Ayanda Sikhosana and Dawie van Lill

Authorised for distribution by Herco Steyn
herco.steyn@resbank.co.za

Constructing a Financial Conditions Index for South Africa

Introduction

In this paper we introduce a new Financial Conditions Index (FCI) for South Africa. An FCI is an indicator that tries to capture and summarise information from the financial sector that might have a bearing on the functioning of the real economy.[1] Our main goal is to construct an FCI that aggregates important financial market information in a simple and transparent way to assess and effectively communicate the prevailing financial conditions within the economy. In this paper, financial conditions refer to the ability of agents within the economy (such as households, firms and government) to finance their expenditure (Arrigoni, Bobasu and Venditti, 2022).[2]

The two important dimensions for consideration in the construction of the FCI are the selection of appropriate variables and the way those variables are aggregated. We argue in this paper that variable selection is ultimately the most important part in the construction of the FCI. If the variables considered do not reflect the appropriate

---

[1] The banking failures of the early 2000s, the global financial crisis of 2007/8 and the most recent COVID-19 pandemic of 2020 highlighted the linkage between the financial markets and the real economy. There is a large extant literature (see e.g. Allen, Babus and Carletti, 2009; Antony and Broer, 2010; Claessens and Kose, 2017a, 2017b) that looks at the relationship between financial market variables and real economic outcomes.

[2] Financial conditions describe the aggregate state of credit, liquidity, and risk in the financial system, capturing the ease or difficulty with which economic agents can access funds to finance spending and investment. They reflect the cost and availability of credit, the pricing of risk, and investor sentiment, which together influence economic activity, consumption smoothing, and the ability to absorb shocks over time and across sectors.

information set related to financial conditions, then there exists no sophisticated econometric or statistical technique that can appropriately identify the factors that represent financial imbalances.

The most sophisticated methodological setup for building FCIs that are commonly found in academic work are factor models. These techniques allow the researcher to exploit the information in large datasets through data reduction methods. However, sophisticated dimensionality reduction techniques that allow for a large array of variables in the construction of the FCI have a significant drawback. These methods are not always clear about the contribution of certain elements to the index, which makes it difficult to communicate to the public what the driving forces are behind a change in financial conditions.

The South African Reserve Bank (SARB) previously used a factor-based FCI model with time-varying parameters. The benefit of this sophisticated approach is that it summarises information from a broad set of variables and aims to capture the dynamic impact of variables in the index. However, there are several weaknesses of this factor modeling approach in the construction of an FCI. Factor-based methods tend to focus on the similarities between variables, while one of the explicit goals of an FCI is to consider the impact of a heterogenous set of variables that may in different states of nature or over time be relevant for financial stability. Factor-based methods also do not allow for any control over the sign with which the variables enter the index, limiting the index's ability to accurately capture prevailing financial conditions. Factor-based methods also focus attention on past observations to determine the weights associated with the variables considered, which means that factor-based indices potentially neglect new sources of instability. In addition, it is often difficult to determine what the contribution of the variables are to the index, which creates opacity in terms of interpretation of the index. Our findings suggest that a simpler, more transparent model can yield results comparable to those of factor-based indices, making it a viable alternative for capturing financial conditions without the complexities and interpretative challenges.

Most central banks in advanced economies, and some in emerging economies, have developed unique FCIs. While factor-based methods are popular, simpler methods for constructing FCIs are often preferred by major central banks. For example, the Federal

South African Reserve Bank

Reserve Board (FRB) has recently released a simple FCI with weights that correspond to the variable weightings in the FRB/US model.[3] Similarly, the Bank of England (BoE) developed a daily index, the Monetary and Financial Conditions Index (MFCI), to assess financial conditions in the United Kingdom (UK). The index comprises only eight variables which are weighted according to their estimated marginal impact on UK's gross domestic product (GDP) (referred to as a regression weighted scheme).

Common methods for constructing an FCI

There are several different ways to construct FCIs.[4] However, there is no consensus on the most appropriate method. A survey of the literature shows that the majority of indices involve a weighted sum across a range of financial indicators (Hatzius et al., 2010).[5] A general process to develop an FCI entails identifying the intended goal of the FCI, selecting the variables required, and calculating weights associated with the variables to form the index. There are several methodologies to calculate the weights. The primary options used in the literature for calculation of weights for an FCI are aggregation by weighted average, principal components analysis (PCA) or some variant of a factor model. Among these, the most frequently used methods are the simpler weighted average approaches that rely on aggregation across several market indicators.[6] However, in recent years the more complex factor model-based methods have been introduced and have gained popularity in academic circles. In this literature, much of the innovation in FCI construction focuses on the weighting scheme used.

We argue that the weighting scheme is less important than the variables selected, which is in line with the findings of Arrigoni, Bobasu and Venditti (2022). We show that using several different weighting schemes essentially produces FCIs that relay similar information in terms of their assessment of financial conditions. In other words, the specification of the FCI is quite robust across different aggregation methodologies. In this regard, we find simple aggregation methodologies the most compelling. While FCIs that are constructed with factor modeling or time-varying parameters are

---

[3]   The FRB/US model is a macroeconomic model developed by the Federal Reserve Board for forecasting and policy analysis of the US economy.

[4]   For a detailed description of different methodologies used to calculate FCIs refer to Hatzius et al. (2010).

[5]   See the data section for a discussion on the variables used.

[6]   Arrigoni, Bobasu and Venditti (2022) find that equal-weighted FCIs for 18 advanced and emerging economies, covering 70% of world GDP, often perform as well as, or better than, those constructed using complex statistical methods (e.g., principal components, time-varying parameters) in predicting economic tail risks and financial crises.

South African Reserve Bank

beneficial in terms of their ability to summarise information from a broad set of variables and capture the dynamic impact of variables in the index, they may have some significant flaws (Arrigoni, Bobasu and Venditti, 2022). There are four general weaknesses of a factor modeling (or even PCA) approach.

First, factor-based methods are designed to reduce the information contained in multiple variables to single factors. In particular, the methods look to exploit the high level of collinearity that exists among several variables and reduce the dimension of the problem. However, the concern is that the variables that enter the discussion on financial conditions are often quite heterogeneous in nature. This means that factor-based methods might not extract this heterogeneous behaviour from the data. Therefore, the final index that is constructed is likely going to rely on information from a few factors. It is often the case that FCIs that rely on factor-based methods overstate the importance of a certain grouping of correlated variables. In the case of financial conditions, this often means that variables related to credit spreads are the most well represented in the index.

Second, a significant concern with the construction of FCIs using factor-based methods is that the models do not allow for control over the sign with which the components enter the final index. One might want to use expert knowledge on the impact that a specific variable should have on the final FCI. One good example is the exchange rate. The exchange rate will move the FCI in different directions depending on whether you have a large, closed economy or a small open one. For emerging markets, the impact from the exchange rates will be significantly different to that of advanced economies.

Third, the weights that indicators receive are generally based on historical data. However, we have no way of knowing whether the next financial crisis will follow from the deterioration of financial conditions that preceded a previous crisis. That is, some variables that did not receive a large weight in explaining a previous crisis might be the most important contributors to the next crisis. In several composite indices these variables might receive zero weight. One example of this might be the unsustainable fiscal position in South Africa, whereby the excessive creation of government debt adversely affects financial conditions – ultimately culminating in a sovereign debt and

South African Reserve Bank

banking crisis. However, since this was not a contributor to any financial crisis in the past 30 years, it might be underweighted in some models.[7]

Fourth, when considering factor-based and PCA methods, it is often difficult to determine which variables are contributing to the FCI. It therefore becomes difficult to communicate the underlying model construction and output to policymakers and the public.

Following the principle of parsimony, we find that constructing an FCI with simple, equal weights – or with weights selected based on expert judgment – can effectively address many of the limitations associated with more complex methodologies. As demonstrated by Arrigoni, Bobasu, and Venditti (2022), FCIs based on equal-weighted aggregation perform comparably to, and sometimes better than, more sophisticated models in capturing financial conditions. Our analysis for South Africa shows that FCIs generated using various weighting schemes yield similar results, underscoring that the simplest approach is often sufficient for monitoring financial stability.

FCIs for South Africa

Several FCIs have been developed for South Africa. Gumata, Klein and Ndou (2012) estimate an FCI for South Africa using the alternative methods of PCA and a Kalman filter. They find that the PCA-based FCI is a good out-of-sample predictor of GDP growth. Thompson, van Eyden and Gupta (2015) explore different methods for constructing an FCI for South Africa, including full sample and rolling-window PCA. They find that the estimated FCIs are good predictors of economic activity, with the rolling-window FCI performing the best. Similarly, van der Wath (2016) uses PCA with dynamic weights and finds that the FCI leads economic growth by nine months and improves forecasts of GDP growth.

In contrast, Farrell (2021) uses simple average weights to aggregate data into three composite indices capturing asset valuations, leverage in the private non-financial sector, and external conditions, and argues that this allows for a more intuitive interpretation and communication of macro-financial risks to future economic growth.

---

[7] South Africa experienced sovereign debt crises in 1985, 1986, 1987, and 1989 – none of which were associated with banking crises and only in 1985 did it coincide with a currency crisis (Nguyen et al., 2022). This observation stands in stark contrast with the experience of emerging market countries since the 1980s.

South African Reserve Bank

Kasai and Naraidoo (2013) also use an equal weighted average to estimate an FCI for inclusion in a monetary policy reaction function for the SARB. Quantec (2007) estimates an FCI, of which its components are weighted according to their estimated marginal impact on manufacturing production, to assess overall financial conditions and serve as an indicator for the transmission of monetary policy.

The original SARB FCI utilises a factor-based model with time-varying factor loadings and time-varying volatility (Kabundi and Mbelu, 2021). The benefit of using this model is that it captures information from a wide array of macroeconomic and financial time series (Arrigoni, Bobasu and Venditti, 2022). The reason to use this type of model is the belief that the relationship between financial conditions and the real economy has changed significantly with time.

The previous method employed by the SARB is among the most sophisticated in the literature. However, we show that the benefit of using this method is overshadowed by the cost in terms of interpretability. In addition, since this method is so complex, there exists a much larger burden on the researchers to effectively communicate the inner workings of the model to policymakers and the public. We show that similar results can be achieved using a simpler and easier to explain model.

Variable selection

The effectiveness of an FCI fundamentally hinges on the quality of the variables chosen for its formulation. There are several strategies for selecting these variables, with one widely adopted method involving the categorisation of variables into different groups. This approach is aligned with the core definition of financial conditions, which centers on the capacity of economic actors to finance their spending. Consequently, the most frequently selected categories of variables encompass those providing insights into interest rates, asset prices, credit extension and external conditions. While this represents a general framework, there is flexibility to include any variable that can be convincingly argued to be relevant to the FCI. The primary constraints for inclusion are the need for these variables to be available at a relatively high frequency and their direct relevance to the financial conditions being monitored.

Building upon the research conducted by Arrigoni, Bobasu, and Venditti (2022), we initiate our analysis with a model comprising nine key variables. These variables are

South African Reserve Bank

carefully selected to provide a comprehensive view of the financial landscape, but also with parsimony in mind. The variables include nominal long-term government bond yields, the sovereign credit default swap (CDS) spread, and the growth rate of credit extended by all monetary institutions to households and corporates, which give insight into the lending environment. We also consider the term spread, equity volatility, exchange rate volatility, and the percentage change in equity and real residential house prices, as they reflect broader market conditions and investor sentiment.

We compare our variable selection to that of the original SARB FCI, which is based on the variable selection in Kabundi and Mbelu (2021) and includes thirty eight variables. The variables within their system are classified into one of six categories. These categories are the global financial market, funding market, equity market, foreign exchange market, credit market and the real estate market. There is a large overlap between the categories covered by the thirty-eight variables selected in the original SARB FCI and the ten variables from Arrigoni, Bobasu, and Venditti (2022).[8]

Model construction and comparison

We start by broadly defining the process by which we construct the revised SARB FCI.[9] In our construction of the FCI we transform the variables first.

The term spread is calculated as the difference between short and long-term government bond yields. We use the 91-day Treasury bill rate,[10] which is available over a longer sample period, to represent short-term yields and the 10-year nominal government bond yields to represent long-term yields in line with Arrigoni, Bobasu, and Venditti (2022). For the sovereign spread, we use the 5-year sovereign CDS spread, which is a common measure of the sovereign risk premium. Equity volatility is the standard deviation of the daily Johannesburg Stock Exchange (JSE) All Share Index (Alsi) calculated for each month. Similarly, exchange rate volatility is the standard deviation of the daily rand-dollar exchange rate calculated for each month. Equity

---

[8] This is shown in Appendix A.

[9] There are code notebooks available in Python which provide step-by-step detail on how to construct the FCIs. These notebooks are provided to increase transparency and improve communication surrounding the FCI. Feedback on the variables selected and the specific weighting mechanisms is appreciated.

[10] While noting that the Treasury bill rate likely includes a liquidity risk premium due to the illiquid secondary market for Treasury bills, we expect that this premium remains relatively constant over the period covered by the FCI and that the T-bill rate would mostly reflect changes in short-term rates in the market. Therefore, we believe the T-bill rate still contains some useful information for the purpose of computing the term spread.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

prices are the month-on-month (m-o-m) growth rate in the Alsi. To get real residential house prices, we use the consumer price index (CPI) to deflate the First National Bank (FNB) house price index[11] and then compute the m-o-m growth rate. Credit extended by all monetary institutions to households and corporates is also expressed as a m-o-m growth rate. Finally, a 3-month centered moving average is applied to equity volatility, exchange rate volatility, equity and real residential house prices, and credit extended.

After transforming the variables, we proceed with their standardisation, a customary step in constructing the FCI. Standardisation ensures that all variables integrated into the model are scaled to comparable magnitudes. Once transformed and standardised, our approach involves exploring three distinct FCI measures for comparative analysis. The objective is to investigate the differences among these measures and determine which one is best-suited for application within the South African context.

Revised SARB FCI

The first approach in our FCI analysis uses an equal-weight methodology. In this model, the revised SARB FCI is formulated by aggregating the variables within the system using simple arithmetic averages. This means each variable contributes equally to the final index, ensuring a balanced representation across different financial indicators. Despite the uniform weighting, specific signs are assigned to the variables as they enter the system. These signs are crucial: an increase in the index (+) signifies a tightening of financial conditions, while a decrease in the index (−) indicates a loosening. This approach provides a straightforward, yet effective means of interpreting shifts in financial conditions, where every variable holds equivalent influence in the overall assessment.

Another weighted average approach to constructing an FCI, akin to the equal weighting approach, involves the application of expert weights. This technique diverges in that the weights for each variable are determined by the discretion of the researchers. A notable instance of this method is seen in the FRB's Financial Conditions Impulse on Growth (FCI-G) (Ajello et al., 2023). This index specifically focuses on how financial

---

[11] Rebased to 2010 to mimic BIS data used in Arrigoni et al. (2022).

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

conditions impact economic growth, with its variable weights sourced from the FRB/US model.[12]

However, it is important to weigh the actual benefits of expert weighting. Research, such as that by Arrigoni, Bobasu, and Venditti (2022), has found that the outcomes from FCIs with equally weighted components are comparable to those with expert-derived weights. This observation suggests that while expert weighting can provide a more customised approach, its advantages over simpler methods may not always be substantial.

Table 1: Set of variables and signs for the revised SARB FCI

Variable	Sign restriction
10-year government bond yield	+
Sovereign CDS spread	+
Term spread	+
Rand-Dollar exchange rate volatility[a]	+
Equity (Alsi) volatility[a]	+
Equity (Alsi) prices, m-o-m growth rate[a]	-
Real household price index, m-o-m growth rate[a]	-
Credit to households, m-o-m growth rate[a]	-
Credit to corporates, m-o-m growth rate[a]	-

[a] A 3 months centered moving average is applied to these variables.

Source: Bloomberg, Haver and SARB

The sign restrictions and variables of interest for the revised SARB FCI are provided in Table 1. We have a positive sign associated with the interest rates, spreads and volatilities for which we expect that upward pressure on any of these variables to indicate tighter financial conditions. On the other hand, there is a negative sign

---

[12] Applying this concept to South Africa, a similar approach could involve utilising parameter estimates from internal SARB semi-structural models to determine the weights of various financial variables. While this method offers a tailored weighting strategy based on expert knowledge, there is no universally established or robust procedure for assigning these weights.

South African Reserve Bank

attributed to prices of equity and housing. We also assign a negative sign to credit extension.

Inspection of the revised SARB FCI reveals that during all the periods of identified financial condition stress the values for the FCI are elevated (Figure 1). The banking failures of 2002, the great financial crisis (GFC) of 2007/8 and the COVID-19 pandemic are all captured effectively with the index. Importantly, we see that the GFC was the most severe in terms of its impact on financial conditions. While the most recent COVID-19 shock was extreme in terms of its impact on GDP, it was not specifically a crisis that originated in the financial sector. This crisis did have a significant impact on the ability of agents to finance themselves, but not to the same extent as previous crisis episodes according to the index.

It is noteworthy to observe the gradual tightening of financial conditions in the period following the GFC and leading up to the COVID-19 pandemic. Following the initial shock of the COVID-19 pandemic, the index indicated a loosening of financial conditions. However, more recently, in 2023, the index started to show signs of tightening again.

If one considers the output from Figure 2, which reflects the relative contributions of each of the variables in the index to the overall FCI measure, one can see that periods of elevated financial risk have been driven by different sets of variables. For example, the instability observed during the most recent COVID-19 shock was driven primarily by stock market level and volatility considerations. Interestingly, after the COVID-19 shock, some of the main contributing factors to deteriorating financial conditions have been long term yields and the sovereign spread. This narrative aligns with the idea of a weakening fiscal position.

The equal-weighted approach to constructing the revised SARB FCI offers a notable advantage in its simplicity, particularly in terms of decomposing the contributions of individual variables. Since each variable is incorporated with identical weighting, it becomes straightforward to analyse periods of tight financial conditions and pinpoint which specific variables are exacerbating the situation.[13] This clarity and ease of

---

[13] Figure 2 provides a snapshot of contributing factors over time, but is somewhat difficult read off. Alternatively, one can simply plot the variables in question, considering that there are only nine in this index, and then determine which ones are experiencing the greatest movement.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

understanding are crucial for effectively communicating the state of financial conditions.

Figure 1: Revised SARB FCI
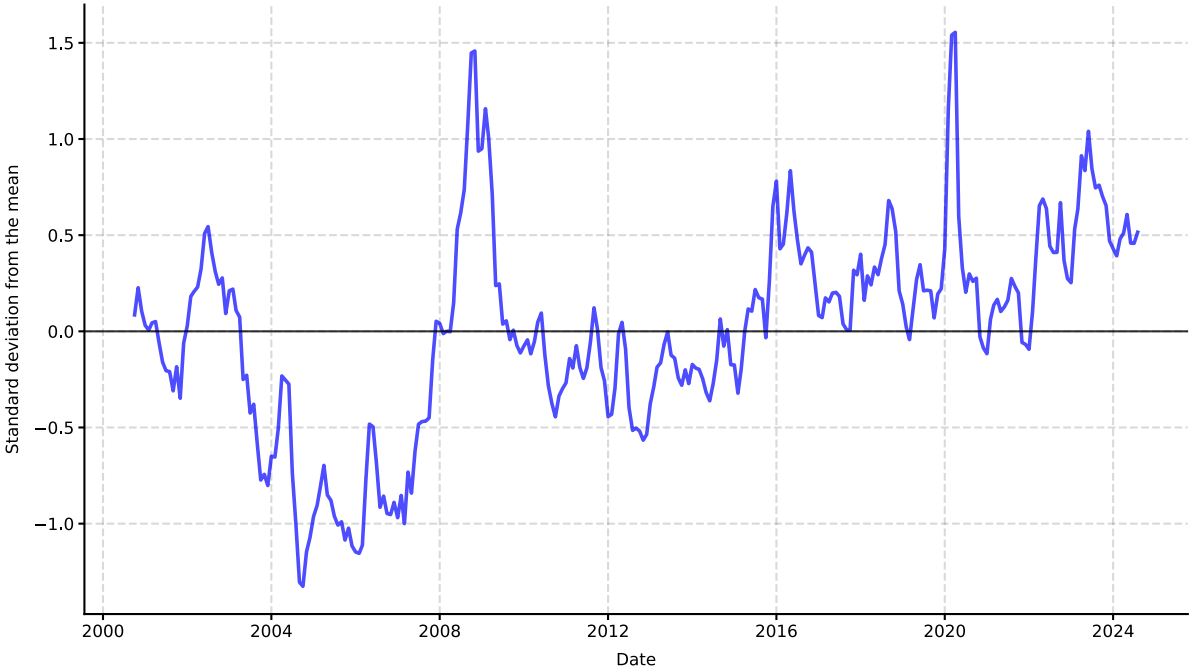
Source: SARB

In contrast, when using PCA, it becomes challenging to ascertain the contribution of individual variables to the overall movement of the index. Factor models allow for the identification of key components influencing the index, however, interpreting the factor loadings can be complex. Time-varying parameter models add further complexity by allowing the factor loadings to change continuously over time. This comparison highlights the utility of the revised SARB FCI in providing a transparent and easily interpretable framework for financial conditions analysis.

South African Reserve Bank

Figure 2: Revised SARB FCI Contributions
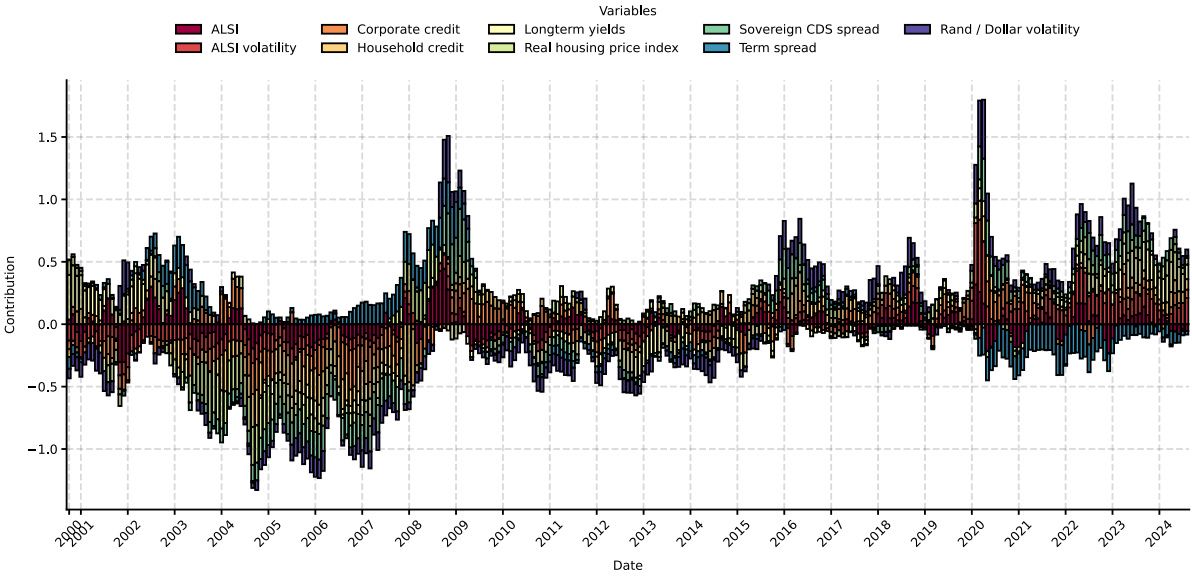
Source: SARB

Principal components FCI (PCA-FCI)

We turn our attention to a second weighting scheme involving PCA. PCA is a powerful statistical technique used to distill common factors from a set of variables. Primarily, PCA identifies components that account for the largest proportion of variance in the original dataset (Hatzius et al., 2010). This method falls into the category of dimension reduction techniques, allowing researchers to streamline the complexity of multiple variables into a more manageable form.

For the PCA-FCI, we incorporate the first two principal components from an array of nine variables. The choice of these components is dictated by their capacity to explain a significant portion of the variance of the original variables, with their weight in the index corresponding to this explanatory power. For instance, if the first component explains 90% of the variance, it is accorded a 90% weight in the index. This approach differs from equal weighting, as it is contingent on the variance each component explains.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Figure 3: PCA FCI

Source: SARB

Analysing the PCA-FCI (Figure 3), we notice that it captures major financial events, similar to those identified by the revised SARB FCI. However, the PCA-FCI exhibits a noticeable upward trend, indicating a progressive deterioration in financial conditions. This trend deviates from the patterns observed in other FCI measures we constructed. Such a trend, while challenging to interpret, aligns with findings by Arrigoni, Bobasu, and Venditti (2022), who observed similar counterintuitive results in PCA-based FCIs for various countries. They caution that such trends can emerge when dealing with variables exhibiting mild non-stationarity, underscoring the need for careful application of PCA and consideration of the properties of the underlying data.

A critical limitation of PCA is its tendency to disproportionately emphasise a few variables, potentially overlooking the broader context provided by a more diverse variable set. This issue appears to manifest in our model, likely due to the low correlation among the variables we selected. Such a phenomenon highlights the importance of variable selection in PCA and the need for a balanced approach that ensures a comprehensive representation of financial conditions. This careful consideration is essential to avoid potential misrepresentations or oversights in the analysis of financial trends.

South African Reserve Bank

Original SARB FCI

The SARB previously adopted a methodology for its FCI that builds upon the framework established by Koop and Korobilis (2014). This approach is characterised by a single factor model enhanced with time-varying parameters. The key innovation here is the dynamic weighting system, allowing the impact of input variables in the index to shift in response to changing economic conditions. The intricacies of this model are beyond the scope of our discussion, those interested in a more in-depth analysis can consult the work of Kabundi and Mbelu (2021), which offers a comprehensive examination of its construction.

This factor-based FCI has demonstrated a notable capacity to reflect significant financial events in South Africa's history, particularly the banking crises at the turn of the century and the disruption of financial markets during the GFC. However, its performance during the COVID-19 pandemic presents a confusing narrative. In this period, the original SARB FCI's reaction appears subdued, suggesting an easing of financial conditions. This finding contrasts with those of other FCIs, which collectively indicate a different trajectory during the same period. The discrepancy raises questions about the sensitivity of the original SARB FCI to extreme economic events like the COVID-19 pandemic and highlights the complexity of interpreting financial conditions through different indices. The original SARB FCI's methodological approach, with its focus on time-varying influences, offers a distinct perspective on the financial landscape, underscoring the diversity of analytical tools available for understanding economic trends. It is worth considering the result from the original SARB FCI, even if counterintuitive, to provide a range of inputs on the discussion of financial conditions.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Figure 4: Original SARB FCI

Source: SARB

Discussion

In this analysis, we delve into the nuances that differentiate various FCIs and how they interpret financial trends in South Africa. It is noteworthy that the PCA-FCI and the revised SARB FCI share similar patterns of financial conditions over the full sample period – in part a consequence of the same set of underlying information. However, a distinct divergence emerges post-2020, with the PCA-FCI indicating a more pronounced tightening of financial conditions. This discrepancy may be partially attributed to the sustained increase in the volatility of the Alsi, which could have exerted some influence on the financial landscape. In other words, the PCA-FCI might be placing undue weight on this metric during this period.

In contrast, the original SARB FCI is an outlier from 2003 to 2008. This period is marked by significant tightening in financing conditions, more than twice as severe as what is depicted by the PCA-FCI and the revised SARB FCI. Following the GFC, there is a consensus among all indices of a loosening of financial conditions. From 2015, however, the PCA-FCI and revised SARB FCI begin to diverge from the original SARB

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

FCI, culminating in a sharp tightening in all FCIs during the COVID-19 pandemic (but to a lesser extent in the original SARB FCI).

Figure 5: Comparison between FCIs

Source: SARB

In the aftermath of the COVID-19 pandemic, the divergence persists. The original SARB FCI indicates a more marked easing of financial conditions than the other measures, a finding that appears counterintuitive in the face of heightened financial market strain, particularly given the escalating sovereign default risks in recent years. This anomaly in the original SARB FCI's portrayal of post-pandemic financial conditions warrants further investigation. It raises questions about the index's sensitivity to certain economic factors and its ability to accurately reflect the ongoing challenges in the financial markets. The contrasting narratives presented by these indices highlight the complexity of interpreting financial conditions and underscore the importance of considering multiple perspectives when analysing the health and trajectory of the financial sector in South Africa.

South African Reserve Bank

Conclusion

In summary, the paper underscores the crucial role of expert judgment in the construction of the revised SARB FCI, especially in the context of variable selection. We show that expanding the dataset does not inherently lead to a better measure of financial conditions. The art of crafting an effective FCI lies in the judicious choice of variables – quality and relevance trump quantity. This approach highlights that large datasets cannot replace the nuanced insights derived from expert analysis.

Moreover, the paper advocates for the use of simpler models in FCI construction, emphasising their advantage in terms of transparency and ease of communication. A straightforward model not only facilitates a clearer understanding of the revised SARB FCI's workings but also enhances its utility as a tool for policymakers and the public. This simplicity, however, does not imply a static approach. An effective FCI, whether employing equal or expert weights, necessitates regular updates and revisions of its constituent variables. This dynamic process ensures that the revised SARB FCI remains responsive to evolving financial conditions and continues to reflect the most pertinent aspects of the financial environment.

The success of the revised SARB FCI hinges on a balanced approach that values expert input and simplicity. While advanced statistical methods and large datasets have their place, they must be complemented by expert judgment and a focus on clarity and relevance. This approach not only enhances the revised SARB FCI's accuracy in reflecting financial conditions but also ensures its effectiveness as a communicative and decision-making tool.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Bibliography

Ajello, A., Cavallo, M., Favara, G., Peterman, W., Schindler, J., and Sinha, N. (2023). A new index to measure U.S. financial conditions. *FEDS Notes*, Board of Governors of the Federal Reserve System. Available at: https://doi.org/10.17016/2380-7172.3281.

Allen, F., Babus, A., and Carletti, E. (2009). Financial crises: Theory and evidence. *Annual Review of Financial Economics*, 1, 97-116.

Antony, J. and Broer, P. (2010). Linkages between the financial and the real sector of the economy: A literature survey. CPB Document 216, CPB Netherlands Bureau for Economic Policy Analysis.

Arrigoni, S., Bobasu, A. and Venditti, F. (2022). Measuring financial conditions using equal weights combination. *IMF Economic Review*, 70(4), pp. 668–697. Available at: https://doi.org/10.1057/s41308-022-00170-y.

Claessens, S. and Kose, M. (2017a). Asset prices and macroeconomic outcomes: A survey. BIS Working Paper 676, Bank for International Settlements.

Claessens, S. and Kose, M. (2017b). Macroeconomic implications of financial imperfections: A survey. BIS Working Paper 677, Bank for International Settlements.

Farrell, G. (2021). Financial conditions and risks to financial stability in South Africa. Financial Stability Department Topical Briefing, South African Reserve Bank.

Gumata, N., Klein, N., and Ndou, E. (2012). A financial conditions index for South Africa. IMF Working Paper WP/12/196.

Hatzius, J. et al., (2010) *Financial conditions indexes: A fresh look after the financial crisis*. w16150. Cambridge, MA: National Bureau of Economic Research, p. w16150. Available at: https://doi.org/10.3386/w16150.

Kabundi, A. and Mbelu, A. (2021). Estimating a time-varying financial conditions index for South Africa. *Empirical Economics*, 60(4), pp. 1817–1844. Available at: https://doi.org/10.1007/s00181-020-01844-0.

South African Reserve Bank

Kasai, N., and Naraidoo, R. (2013). The opportunistic approach to monetary policy and financial market conditions. *Applied Economics*, 45, 2537-2545.

Koop, G. and Korobilis, D. (2014). A new index of financial conditions. *European Economic Review*, 71, 101-116.

Nguyen, T., Castro, V. and Wood, J. (2022). A new comprehensive database of financial crises: Identification, frequency, and duration. *Economic Modelling*, 108, 105770.

Quantec (2007). A financial conditions index for South Africa. Economic Research Note, Issue 1/2007.

Thompson, K., Van Eyden, R., and Gupta, R. (2015). Identifying an index of financial conditions for South Africa. *Studies in Economics and Finance*, 32, 256-274.

Van der Wath, N. (2016). Gauging financial conditions in South Africa. Stellenbosch Economic Working Paper No. 10/16.

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Appendix A

Sector	Original SARB FCI	Simple FCI
Global financial market	3M LIBOR (US)	
	90-day T-bill rate (US)	
	TED (US)	
	VIX	
	S&P500 stock in gold index	
	Global total return index	
	Oil price (US dollar)	
	Gold price (US dollar)	
Funding market	3-month NCDs	
	6-month NCDs	
	12-month NCDs	
	Prime overdraft rate	
	Interbank rate	
	Repo rate	
	TED (SA)	Interbank spread
	Financial beta	
	Bank beta	

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Sector	Original SARB FCI	Simple FCI
Equity market	Stock crash	
	All-share price index	Equity prices
	Financials price index	
	Banks price index	
	All-share total return price index	
	Precious metals & mining price index	
Foreign exchange market	SA rand against US dollar	Rand-dollar exchange rate
	FX crash	
	Nominal effective exchange rate of the rand	
Credit market	R186 10.5% (2026) - Government stock	
	Yield Market: Eskom bonds	
	Yield Market: 0-3 year government bond	
	Yield Market: 3-5 year government bond	
	Yield Market: 5-10 year government bond	10-year government bond yield
	Yield Market: Long-term government bond	

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank

Sector	Original SARB FCI	Simple FCI
	Secondary Market: JSE All Bond yield	
	Differential between repurchase rate and T-bill	
	Margin between prime rate and 3-month NCDs	
	Margin between 3-month NCDs and Reserve Bank debentures	
	Total loans and advances extended to the domestic private sector	Credit to households and corporates
Real estate market	FNB house prices	Real residential house prices
	N/A	Sovereign spread
	N/A	Term spread
	N/A	Equity volatility

Topical Briefing: Constructing a Financial Conditions Index for SA

South African Reserve Bank