longer historical data with a larger EM rated universe becomes available, this might eventually prove to be closer to the lead time of the other regions).

We would also note that due to the release schedule of the CCI's inputs, the availability of the CCI tends to lag real time by two quarters. This shortens the lead time of CCI readings to at least four quarters in practice.

4. Conclusion

4.1 Interpretation

The CCI can serve as a leading indicator for potential credit stress and can flag excesses or imbalances that might be building up in the private non-financial sector.

In achieving these purposes, we recommend looking at a combination of three aspects when interpreting CCI data:

- Level–the current magnitude of the CCI reading;
- Trend–general direction of movement over the past few quarters;
- Momentum–how fast the magnitude of the CCI has changed.

In terms of levels, based on Charts 2 and 8, +1 standard deviation away from the historical mean appears to be a rough threshold for more difficult credit stresses following CCI peaks. However, we would caution against taking this threshold too literally. Aside from where CCI stands, equally important is whether the CCI has been trending up or down, and how quickly such trend has been unfolding. For example, a sharper increase in CCI may indicate a quicker buildup of credit stress, and hence warrant additional risk assessment.

Finally, the ability to aggregate and disaggregate across geographies and subcomponents also provides a valuable tool for homing in on specific risks.

4.2 Limitations And Caveats

- The CCI is not designed to capture all factors that affect credit risks. For example, this indicator has no information on factors exogenous to financial systems such as pandemics.
- This is a tool to facilitate and inform discussions about credit risks. It is meant as a starting point rather than as a final analytical tool. Further data analysis and/or expert judgement is always necessary when reading the results.
- We note elements of uncertainty in the lead time from CCI signals to credit variables. Uncertainty is greater on the threshold at which a CCI peak might signal a key stress event, especially for regions outside of the U.S. and the eurozone, where our credit data has smaller samples.
- The CCI is not ratings criteria. It is merely one of the many sources and tools that analysts may use in developing their views. CCI results do not supersede nor signal rating actions.
- As mentioned in Section 3.3, the CCI is not available on a real-time basis. Its interpretation needs to take into account the time delay in data availability.

4.3 Potential Areas For Further Exploration

We close with potential areas of future research.

- Explore alternative weight systems – weights could be region-specific and data-driven.
- Test whether the CCI provides some signals on industry-specific credit variables.
- Conduct a deeper comparison of the CCI with related indicators or academic results.
- Test whether the CCI can help define where we are in the credit cycle.

5. References

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6. Appendix

Table A1

CCI Country Coverage

Country	FSI Input	Regional CCI
Australia	Global FSI	None
Austria	EZ FSI	Eurozone
Belgium	EZ FSI	Eurozone
Brazil	EM FSI	EM
Canada	Global FSI	North America
Chile	EM FSI	EM
China	AXJ FSI	AXJ
Colombia	EM FSI	EM
Czech Republic	Global FSI	None
Denmark	Global FSI	None
Finland	EZ FSI	Eurozone
France	EZ FSI	Eurozone
Germany	EZ FSI	Eurozone
Greece	EZ FSI	Eurozone
Hong Kong SAR	AXJ FSI	AXJ
Hungary	Global FSI	None
India	AXJ FSI	AXJ and EM
Indonesia	AXJ FSI	AXJ and EM
Ireland	EZ FSI	Eurozone
Israel	Global FSI	None
Italy	EZ FSI	Eurozone
Japan	Global FSI	None
Korea	AXJ FSI	AXJ
Luxembourg	EZ FSI	Eurozone
Malaysia	AXJ FSI	AXJ and EM
Mexico	EM FSI	EM
Netherlands	EZ FSI	Eurozone
New Zealand	Global FSI	None
Norway	Global FSI	None
Poland	EM FSI	EM

Portugal	EZ FSI	Eurozone
Singapore	AXJ FSI	AXJ
South Africa	EM FSI	EM
Spain	EZ FSI	Eurozone
Sweden	Global FSI	None
Switzerland	Global FSI	None
Thailand	AXJ FSI	AXJ and EM
Turkey	EM FSI	EM
United Kingdom	Global FSI	None
United States	US FSI	North America

Source: S&P Global Ratings. Note: The choices for inclusion into the EM CCI were made to match S&P's Emerging Markets Credit Conditions Committee coverage.

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