Global Investment Research | Multi-Asset

Building the FTSE Russell financial conditions indicator

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Executive summary

– Evidence of market failure and the importance of financial conditions in the great recession of 2008-2010 revived interest in financial conditions indicators (FCIs), both for economic and financial forecasting and analysis.

– Many FCIs summarise the relevant information in a large data-set by a small number of linear combinations, standardising data by Z-scoring.

– This worked well during the GFC, but these larger factor models are exposed to structural change in financial systems that change appropriate weights.

– We adopted a simpler averaging technique across intuitive macro variables in building FTSE Russell FCIs, for the US, Canada, Eurozone, UK, Japan and China. These FCIs allow the underlying variables to contribute to the FCIs at all times, and make it easier to identify shocks and underlying investment narratives.

– In the FCI construction, we took steps to eliminate look-ahead bias, to ensure the historical scoring accurately reflects financial conditions at that time, and does not score against data known only in the future.

– Our results still show the GFC to be the greatest adverse shock to major financial systems since 2000, but the scale of the shock is more modest than shown by other FCIs which accord larger weights to credit and leverage, like the Chicago FCI for the US.

– For the UK, we also find that the initial Brexit shock in 2016 was as severe as Covid in its impact on financial conditions, and that Covid was barely more severe in its impact on financial conditions than higher rates and yields in 2022-23.

– In future research, we will explore the linkages to different asset class performance as financial conditions oscillate, and whether there are clearly defined periods of out-performance by risk-on, and risk-off assets.
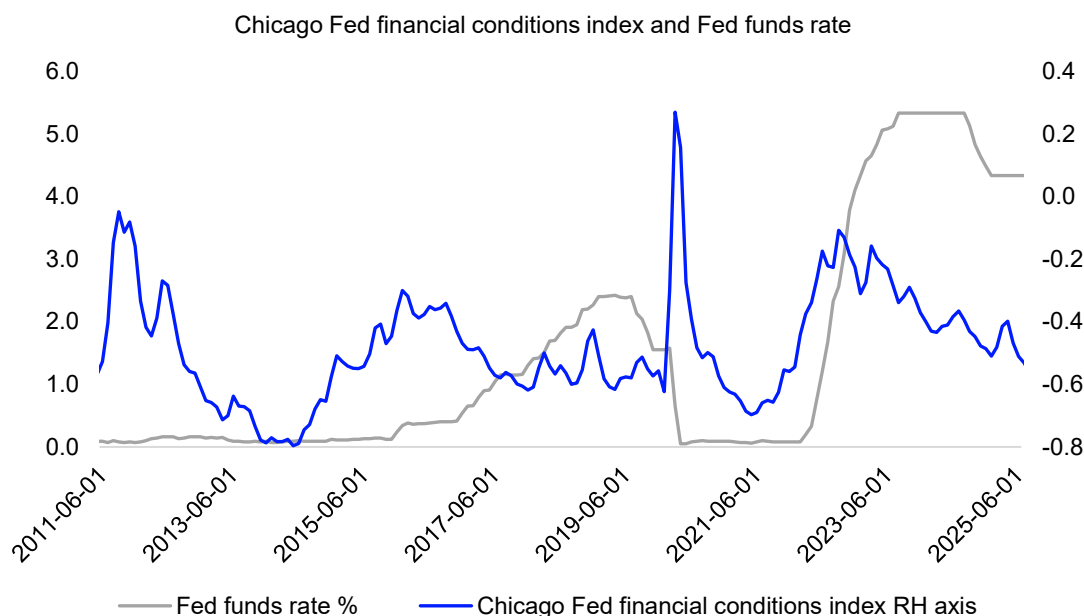
Financial conditions indicators (FCIs) provide key signals for investors and policy-makers…

Financial conditions are an imprecise concept, and not measurable without looking at a range of variables[1] – one variable alone, like a central bank policy rate, does not fully capture broader financial conditions. The GFC was a good example of this, since financial conditions had begun to deteriorate well in advance of adjustments in Fed policy rates. More generally, it is well known broader financial conditions do not mechanically adjust with central bank monetary policy. Indeed, financial conditions (FCs) often tighten or loosen independently of central bank policy changes, since policy changes are often well signalled to markets in advance. More recently, some US financial conditions indicators

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[1] How do we monitor UK financial conditions, Bank of England, April 2021.

(FCIs) began easing well before the US Fed finally reduced rates in September 2024, as Chart 1 shows, using the Chicago Fed FCI as a guide.

Chart 1: Fed policy rates and financial conditions

Chicago Fed financial conditions index and Fed funds rate

Fed funds rate % ——— Chicago Fed financial conditions index RH axis

Source: US Federal Reserve, July 2025

Given this complexity, building a financial conditions indicator (FCI) requires judgement in deciding which variables to include, and also being clear about what questions the FCI is being built to answer, i.e., is it to assess the impact of financial conditions on the real economy, and outlook, or to give clues about financial market performance, or both? Does it provide signals for switching or changing allocations between risk-on and risk-off assets, and vice versa? Is it vulnerable to regime change?

Some form of composite FCI removes the need to assess several individual variables. In addition, FCIs have a range of uses for investors and policy-makers for their aggregate impact on markets. Firstly, they may provide important information for markets on prospects for future economic growth and the build up of risks to the outlook, by signalling how tight or loose FCIs may be. Secondly, for policymakers, they can supply information about the risks arising from a discrete, non-linear shock to economic activity. Thirdly, they inform investors on how far central bank policy easing, or tightening, is reaching broader financial conditions, and whether the transmission mechanism of monetary policy may be compromised.

...and are generally built from a wide range of credit, loan and financial data

Reflecting these use cases, the linkage between the GFC and the deep recession that followed, and the range of financial and economic data available, most published FCIs rely on a wide range of indicators, drawn from financial markets and the banking system. They often assume collinearity[2] between these indicators, so they can be collapsed into a much smaller set of factors by linear combinations, comprising the main FCI, drawing on the factor model literature.

Chicago Fed NFCI is a well-known example, including the shadow banking system…

The Chicago Fed National FCI (NFCI) is one of the best known of these indicators, and includes some 105 variables, in 3 groupings – credit, leverage and risk. These include credit indicators, drawn from both securitised markets, the banking and shadow banking systems, and financial indicators, including credit and swap spreads, the 10s/2s yield curve, Repo delivery failures, interbank deposit spreads and the trade-weighted US dollar index[3]. The weighting methodology gives added weight to indicators that are highly contemporaneously correlated with each other ("systemically important") and are best able to explain its evolutionary patterns "dynamically important".[4]

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[2] Collinearity is defined as correlation between the predictor, or independent, variables in a regression model, such that they express a linear relationship.
[3] For a full list of index weights in the Chicago Fed FCI please see -
http://www.chicagofed.org/digital_assets/others/research/data/nfci/nfci_indicators_list.pdf
[4] See S. Brave and D. Kelley, "Introducing the Chicago Fed's new adjusted National Financial Conditions Index," Chicago Fed Letter, Federal Reserve Bank of Chicago, No. 386, September 2017.

….and FCI weights reflect a variable's ability to explain historical fluctuations

Indeed, in the Chicago NFCI, the absolute value of a variable's weight reflects its ability to explain historical fluctuations in the broader financial system. So looking at the current list of index weights, we find 4 of the highest weights in the Chicago NFCI are credit and asset-backed spreads, reflecting the significance of MBS in the GFC, as Table 1 shows.

Table 1: Highest weights in the Chicago NFCI (%)

S&P Financials/S&P 500 index (relative to 2 yr mov.ave)	-3.57
Bank of America 3-5 yr AAA CMBS OAS spread	3.47
Bank of America/Merrill ABS/5-yr Treasury yield spread	3.39
Bank of America/Merrill High Yield/Moody's Baa corporate bond yield spread	3.22
30 yr Jumbo/Conforming fixed rate mortgage spread	3.17
FRB Senior Loan Officer Survey: Tightening Standards on Small C&I Loans	3.16
CBOE Market Volatility Index VIX	3.10
FRB Senior Loan Officer Survey: Tightening Standards on RRE Loans	3.08
FRB Senior Loan Officer Survey: Tightening Standards on Large C&I Loans	2.94
FRB Senior Loan Officer Survey: Tightening Standards on CRE Loans	2.92

Structural change in financial systems may affect appropriate weights

Structural change in financial systems and tougher regulation may also make these weights less appropriate now, than during earlier periods. Furthermore, high weights for credit and mortgage spreads – due to their collinearity and previous systemic importance - mean some other important variables, which might be assumed to have higher weights, get zero, or near-zero weight.

The Fed funds rate, 2 year and 10 year Treasury yields have weights of only -0.15% to -0.04% (where a negative weight indicates an inverse relationship to the underlying index) in the Chicago NFCI. Negative weights mean an increase in the value of the variable, like the 2 year yield, will cause financial conditions to tighten, and vice versa. The degree of impact is determined by the weight of the variable in the financial conditions indicator, with a higher weight increasing the impact. Spreads are also ambiguous as indicators, as spread tightening may be due to rising Treasury yields rather than improving risk appetite. The other problem is complexity, and the difficulty of interpreting changes in FCIs based on Principal Component Analysis, and built from a substantial underlying set of variables.

A simplified and intuitive process: FTSE Russell index FCI assigns equal weights to capture structural changes

To avoid methodological biases of picking and weighting factors related to specific outcome variables (e.g., GDP growth or market moves), we constructed an FCI based on a smaller subset of variables that are intuitively connected to financial conditions. Unlike central bank FCIs, like the Chicago Fed version, which are concerned with both the real economy and financial markets, our focus is exclusively on financial markets. Our own index includes government bond yields, money market rates, equity valuations, central bank policy rates and balance sheets, the exchange rate, credit spreads, debt/GDP and fiscal deficits, yield curve shape, and money supply growth. To standardise the data, the data is Z-scored. The box attached gives more detail on the FCI calculations.

Box 1: FTSE Russell FCI calculations

By design, our FCI is not optimised to focus on a particular historical period or be correlated with specific macro or market movements. We organise our variables into five general categories: Money Markets, Sovereign Yields, Credit, Currency, and Equity. The variables are z-scored with an expanding window, to avoid so-called "look-ahead bias", which is caused by variables being scored against future data, not known at the time, and may bias the results. The data is lagged by an appropriate "publication lag" if needs be, since economic data is not published in real time, and can be released several weeks later (i.e., GDP data). Where necessary, the data is also inverted, and some variables are converted to a ratio to standardise across countries (i.e., debt/GDP). Z-scores are then equally-weighted and averaged within category to give a category score. Category scores are equally-weighted and averaged across categories to give the country score.

Because the weights are pre-set, we do not deal with common estimation or forecasting problems. The multicollinearity of variables is dealt with by including them in category groups which have fixed weights within the overall model.

This structure also allows us to build similar FCIs across countries despite differences in the availability of data.


To minimise methodological issues from estimating dynamic weighting schemes tied to the forecasting of particular economic or market variables, the FTSE Russell weighting methodology relies on a neutral approach of equal-weighting the variable categories, and of variables within categories. It avoids weighting variables according to previous performance in crises or correlation behaviour, based on the view that structural and regulatory changes in the financial sector may cause correlations and risk factors to change, and impact the stability and the accuracy of the FCI. By restricting the number of variables, we were also able to assess and monitor financial conditions in a broader range of economies: the UK, Eurozone, Japan, Canada, and China, which do not have the

breadth and depth of US securitised markets. This enables comparisons to be drawn between different countries.

Potential circularity makes it important to test FCIs with, and without equities

To address the issue of potential circularity caused by the inclusion of equity variables, we also ran the FTSE Russell FCI both with our equity data, and without. The concern here is a potential feedback loop that could arise if equity valuations are influenced by financial conditions, but then drive future financial conditions and FCIs, in an ongoing loop. In our opinion, a clear economic case to include equity valuations in FCIs can be made, given that they are a key part of the cost of capital or market-based finance for larger companies, and may drive wealth effects for consumers as well, particularly in countries with large capital markets. However, (1) the concentration of equity holdings amongst higher income consumers, which may reduce the wealth effect, and (2) risks of circularity with FCIs also argues against an overweight for equities. Chart 2 shows the inclusion of equities tends to increase the volatility of the FCI, but does not cause directional change.

Chart 2: FTSE Russell US FCI with, and without, equities (Z-scoring)
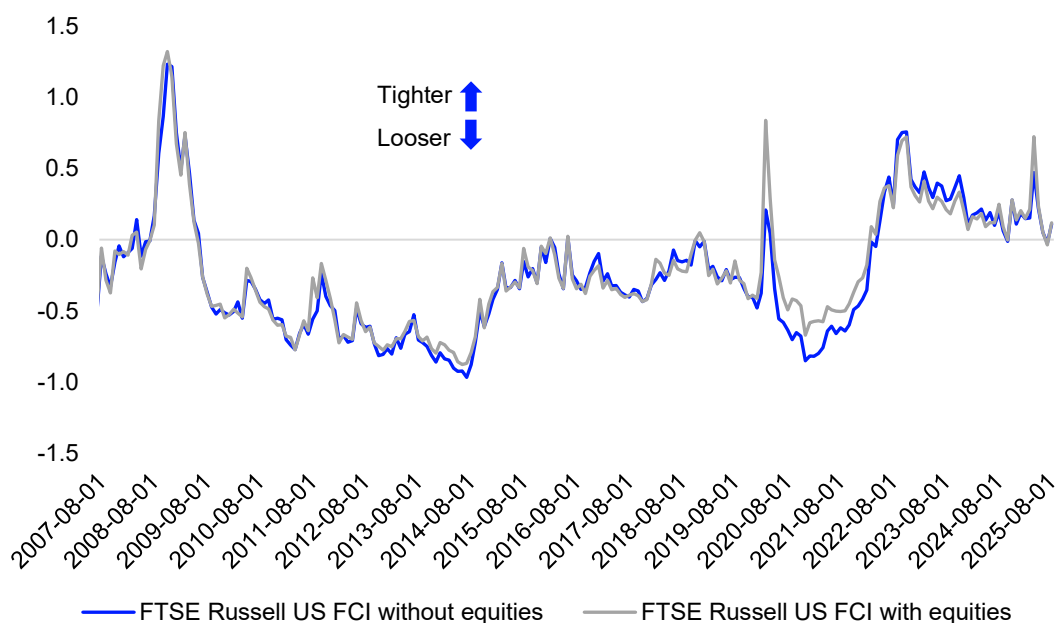
Source: FTSE Russell data, to June 2025.

But also beware "look-ahead bias" in FCIs….

An important statistical and conceptual issue in constructing FCIs is "look-ahead bias" (LAB), which we describe in Box 1, and is the bias that occurs when a study, or simulation, uses data that was not available or known during the time period being studied. Such LAB is a common problem in economic or financial forecasting and modelling, since macro-economic data is not released in real time, and market data may be non-synchronous, i.e., GDP data for the previous quarter is released at least a month later. This problem can extend to market data. For example, some FCIs, including the Chicago FCI, use the implied volatility index VIX, which trades for 15 mins after the trading on the underlying index closes. As a result, the VIX on day t will contain information that will be reflected in stock prices on day t+1, which could exaggerate the predictive power of the FCI. During periods of high volatility in equity markets, this could have significant impact.

…which can distort assessment of financial conditions by indicators with LAB

More generally, if FCI components are being Z-scored for the date t, against an underlying mean, and the mean is calculated on data for t+1 and beyond, the LAB is likely to give a different assessment of financial conditions than if future data, beyond time t, is excluded. This causes bigger divergence in the early stages of a time series, or when financial conditions change quickly, and undergo regime change. For more stable time series, where the standard deviation is low, the impact of LAB will be less pronounced.

…so we remove LAB by lagging macro-economic data where needed

This means FCIs with LAB may give an incorrect impression of the true degree of tightness or looseness of financial conditions historically. As the time series approaches the latest date, there will be convergence between the FCI series calculated with LAB and the series that is not, as the impact of LAB fades, as Chart 3 shows, where we compare the FTSE Russell FCI with, and without LAB[5]. Given these distortions, it is very important to be aware of how far an FCI, built on Z-scoring, is subject to LAB. To remove LAB, we have lagged macro-economic data to avoid using contemporaneous data that was not

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[5] To remove LAB in macro-economic indicators, we have lagged macro-economic indicators by a "publishing lag" for the particular series, generally 1 month.

available at the time, and we calculate z-scores with an expanding data window (see Box above).

FCI evidence from the GFC provides a good example

In 2007-08, just before the global financial crisis in 2008-09, US financial conditions were about as loose as they had been since the early 1990s, on the FTSE Russell FCI without LAB, as Chart 3 shows. But for the FCI series with LAB, financial conditions were only marginally looser than the mean, because the LAB time series captured a long period of near-zero rates and low yields that was ahead. This gave a different assessment of financial conditions using the LAB series, so there was little reason to expect a major market shock lay ahead. Alternatively, when financial conditions tightened, they tightened more relative to the mean with LAB since that reflected the future period of zero rates and QE.

Chart 3: FTSE Russell US FCI, with and without LAB
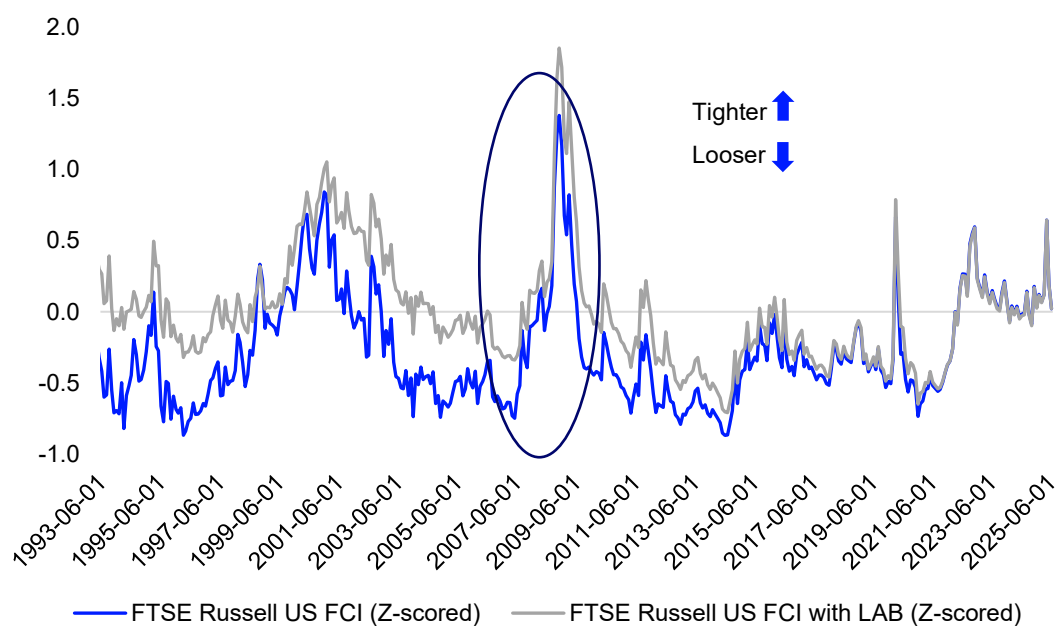
Source: FTSE Russell, data to June 2025.

Auto-correlation and the problem of tailoring indicators to a crisis

Another key issue here is autocorrelation in financial data, and the related issue of adjusting indicators to fit a crisis. Empirical work on the predictive ability of FCIs for equity returns and macro-economic variables shows the best results for the GFC period[6]. In the GFC, financial conditions reached record levels of tightness, and some FCIs gave credit spreads higher weights, after the TED spread widening in 2007-08, boosting the FCIs predictive power. There may also be evidence of threshold effects, where FCIs only become critical when they reach extreme valuation levels, but are less helpful as a guide to economic activity and market performance when they mean-revert.

International comparisons of FCIs

Turning to other countries, where we have built FCIs with the same set of variables[7], we find the FTSE Russell UK FCI shows marked divergence from the UK version that allows look-ahead bias (UK with LAB in Chart 4). This is particularly marked in 1992-94, after sterling left the European exchange rate mechanism (ERM) and devalued rapidly, UK interest rates falling from 14% to 5.1% in February 1994. As a result financial conditions went from being 1 standard deviation above the mean, ie, tighter than average, to 1 standard deviation below the mean, ie, looser than average, in 1-2 yrs. The scale of the easing in financial conditions in 1992-94 broadly matched the scale of the easing after the GFC in 2009-10.

Chart 4 shows that, removing LAB, UK financial conditions have generally been looser than the mean for most of the period since 1992, reflecting the long period of low rates and inflation. Only during the ERM shock in 1990-2, and the GFC in 2008-09 particularly, did financial conditions become much tighter than the mean, and rapid monetary and fiscal policy adjustments mean this tightening in conditions proved short-lived. (The UK FCI with LAB tells the same directional story, but financial conditions generally track closer to the mean because the long period of low rates ahead causes the mean to be lower).

The FCI also enables us to assess both the scale of the respective dislocations to UK financial conditions, after the ERM, GFC, Brexit, Covid and Ukraine shocks, and the impact of subsequent policy easings. Furthermore, the smaller set of variables that we use to build the FCIs makes it easier to see the underlying investment narrative.

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[6] Assessing and Combining Financial Conditions Indexes, Sirio Aramonte, Samuel Rosen, and John W. Schindler, May 30, 2013, US Federal Reserve Board, Finance and Economics Discussion Papers.
[7] Country FCIs have been built for the US, Eurozone, China, Japan, Canada and the UK.

Chart 4: FTSE Russell UK FCI, with and without look-ahead bias (LAB)
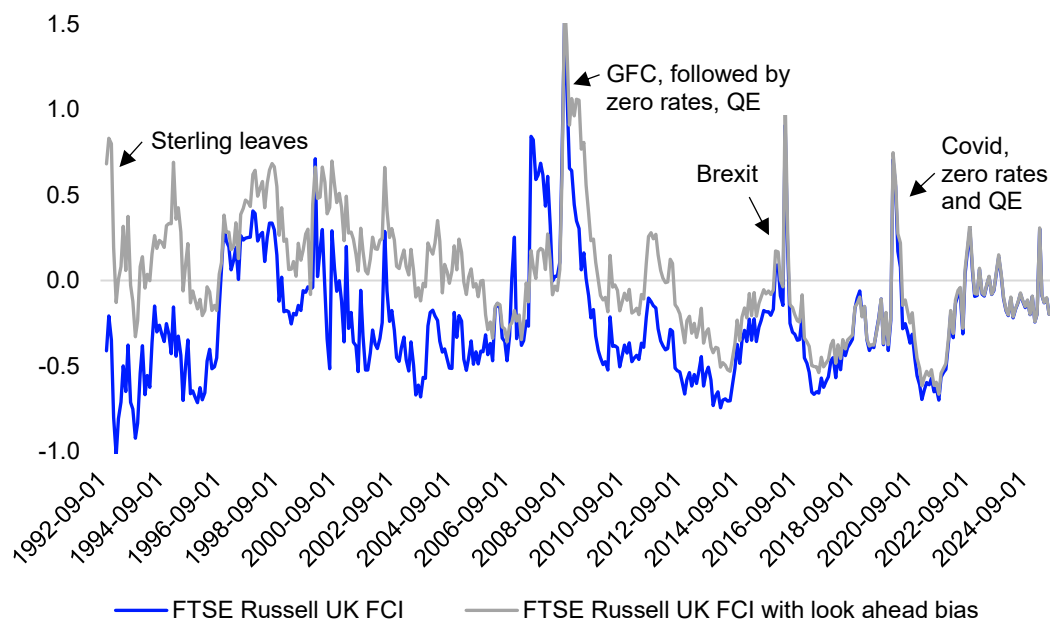
Source: FTSE Russell, data to June 2025.

Comparison between Chicago NFCI and FTSE Russell FCI

Finally, when comparing the performance of the Chicago NFCI and the FTSE Russell US FCI, the Chicago NFCI shows a greater spike, or tightening in financial conditions as the GFC developed, reflecting the higher weighting of credit and MBS spreads, and build-up of debt. The Chicago NFCI also includes a leverage sub-index, which captures a financial accelerator effect as debt increases, which may help to explain the greater standard deviation of the index overall, as Chart 5 shows. But overall, the indicators show strong directional correlation.

We also note that financial conditions have eased more, gauged by the Chicago NFCI, in 2024-25. A higher relative weight for interest rates and bond yields, and a lower weight for credit spreads in the FTSE Russell US FCI likely explains this difference. The FTSE Russell index also picks up a short-lived tariff effect in April 2025, which is barely observable in the Chicago version.

Chart 5: FTSE Russell US FCI and Chicago Fed NFCI

FTSE Russell US NFCI (Z-scored v mean) —— Chicago Fed NFCI (Z-scored v mean)
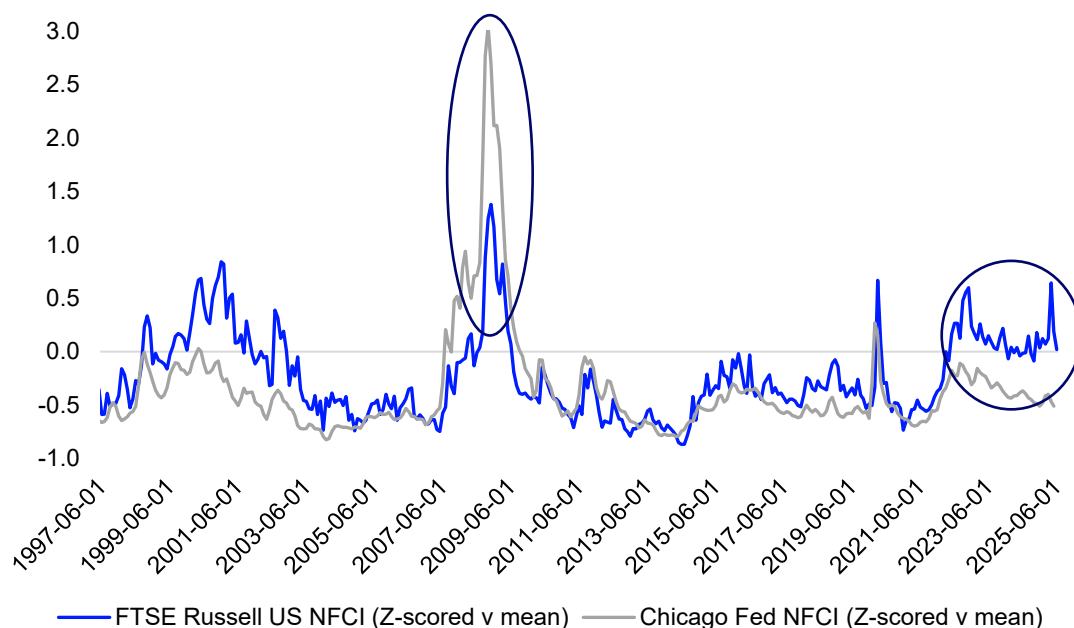
Source: FTSE Russell and US Fed data, to June 2025.

Evidence of the greater standard deviation of the Chicago leverage sub-index is shown in Chart 6, even if the main drivers of the NFCI are the credit and risk sub-indexes, which account for about 80% of the total variation in the Chicago index.

Chart 6: Chicago Fed NFCI and sub-indexes, versus mean

—— Chicago NFCI index   —— Chicago NFCI credit sub-index
—— Chicago NFCI leverage sub-index   —— Chicago NFCI risk sub-index
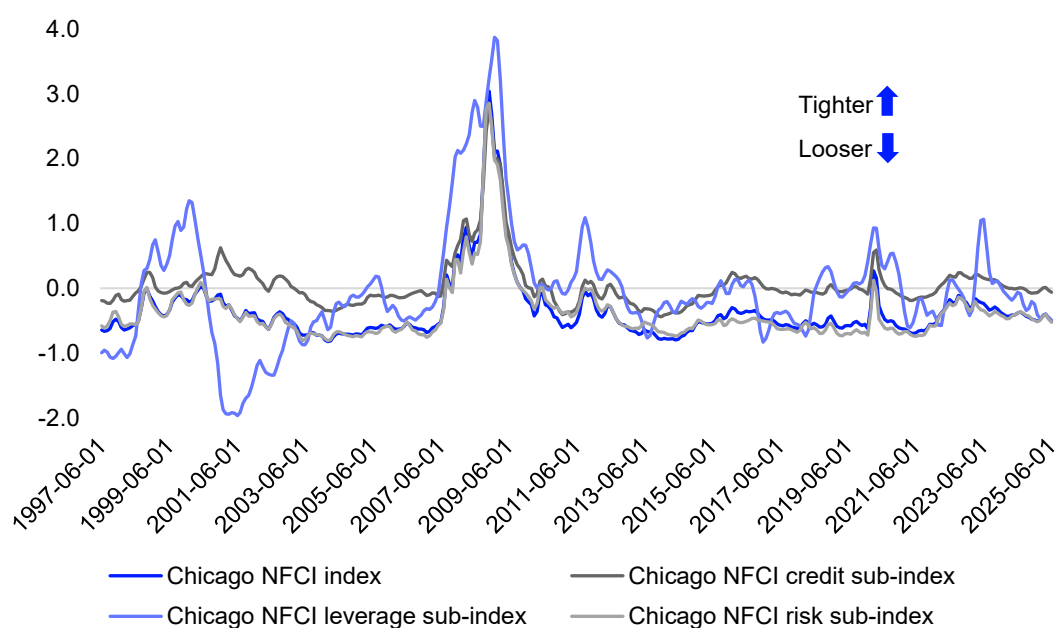
Source: US Federal Reserve. Data to June 2025.

Summary and conclusions

The GFC challenged the notion from neo-classical economics that financial markets were largely self-regulating, allocated resources efficiently and rarely impacted real economic activity significantly.

Evidence of market failure, discontinuities and the importance of financial conditions in the great recession in 2008-10 revived interest in FCIs, both for economic forecasting, and financial market prediction and analysis.

But financial conditions cannot be captured in one variable, like a central bank policy rate, so many FCIs summarise the relevant information in a large data-set by a small number of linear combinations (so-called factors), standardising data by Z-scoring. FCI variable weights are then frequently based on their correlation or ability to forecast variables of interest (Chicago Fed NFCI).

This worked well during the GFC, and drove increased interest in FCIs for market forecasting, but these larger factor models are exposed to structural change in financial systems that change appropriate weights, and the risk of excluding key variables due to their lower systemic correlation.

We adopted a simpler averaging technique across intuitive macro financial indicators in building the FTSE Russell Financial Conditions indicators, for the US, Canada, Eurozone, UK, Japan and China. These FCIs allow all variables to contribute to the FCI aggregates at all times, and are shown in Chart 7.

Chart 7: FTSE Russell financial conditions indicators since 2000
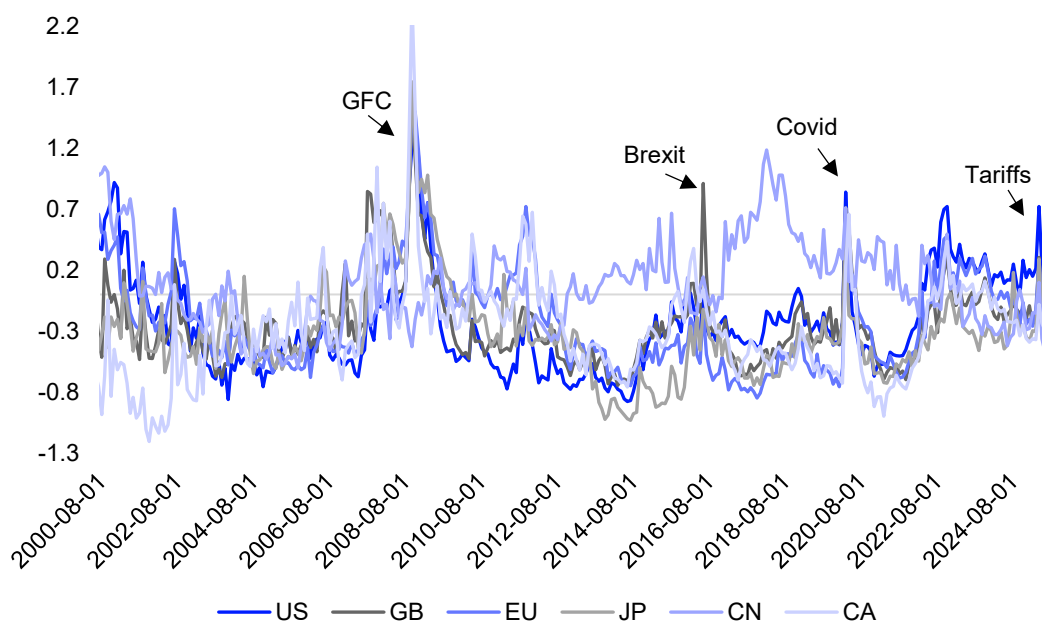
Source: FTSE Russell data, to August 2025.

Also, we have taken steps to eliminate look-ahead bias in the calculation so that the historical scores are an accurate reflection of financial conditions at the time. This is critical for interpreting market reactions to changing financial conditions at that time.

Our results still show the GFC to be the greatest adverse shock to major financial systems since 2000, but the scale of the shock is more modest than shown by other FCIs which accord larger weights to credit and leverage. We also find that in the UK, the Brexit shock in 2016 was as severe as Covid in its impact on financial conditions, and that the Covid shock in 2020 was barely more severe than the impact of the inflation shock and monetary tightening in 2022-23. Finally, we note a discernible, but short-lived tariffs effect in 2025.

In future papers, we intend to explore the linkages to different asset class performance as financial conditions oscillate, and whether there are clearly defined periods of out-performance by risk-on, and risk-off assets.

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