Integrating big data to forecast New Zealand's visitor arrivals: a structured approach

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S U M M A R Y

This technical report details the methodology behind the Ministry of Business, Innovation and Employment's Tourism Forecasts for Visitor arrivals, spend and total days for nine key markets (including other). We show how the structural VAR econometric method combines information from the global economy and source country economies to help forecast tourism markets. Our structural method helps identify the key drivers of each forecast market. This improves the connection of the forecasts to an overarching story and allows for simple counterfactual analysis that helps address risk and uncertainty behind the forecasts. We show that our method produces forecasts that compare well to simple benchmarks and a single judgmentally-adjusted forecast.

1. Introduction

1.1. The tourism forecasting contract

In the second half of 2012, NZIER were asked to provide the Ministry of Business, Innovation and Employment with annual tourism forecasts across 2012-18. The forecasts needed to span three key tourism variables (Total visitor arrivals, Total stay days and Total spend) across eight markets (Australia, Canada, China, Germany, Japan, Korea, UK and the US) plus one composite "other" market.

This technical report details the modeling approach taken to forecast the variables required by the Ministry of Business, Innovation and Employment and sits alongside the main report "New Zealand Tourism Sector Outlook 2012-18" that contains the forecasts.

1.2. Our modelling approach

Forecasting helps businesses plan for the future. But data is often highly volatile, key drivers change over time and unanticipated events make the future uncertain. Within this environment, adopting an explicit forecasting strategy is critically important.

That strategy should include adopting a best-practice forecasting model, but that model should also help quantify uncertainty and be useful to develop scenarios that tease out risks and assumptions that underpin the forecasts. We argue that developing scenarios provides answers to "what if" questions that improve understanding of a set of forecasts.

1.3. Model design for forecasting New Zealand's tourism markets

A key element of the tourism forecasting strategy is a best-practice forecasting model, tailored to the task at hand. Forecasting tourism markets has several specific requirements:

- the target data is particularly volatile and subject to numerous "one-off" shocks – the Asian Financial Crisis, September 11 2001, SARS, the Rugby World Cup 2011 and the Global Financial Crisis

- forecasts are required for a number of markets (we forecast eight separate countries and one composite "other" market)

- for each market forecasts are required for three key variables: total visitor arrivals, total spend and total days for each country

- forecasts from each country are likely to have a specific set of drivers.

These requirements suggest the following elements are likely to be important for model design:

- the model should be transparent and replicable

- the model should be able to show the principal drivers of the forecast, providing some structure to interpret what is driving the outturns

- a wide range of data that captures the impact of the global economy is likely to help

- the model should allow a user to add judgment with regard to specific variables relatively easily. This helps facilitate counterfactual analysis.

Constructing detailed theoretical models of each target market is likely to be very resource intensive. Markets span both developed and emerging countries and theory does not offer a single compelling framework that overlays each market. That means imposing theoretically appealing assumptions is likely to be very risky across such a wide number of countries.

Moreover we want a model that can blend a wide range of data to uncover key drivers of forecasts. That discounts purely statistical approaches. We think our SVAR modeling strategy occupies a suitable middle ground between a theoretical approach and a purely statistical approach.

1.4. Our model in a nutshell

We construct a suite of six-variable structural Vector-Auto Regression (SVAR) models to forecast the key tourism variables for each country. This approach allows us to identify shocks and the underlying drivers of the forecasts without imposing too much theory on the data that might prove erroneous in practice.

We use quarterly data. Compared with using annual data, this helps provide a dynamic structure that better captures business cycle movements. This improves the near term forecasts that would otherwise revert to trend growth relatively quickly. More pragmatically, using quarterly data means we can use data closer to the forecast period, in our case we use data up to June 2012. This helps improve the near-term forecasts.

Key drivers of tourism include the business cycles of the source country and the global economy more broadly. To include these cycles in our model, rather than using just GDP growth data that can be volatile, we construct FAVAR (Factor-augmented vector autoregressive) models have both a global factor and domestic factors for each source country that track business cycles. These variables turn out to drive many of the movements in the key tourism variables from many source countries.

2. Methodology

2.1. The SVAR methodology

SVARs are a pragmatic model choice that sits between statistical and theoretical approaches. SVARs yield interpretations of the data without the need to completely specify a precise and complete economic model. That means a minimum of identifying assumptions are required to obtain structural interpretations without imposing too much theory.

Typically economists have used SVARs to identify economic shocks that are compatible with a large class of theoretical models. Once the shocks are identified, researchers can decompose variables into typical drivers such as demand or supply shocks. This helps sort the relative importance of different drivers of the economy while avoiding some of the restrictions implied by many macroeconomic models.

SVARs are particularly useful when there is no requirement to model a policy intervention such as a change in monetary policy regime or new tax policy. Those interventions typically require a fully specified macroeconomic model.

The SVAR is typically described as:

$$A(L)y_t = w_t \qquad (1)$$

where $A(L) = A_0 - \sum_{k=1}^{\infty} A_k L_k$ is a polynomial that includes cross-equation restrictions implied by the structure of the model – hence a structural VAR, that is, parameter restrictions implied by macroeconomic theory. For example, long run neutrality of money implies the growth rate of money has no impact on long-run growth.

One of the benefits of imposing the SVAR form in equation (1) is that we can decompose forecasts into constituent drivers using the Kalman filter. That means that each variable can be constructed as the sum of all previous shocks.

The SVAR model also offers the ability to bring in information from other relevant sources without the need to specify a model that would otherwise need to span the eight very different economies that are New Zealand's key tourism markets.

For each country we work with a six variable VAR. The first five input variables are:

- the global business cycle
- the domestic business cycle for the source country
- the oil price
- the real bilateral exchange rate of the source country with New Zealand
- the number of outbound tourists.

The sixth variable is the key tourism variable that can be either:

- total expenditure
- total days
- total visitors arrivals

That makes for 3 different specifications for each of the 9 markets or 27 separate SVAR models. We also split total visitor arrivals into purpose of visit: (i) Visiting Friends and Relatives; (ii) Holiday visitors; (iii) Business (including conventions and conferences); and (iv) Other (including education) and produce separate forecasts by type for visitor arrivals. We use this as a cross-check on the accuracy of the aggregate forecast and use the split to report the fraction of visitor arrivals by type over the forecast horizon.

This number of variables suggests a simple structure that can be turned to each of the markets. It would be simply impractical to construct and implement a structural model for each of the 63 variables (including the split by type).

To identify the shocks we apply the Cholesky decomposition. We use the ordering (i) global business cycle; (ii) domestic business cycle; (iii) oil price; (iv) real exchange rate; (v) outbound tourism and (vi) the key tourism variable in question assuming that each variable is unaffected contemporaneously by the variables that follow. For example, the global business cycle is unaffected in period t by the domestic business cycle in each source country in period t.

Our choice of input variables is driven by several factors:

1. It is well-known that the VAR structure demands a relatively parsimonious structure to avoid over parameterisation of insignificant variables.[1] Even moderately sized VAR models can provide good in-sample fit but poor out-of-sample forecasting performance. This limits the number of variables in the VAR.

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[1] See Koop and Potter (2004) and Geweke and Whiteman (2006) for example.

2. We use a world output factor to capture the impact of the global economic cycle and income on the economy of the source country and the propensity to travel. The impact of the Global Financial Crisis (GFC) on tourism globally is hard to ignore. Additionally, we estimate a domestic economy factor that relates to the country of origin.

3. Dwyer et al (2001) demonstrate the importance of price competitiveness for international tourism. To this end we include the real exchange rate in the SVAR and include oil as a proxy for airline prices in each source country. We also include outbound tourists from the source country in the SVAR. This helps distinguish broad shifts in international markets from New Zealand specific effects.

2.2. Integrating big data using factor models

To reflect the two business cycle variables we could use economic growth. However, economic growth is volatile, subject to large revisions and often does not capture the movement in a far wider group of variables that might better characterise the business cycle.[2]

One alternative is to use a FAVAR model. FAVAR models summarise a wide range of input data into representations of factors or common components that tend to move together. These common components are useful to parsimoniously summarise a wide number of time series. Forni et al. (2004) describe the theoretical framework leveraging earlier papers using principal component approach described by Stock and Watson (2002).

FAVAR models have been widely used in macroeconomics across a number of applications. Das and Gupta (2011) apply the FAVAR approach to forecasting house prices, Guichard and Rusticelli (2011) look at growth in world trade, Matheson (2011) looks at estimating global growth, Lombardi, Osbat and Schnatz (2010) apply the factor model to commodity prices and Kirker (2011) models inflation using the FAVAR technique. Vasita and Maier (2011) look specifically at the impact of the global business cycle on a small open economy.

Jointly modelling all the variables that comprise the target tourism series and all the indicator variables that inform the state of the global economy would be infeasible in a standard VAR setup. The number of series would outstrip the number of observations.

To bypass this problem we use factors analysis to extract common factors for the sets of relevant information to construct global and domestic business cycles. Then we estimate a VAR based on these factors, additional macroeconomic variables and the target tourism series.

That means our forecasting procedure is split into three steps:

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2 See for example the NBER Business Cycle Dating methodology.

1. estimating the business cycle factors using FAVARs

2. placing the factors into the SVAR model

3. constructing the forecasts from the SVAR model.

This process leverages the application of Bernanke, Boivin and Eliasz (2005) who use economic factors within the structural VAR setup to examine monetary policy.

2.3. The General FAVAR model

Formally, equation (2) captures the FAVAR model:

$$\Delta X_t = \mu + \Phi(L)\Delta X_{t-1} + \varepsilon_t, \qquad \varepsilon_t \sim N(0,\Omega) \qquad (2)$$

where X_t contains a vector of macroeconomic variables, the common factors and the target tourism series. The parameter μ summarises the means of the variables. Splitting equation (2) into macroeconomic variables and the common factors, gives:

$$\begin{bmatrix} \Delta Y_t \\ \chi_t \end{bmatrix} = \Phi(L)\begin{bmatrix} \Delta Y_{t-1} \\ \chi_{t-1} \end{bmatrix} + \varepsilon_t, \qquad \varepsilon_t \sim N(0,\Omega) \qquad (3)$$

where Y_t contains the macroeconomic variables and χ_t contains the common component. The common component can contain more than one cycle or common factor such that $\chi_t = \lambda F_t$ where χ_t the common component that can contain a number of common cycles or factors: $F_t = (F_{1t}, F_{2t}, \ldots F_{rt})'$.

The matrix Φ relates the macroeconomic variables and common factors to a number of lags with the matrices Y_t and χ_t general enough to contain lags of the macroeconomic variables and common factors.

Since the standard VAR setup is too constricting to accommodate a large number of series the factors are extracted from specific sets of data:

$$X_{it} = \lambda_i(L)F_t + e_{it} \qquad (4)$$

where X_{it} is the observed data for the macroeconomic time series at time $i = 1,2 \ldots N$ and for $t = 1,2 \ldots T$ where N gives the number of time series and T the total number of observations.

Note that equation (4) can also be specified in error-correction form to deal with cointegration:

$$\Delta X_t = \mu + \alpha\beta'X_{t-1} + \varepsilon_t, \qquad \varepsilon_t \sim N(0,\Omega) \qquad (5)$$

3. Data methodology

3.1. The input data

We use a wide array of data to construct the global factors and domestic factors for each source country. Table 1 shows the source data for each variable and to save space, we list the data for the factors in tables in the appendix to this paper.

We use quarterly data throughout the analysis but interpolate annual outbound visitors data from the World Bank to obtain quarterly observations for this series.

Table 1. Data description and sources for our input and target data

	Variable	Description	Source
	Input data		
1	Global factor	Constructed from variety of series (see Appendix for list)	Datastream
2	Domestic factor	Constructed from variety of series (available on request)	Datastream
3	Oil price	Brent crude oil price USD/bbl	Federal Reserve Economic Database
4	Real exchange rate	Real bilateral exchange rate	Reserve Bank of New Zealand
5	Outbound tourists	Outbound tourists to any destination from each source country	World Bank
	Tourism data		
6	Total expenditure	Aggregate nominal NZD expenditure	International Visitor Survey
7	Total visitor days	Total visitor nights per quarter	Statistics New Zealand
8	Total visitors arrivals	Total visitor arrivals per quarter	Statistics New Zealand
9	Business visitors	Business (including conference) visitors per quarter	Statistics New Zealand
10	Holiday visitors	Holiday visitors per quarter	Statistics New Zealand
11	VFR visitors	VFR visitors per quarter	Statistics New Zealand
12	Other visitors	Other (including education) visitors per quarter	Statistics New Zealand

3.2 Data Treatment

Our approach relies on using a large number of data series. We clean the data before estimation, removing outliers and removing the seasonal component where required and possibly transforming the data into stationary series where required. Table 2 lists our data cleaning procedure that follows Matheson (2011).

Table 2. Our data cleaning procedure removes the seasonal component and smooths the data

	Source
1	Missing values within the sample are linearly interpolated.
2	The seasonal series are adjusted using X12, a standard procedure for removing a seasonal component.
3	Annual series are interpolated to the quarterly frequency using linear interpolation.
4	Log differences are taken of non-stationary series, except those that are measured in percentages or can take negative values, in which case quarterly differences are taken. Remaining series are left as levels.
5	Series that only change 10 percent of the time are discarded.
6	Series with less than three years of data are discarded. This automatically checks the input data for each of the domestic factor models.
7	Outliers are removed where observations greater or less than 5 times the interquintile range are replaced with the next highest or lowest admissible value.
8	Missing observations at the start of each time series are backdated using the Factor Model with the number of factors set to explain 80 percent of the variation in the data.

Source: NZIER

While we strip out the seasonal component for forecasting purposes, we retain the ability to add the seasonal component back into the forecast horizon.

Once the data have been standardised we estimate the SVAR model for each key tourism variable for each country. The global and domestic factors are stationary by construction and we estimate the target series in growth rates before transforming growth forecasts into levels for each series.

We use the Akaike Information Criteria to determine the lag length for each SVAR. Two lags is the most typical lag length across the countries.

4. Results

4.1. Quantitative out-of-sample forecasting performance

We test the forecast performance of the model using out-of-sample testing. Athanasopoulos et al (2011) show simple time series models perform well in the tourism context. So we use a simple autoregression (AR) model with up to 12 lags (with lag length determined by the Akaike Information Criteria) and a naïve random walk that extrapolates growth using last period's observed growth rate.

We estimate each model from the first quarter of 2006 to provide six and a half years to test the model out-of-sample. We then move the data sample forward one quarter, re-estimate the models and again produce forecasts up to six years ahead. We repeat the exercise until the out-of-sample period concludes. We construct measures of forecast accuracy based on mean-squared errors.

Table 3 shows the Root-Mean-Squared-Error for each model and each country relative to the random walk model. Because the sample size is very small (the eight quarter-ahead forecasts only contain 18 observations for comparison) we are reluctant to draw strong conclusions since any differences in forecast performance are unlikely to prove statistically significant. Using the Diebold and Mariano (1995) test statistic that proves to be the case here.

However, our SVAR approach appears competitive with, and in some cases superior to, the simple benchmark forecasting models. For example, the SVAR model produces superior forecasting performance for all three key variables for the case of Australia. Performance of the SVAR model for Total visitors is also good relative to the two simple benchmarks.

Table 3. Quantitative Out-of-sample forecast comparison (1996:1 to 2012:1): relative RMSEs

Forecast Horizon (qtrs)	Spend		Visitors		Days	
	AR	SVAR	AR	SVAR	AR	SVAR
Australia						
1	0.55	0.27	0.25	0.33	0.36	0.43
4	0.37	0.30	0.30	0.51	0.31	0.38
8	0.36	0.25	0.33	0.48	0.42	0.29
12	0.31	0.26	0.30	0.58	0.46	0.21
Canada						
1	1.06	0.58	0.21	1.10	0.75	0.07
4	1.17	1.03	0.76	0.34	1.34	0.15
8	1.13	0.90	0.78	0.45	1.37	0.12
12	1.13	0.79	0.93	0.52	1.27	0.13
Germany						
1	1.02	0.53	0.12	1.38	0.50	0.65
4	0.97	1.05	0.13	2.32	0.48	0.97
8	0.83	1.18	0.13	2.50	0.46	2.47
12	0.78	1.18	0.16	2.16	0.38	3.57
Japan						
1	0.38	0.38	0.64	0.47	0.43	0.12
4	0.66	0.64	0.65	0.47	0.89	0.28
8	0.90	0.86	1.15	0.40	0.53	0.45
12	0.92	0.92	1.33	0.60	0.68	0.72
Korea						
1	0.96	1.63	0.13	0.24	0.84	0.43
4	1.87	1.65	0.88	0.71	0.90	0.41
8	1.65	1.17	1.18	0.55	0.95	0.45
12	1.42	1.08	1.19	0.59	1.02	0.55
UK						
1	2.83	0.93	0.23	1.12	0.86	0.65
4	2.80	1.03	0.30	1.63	0.57	0.84
8	6.30	1.05	0.37	1.93	0.80	1.44
12	6.61	2.80	0.61	1.98	1.61	2.54
US						
1	0.65	0.57	0.22	1.12	0.32	0.41
4	0.77	0.82	0.28	1.83	0.46	0.63
8	0.91	1.00	0.44	2.11	0.71	1.00
12	1.05	1.37	0.56	2.60	0.90	1.45

Source: NZIER

NB. AR is a univariate model with up to 12 lags selected by Akaike Information Criterion.

SVAR is the Structural VAR model with the FAVAR economy inputs.

The table reports RMSEs relative to the random walk model. A value above 1 shows performance greater than the random walk model

A number value greater than the AR model shows better forecast performance although none of the values are significant.

China is omitted because of the short span of data of input data for the international factor.

4.2. Qualitative out-of-sample forecasting performance

Alongside the quantitative assessment we can provide some qualitative insights into the aggregate forecasts, particularly relative to earlier tourism forecasting exercises. Table 4 shows the aggregate MBIE 2012 forecasts from the SVAR against judgment adjusted forecasts from 2010 and 2011.

Table 4. Growth rate forecasts improve on two-year ahead judgment adjusted forecasts

	Visitor arrivals	Forecast error	Total Days	Forecast error	Total Spend	Forecast error
			2010			
Actual	2.55		0.68		-10.06	
MBIE 2010	3.62	**1.07**	2.03	**1.35**	1.46	11.52
MBIE 2012	4.72	2.17	-0.84	-1.52	-6.63	**3.42**
			2011			
Actual	3.27		2.20		2.94	
MBIE 2010	6.55	3.28	5.32	3.12	9.58	3.43
MBIE 2012	4.47	**1.20**	1.63	**0.57**	3.28	**0.33**

Source: NZIER

Using the forecasts from the past two years we can produce a counterfactual analysis of the direction of forecast errors by estimating the SVAR framework to 2010 and 2011 and comparing the forecast errors against the judgment adjusted forecasts for 2010 and 2011. With such a small sample (essentially a sample size of two) this exercise can only be indicative but helps assess the possible direction and nature of forecast errors. Table 4 shows the results of this counterfactual exercise.

Table 4 shows two panels of data, one for 2010 and one panel for 2011. Actual growth for each key tourism variable is listed in the first row of each panel. The corresponding forecast from the MBIE 2010 forecast round and the MBIE 2012 model round are listed below.

The table shows that the MBIE 2012 forecast does much better for each variable in 2011 than the MBIE 2010 forecast. The MBIE 2012 performs worse for the short, one-year ahead forecast for visitor arrivals for 2010 and performs slightly worse than the MBIE 2010 forecasts for total days for the one-year forecast in 2010.

These results are consistent with industry participants having short-run information, outside the model that can help shape forecast performance in the very short-run, but the model out-performing industry at horizons longer than one year. More data would be needed to corroborate this finding than the two years of forecasts presented in Table 5.

This suggests that our modeling approach is better suited to identifying trends in the medium-term rather than precisely forecasting short term movements

5. Model drivers

One of the useful features of the SVAR framework is identifying the drivers behind each variable. This can prove useful for developing understanding of what drives particular forecasts and what explains historical movements in particular series.

Typically, in most SVAR applications, a variable's own shock will drive most of the observed movement in the variable in question particularly in the near term. For example, SVAR models tend to show that price shocks tend to drive inflation rather than demand shocks derived from output growth or an output gap measure that shows output relative to trend.

Similarly, when we decompose visitor arrivals into drivers, we find most of the movement can be attributed to idiosyncratic movements or shocks to visitor arrivals that might be driven by events like September 11 and the Rugby World Cup not explicitly in the model.

Once we remove the idiosyncratic component we can compare the relative importance of other drivers of the model. Technically we look at the forecast error variance decomposition, which splits each variable into the structural shocks over history.

Table 5 shows the relative ranking of the drivers of total visitor arrivals for each country. We see that the domestic and global factors tend to drive visitors arrivals and oil price movements play a relatively strong role for Japan and Korea.

Table 5: Key drivers of visitors arrivals in the SVAR

Ranking Key: 1st   2nd   3rd   4th   5th

	Global Factor	Domestic Factor	Oil price	Outbound tourists	Exchange rate (real)
Australia					
Canada					
China					
Germany					
Japan					
Korea					
UK					
US					

Source: NZIER

We can also look at the variance decomposition and parameters of the underlying model to determine the impact of each of the factors over particular points in time.

When we apply the technique to the total visitor arrivals since the start of 2009, we find that the domestic factors and the global

factor are having an unambiguously negative impact on total visitor arrivals for every country. Oil has a negative impact on every country with the exception of the United States.

This means that external factors like the performance of the source economy and global economy have driven weakness in visitor arrivals to New Zealand. The model expects to see improvement in the domestic and global factors toward historical levels. This improvement drives some of the growth in visitor arrivals over the forecast period.

6. Dealing with risk and uncertainty

6.1. Dealing with risk

Since we have a structural model, we can explore counterfactual scenarios to show the main drivers of the forecasts. For example, Figure 1 shows a counterfactual scenario of a shock to the euro area that we mimic by shocking the global factor to produce a recession in the global factor about two-thirds of the size of the downturn produced by the Global Financial Crisis.

Figure 1. Implications of a euro area shock
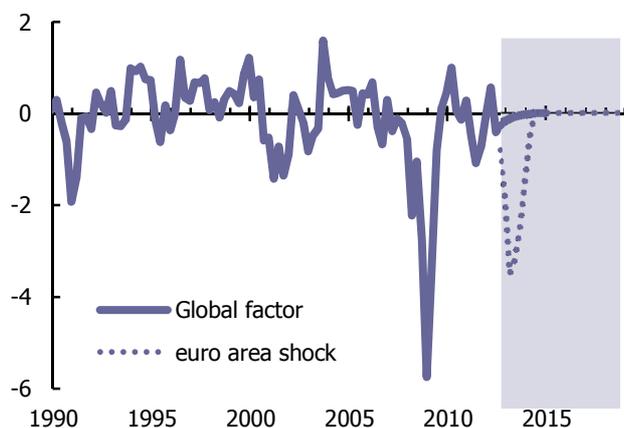
Source: NZIER

Figure 2 shows the impact of the euro area shock on total visitors.
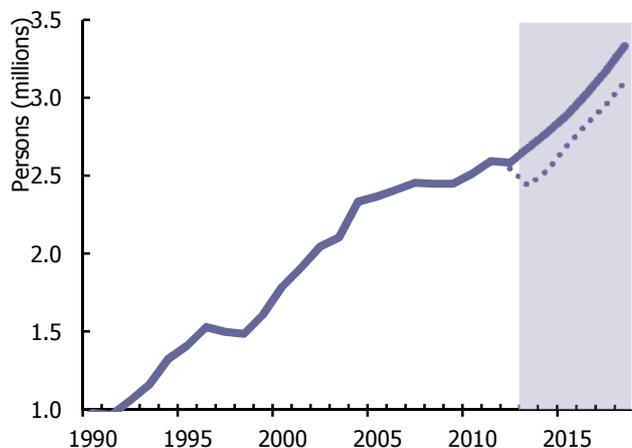
Figure 2 Impact of a euro area shock

Source: NZIER

Visitor numbers fall by about 3 percent by the end of the period.

6.2. Dealing with uncertainty

With the estimated model in hand, we can produce confidence intervals that provide a sense of the uncertainty around the forecasts.

Given the correlation across countries inherent from using a global factor as an input variable, we bootstrap the forecast errors for each country, drawing 10,000 errors (we discard explosive draws that are less than 5 percent of draws for each country) and sum to produce confidence intervals for total visitor arrivals, total spend and total days. Figure 3 shows the results of the forecast.

Figure 3. Total visitor arrivals with bootstrapped confidence intervals
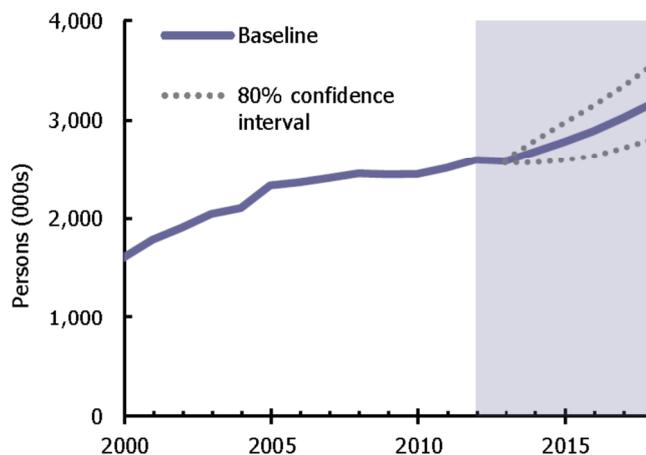
Source: NZIER

7. Conclusion

This technical report details our structural VAR approach to forecasting key tourism variables for New Zealand. Our approach uses FAVAR models to construct global and source country economic variables as inputs into the structural VAR.

We show that this approach returns forecasting performance that is competitive with, and in some cases superior to, simple time series benchmarks. We also show how the SVAR approach lends itself to counterfactual scenarios that help improve understanding of key risks to the forecasts. Finally, we show that we can provide bootstrapped confidence intervals to help understand the uncertainty around tourism forecasts.

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Table 6. Input data for the Global factor

Variable	Identifier	SA	Frequency
(1) General Series			
G7 qoq growth source OECD	G7GROWTH	Yes	Quarterly
(2) euro area series			
Euro Area retail sales Volume	EMRETTOTG	Yes	Quarterly
Euro area - Retail Sales Turnover (Deflated)	EKRETTOTG	Yes	Quarterly
Euro area unemployment rate	EKESUNEMO	Yes	Quarterly
Euro area Industrial Confidence indicator	EMCNFBUSQ	Yes	Quarterly
Euro Area Consumer confidence indicator	EMCNFCONQ	Yes	Quarterly
Euro Area Industry Survey: Utilisation rate	EMCAPUTLQ	Yes	Quarterly
Euro Area imports deflator	EMEBIMN%E	Yes	Quarterly
Euro Area Exports Deflator	EMEBEXN%E	Yes	Quarterly
Euro Area 10yr Government Bond	EMGBOND.	Yes	Quarterly
Euro Area Bank of England Trade Weighted Exchange Rate	EMXTW..NF	Yes	Quarterly
Euro Area Gross Fixed Capital Formation	EMGFCF..D	Yes	Quarterly
Euro Area retail sales Volume	EMRETTOTG	Yes	Quarterly
Euro area - Retail Sales Turnover (Deflated)	EKRETTOTG	Yes	Quarterly
Euro area unemployment rate	EKESUNEMO	Yes	Quarterly
(3) Japan series			
Japan - Private Consumption Expenditure	JPCNPER.D	Yes	Quarterly
Japan - Leading Diffusion Index	JPCYLEADR	Yes	Quarterly
Japan Yen-US Exchange rate	JPXRUSD.	Yes	Quarterly
Japan Effective exchange rate	JPXTW..NF	Yes	Quarterly
Japan Overnight Call rate	JPPRATE.	Yes	Quarterly
Japan Tokyo Stock Exchange	JPSHRPRCF	Yes	Quarterly
Japan Interest bearing government bonds (10yr)	JPGBOND.	Yes	Quarterly
Japan new vehicle registrations	JPCAR...P	Yes	Quarterly
Japan Retail Sales	JPRETTOTA	Yes	Quarterly
Japan CPI (national measure)	JPCONPRCF	Yes	Quarterly
Japan Export Price Index	JPEXPPRCF	Yes	Quarterly
Japan Import price index	JPIMPPRCF	Yes	Quarterly
Japan Terms of Trade	JPTOTPRCF	Yes	Quarterly
Japan - Tankan Business conditions	JPTKALABF	Yes	Quarterly
(4) United Kingdom			
UK Gross National Income current prices	UKGNP...B	Yes	Quarterly
UK- UK-US exchange rate	UKXRUSD.	Yes	Quarterly
UK - JP Morgan Trade Weighted Exchange rate	UKXTW..RF	Yes	Quarterly
UK Interbank rate (3 mth ave)	UKINTER3	Yes	Quarterly
UK - Gross Redemption on 20yr Gilts	UKGBOND.	Yes	Quarterly
UK - Car Registrations	UKCAR...P	Yes	Quarterly
UK - Retail Sales including fuel	UKRETTOTG	Yes	Quarterly
UK Households' Disposable Income	UKPERDISD	Yes	Quarterly
UK - CPI Harmonised Measure	UKCONPRCF	Yes	Quarterly
UK Terms of Trade	UKTOTPRCF	Yes	Quarterly
UK Import price index	UKIMPPRCF	Yes	Quarterly
UK Export Price index (balance of payments)	UKEXPPRCF	Yes	Quarterly
UK - Unit Labour Cost index	UKLCOST.E	Yes	Quarterly
UK - Consumer Confidence	UKCNFCONQ	Yes	Quarterly
(5) United States			
US - GDP (Constant prices)	USGDP...D	Yes	Quarterly
US Confidence Board Leading Indicator	USCYLEADQ	Yes	Quarterly

US - Treasury Bill rate	USGBILL3	Yes	Quarterly
US - TWI Against major currencies	USXTW..NF	Yes	Quarterly
US Dow Jones Industrial share price	USSHRPRCF	Yes	Quarterly
US 20 year Treasury yield adjusted to constant maturity	USGBOND.	Yes	Quarterly
US new passenger car registrations	USCAR...P	Yes	Quarterly
US Consumer Confidence	USCNFCONQ	Yes	Quarterly
US Retail Sales and food services	USRETTOTB	Yes	Quarterly
US - Savings as % of Disposable Income	USPERSAVE	Yes	Quarterly
US - Disposable Personal Income	USPERDISB	Yes	Quarterly
US Total Civilian Employment	USEMPTOTO	Yes	Quarterly
US Philadelphia Federal Reserve - Outlook General Business Conditions	USFRBPIM	Yes	Quarterly
US Chicago Purchasing Manager Business Barometer	USPMCHBB	Yes	Quarterly
US ISM Purchasing Managers Index	USCNFBUSQ	No	Quarterly
US Industrial Production Index	USIPTOT.G	No	Quarterly
US - New Private Housing starts	USHOUSE.O	No	Quarterly
US - CPI Less fuel and food	USCPCOREE	No	Quarterly
US Bankruptcy Filings	USBNKRPTP	No	Quarterly
US import price index - all commodities	USIMPPRCF	No	Quarterly
US Terms of Trade	USTOTPRCF	No	Quarterly
US Export price index	USEXPPRCF	No	Quarterly
US Unemployment	USUNCLM	No	Quarterly
US - ADS Business Condition Index	USBCIND	No	Quarterly
US GDP (AR) Constant prices	USGDP...D	Yes	Quarterly
US The Conference Board Leading Economic Indicators Index	USCYLEADQ	No	Quarterly
US Treasury Bill rate	USGBILL3	No	Quarterly
US Treasury yield adjusted to constant maturity	USGBOND.	Yes	Quarterly

Table 7. Input data for the Australian economic factor

Variable	Identifier	SA	Frequency
Australia GDP constant prices	AUGDPD	Yes	Quarterly
Australia Melbourne/Westpac leading index of economic activity sadj	AUCYLEADQ	Yes	Quarterly
Australia average weekly earnings	AUWAGES.A	Yes	Quarterly
Australia productivity – GDP per employed person	AUPRODVTQ	Yes	Quarterly
Australia industrial production volume	AUIPTOT.G	Yes	Quarterly
Australia GNI current prices	AUGNI...B	Yes	Quarterly
Australia Final consumption expenditure: general govt	AUCNGOV.D	Yes	Quarterly
Australia Final consumption expenditure	AUCNPER.B	Yes	Quarterly
Australia GFCF	AUGFCF..D	Yes	Quarterly
Australia increase in stocks	AUINVCH.D	Yes	Quarterly
Australia Exports fob - goods & services	AUEXNGS.D	Yes	Quarterly
Australia Imports fob - goods & services	AUIMNGS.D	Yes	Quarterly
Australia Implicit price deflator of GDP	AUGDPIPDE	Yes	Quarterly
Australia BOP: current account balance	AUCURBALB	Yes	Quarterly
Australia BOP: goods - credits	AUEXPBOPB	Yes	Quarterly
Australia BOP: goods - debits	AUIMPBOPB	Yes	Quarterly
Australia BOP: goods – balance	AUVISBOPB	Yes	Quarterly
Australia BOP: capital and financial account	AUCAFBALA	Yes	Quarterly
Australia Balance of trade in goods & services (BOP basis)	AUBALGOSA	Yes	Quarterly
Australia Melbourne/Westpac consumer sentiment index	ACCI	No	Quarterly
Australia Sales of new motor vehicles	AUCAR...O	No	Quarterly
Australia Retail sales	AURETTOVD	Yes	Quarterly
Australia Saving ratio - households	AUPERSAVB	Yes	Quarterly
Australia ACCI investor confidence survey - climate for investment	AUAICCFIH	Yes	Quarterly
Australia ACCI investor confidence survey-expected business investment	AUAICEBIH	Yes	Quarterly
Australia Terms of trade	AUTOTPRCF	Yes	Quarterly
Australia Employed: persons	AUEMPTOTO	Yes	Quarterly
Australia Unemployment level	AUUNPTOTO	Yes	Quarterly
Australia Unemployment rate (labour force survey estimate)	AUUN%TOTQ	No	Quarterly
Australia Job advertisements	AUVACTOTO	Yes	Quarterly
Australia Participation rate (seasonally adjusted)	AUPARTICQ	No	Quarterly
Australia Wage cost: hourly rate	AUWAGES.E	No	Quarterly
Australia Average weekly Cash salary,	AUWAGES.A	Yes	Quarterly
Australia Productivity – GDP per employed person sadj	AUPRODVTQ	No	Quarterly
Australia Industrial production	AUIPTOT.G	No	Quarterly
Australia Manufacturing sales	AUSALMANB	No	Quarterly
Australia New capital expenditure: industries	AUAEXINDD	No	Quarterly
Australia Stocks: book value - manufacturing level	AUSTKMAND	No	Quarterly
Australia Capacity utilisation	AUCAPUTLQ	Yes	Quarterly
Australia NAB business survey: business confidence	AUCNFBUSR	No	Quarterly
Australia Melbourne/Westpac leading index of economic	AUCYLEADQ	Yes	Quarterly
Australia Gross disposable income - households	AUPERDISB	Yes	Quarterly
Australia Financial intermediaries: lending-loan & banks	AUBANKLPA	Yes	Quarterly
Australia Financial intermediaries: narrow credit - private sector	AUCRDCONB	Yes	Quarterly
Australia Company gross operating profits - all industries	AUPROFTSB	Yes	Quarterly
Australia Sales income - manufacturing	AUSALMAND	Yes	Quarterly
Australia stocks: book value - owned by private businesses	AUBOOKVAD	Yes	Quarterly
Australia housing finance: all lenders-owner occupied housing(number)	AUFINOOHO	Yes	Quarterly
Australia house fin: all lenders - investment housing	AUFINIVHB	Yes	Quarterly

Table 8. Input data for the Canadian economic factor

Variable	Identifier	SA	Frequency
Canada GNP at market prices	CNGNP...B	No	Quarterly
Canada GDP - all industries	CNGDPI..D	Yes	Quarterly
Canada GDP - industrial production	CNIPTOT.C	Yes	Quarterly
Canada GDP - industrial production constant prices	CNIPTOT.D	Yes	Quarterly
Canada GDP - manufacturing	CNIPMAN.D	Yes	Quarterly
Canada Personal consumption expenditures	CNCNPER.B	No	Quarterly
Canada Personal consumption expenditures constant prices	CNCNPER.D	No	Quarterly
Canada Government net current expenditure	CNCNGOV.D	No	Quarterly
Canada Business GFCF	CNGFCF..D	No	Quarterly
Canada Business inventory change	CNINVCH.D	No	Quarterly
Canada Exports of goods & services	CNEXNGS.D	No	Quarterly
Canada Imports of goods & services (chained, sa, ar) cona	CNIMNGS.D	No	Quarterly
Canada Implicit price deflator of GDP vola	CNGDPIPDE	No	Quarterly
Canada BOP: current account balance cura	CNCURBALB	Yes	Quarterly
Canada Exports of goods (bop basis) cura	CNEXPBOPB	Yes	Quarterly
Canada Imports of goods (bop basis) cura	CNIMPBOPB	No	Quarterly
Canada Official international reserves:total curn	CNRESERVA	Yes	Quarterly
Canada Canadian dollars to 1 US Dollar (monthly average)	CNXRUSD.	Yes	Quarterly
Canada JP Morgan trade weighted index	CNXTW..RF	Yes	Quarterly
Canada Monetary base (sa) cura	CNM0....B	No	Quarterly
Canada Money supply m1 plus gross cura	CNM1....B	Yes	Quarterly
Canada Money supply m2 cura	CNM2....B	Yes	Quarterly
Canada Money supply m3 cura	CNM3....B	Yes	Quarterly
Canada Bank rate (end month)	CNPRATE.	Yes	Quarterly
Canada Overnight money market financing rate	CNB14044	Yes	Quarterly
Canada Interest rate: 3 month treasury bills	CNGBILL3	Yes	Quarterly
Canada Chartered banks prime rate	CNBANKR.	Yes	Quarterly
Canada Government bond yield - over 10 years	CNGBOND.	Yes	Quarterly
Canada Toronto stock exchange composite share price index	CNSHRPRCF	Yes	Quarterly
Canada Federal government budgetary surplus or deficit	CNGOVBALA	Yes	Quarterly
Canada Consumer credit	CNCRDCONA	Yes	Quarterly
Canada Retail sales: total (adjusted) cura	CNRETTOTB	Yes	Quarterly
Canada Retail sales: total excl. Motor vehicle & parts dealers	CNSRETXMB	Yes	Quarterly
Canada Personal saving rate (saving as % of disposable income)	CNPERSAVQ	No	Quarterly
Canada Disposable personal income	CNPERDISB	No	Quarterly
Canada Employment - Canada (15 yrs & over)	CNEMPTOTO	No	Quarterly
Canada Full-time employment (15 yrs & over)	CNEMPFT.O	Yes	Quarterly
Canada Employment- industrial aggregate	CNEMPALLO	No	Quarterly
Canada Unemployment (15 yrs & over)	CNUNPTOTO	Yes	Quarterly
Canada Employment insurance	CNUNINSBO	Yes	Quarterly
Canada Avg. hourly earnings- industrial aggregate	CNWAGES.A	Yes	Quarterly
Canada Avg. weekly earn- industrial aggregate	CN186863	Yes	Quarterly
Canada Average hourly earnings - manufacturing	CNWAGMANA	Yes	Quarterly
Canada Labour productivity - business sector	CNPRODVTQ	No	Quarterly
Canada Unit labour cost - business sector	CNLCOST.E	No	Quarterly
Canada Compensation per hour worked - business sector	CNCOMPBSE	No	Quarterly
Canada Capacity utilization rate: all industries	CNCAPUTLR	No	Quarterly
Canada Chartered banks: Canada$ business loans (short-term)	CNBANKLPB	Yes	Quarterly

Canada Ivey purchasing managers survey index: purchases	CNIVEYPUR	No	Quarterly
Canada Housing starts: all areas	CNHOUSE.O	Yes	Quarterly
Canada Building permits: total	CND2677.	No	Quarterly
Canada New housing price index	CNP10248	Yes	Quarterly
Canada All industries: net profit	CNPROFTSB	No	Quarterly
Canada New orders: all manufacturing industries	CNNEWORDB	No	Quarterly
Canada New orders: durable goods industries	CNM00902	No	Quarterly
Canada Shipments: all manufacturing industries	CNM00426	No	Quarterly
Canada Inventory owned: all manufacturing industries	CNM03204	No	Quarterly
Canada Inventory owned/shipments ratio:all mfg.inds.	CNM03290	No	Quarterly
Canada Unfilled orders: all manufacturing industries	CNM01352	No	Quarterly
Canada Wholesale trade sales	CNSWTOT.B	No	Quarterly
Canada Wholesale trade inventory	CNINVWT.B	Yes	Quarterly
Canada Export unit value price index	CNEXPPRCE	Yes	Quarterly
Canada Import unit value price index	CNIMPPRCE	No	Quarterly
Canada Composite leading indicator - trend restored	CNCYLEADT	No	Quarterly
Canada Composite leading indicator - amplitude adjusted	CNCYLEADR	No	Quarterly
Canada Toronto stock price index, tse300	CN100050	No	Quarterly
Canada Ivey purchasing managers survey index: employment	CNIVEYEMR	No	Quarterly
Canada Ivey purchasing managers survey index: inventories	CNIVEYINR	No	Quarterly
Canada Ivey purchasing managers survey index: supplier deliveries	CNIVEYLTR	Yes	Quarterly
Canada Ivey purchasing managers survey index: prices paid j	CNIVEYPPR	Yes	Quarterly
Canada Employment - Canada (15 yrs & over)	CNEMPTOTO	No	Quarterly
Canada Full-Time employment (15 yrs & over)	CNEMPFT.O	Yes	Quarterly
Canada Employment- industrial aggregate incl. Unclassified	CNEMPALLO	No	Quarterly
Canada Unemployment (15 yrs & over)	CNUNPTOTO	Yes	Quarterly
Canada Employment insurance - regular beneficiaries	CNUNINSBO	Yes	Quarterly
Canada Avg.hourly earn- industrial aggregate excl. Unclassified	CNWAGES.A	Yes	Quarterly

Table 9. Input data for the China economic factor

Variable	Identifier	SA	Frequency
China GDP (ds calculated)	CHGDP...A	yes	Quarterly
China Composite leading indicator	CHCYLEADQ	no	Quarterly
China Gold and foreign reserves - foreign reserve	CHRESERVA	yes	Quarterly
China Exports	CHEXPGDSA	yes	Quarterly
China imports	CHIMPGDSA	yes	Quarterly
China external trade balance	CHVISGDSA	yes	Quarterly
China Chinese Yuan to US Dollar (average amount)	CHXRUSD.	yes	Quarterly
China Money supply - currency in circulation	CHM0....A	yes	Quarterly
China Money supply - M1	CHM1....A	yes	Quarterly
China Shanghai SE composite index - close	CHSHRPRCF	yes	Quarterly
China Government expenditure - deficit/surplus	CHGOVBALA	yes	Quarterly
China Retail sales: consumer goods	CHRETTOTA	yes	Quarterly
China per capita disposable income,urban households	CHPERDISA	yes	Quarterly
China Employed persons	CHEMPALLP	yes	Quarterly
China Job vacancies	CHVACTOTP	yes	Quarterly
China Salaries: gross- manufacturing	CHWAGMANA	yes	Quarterly
China Entrepreneur confidence index	CHCNFBUSR	yes	Quarterly
China Industrial production index	CHIPTOT.H	yes	Quarterly
China Industrial prod.: gross value added	CHVA%NATR	yes	Quarterly
China Coincident index	CHCOININ	yes	Quarterly
China Consumer confidence index	CHCNFCONR	yes	Quarterly
China Investment: fixed assets - urban areas	CHIFATOTA	yes	Quarterly
China Exports (unrevised)	CHEXPUDSA	no	Quarterly
China Imports (unrevised)	CHIMPUDSA	no	Quarterly
China Retail sales: consumer goods (unrevised)	CHRETUOTA	yes	Quarterly
China Business cycle signal	CHBCYSIGQ	no	Quarterly
China Freight traffic	CHFRETOTP	yes	Quarterly
China Cargo handled at major seaports	CHCGOTOTP	yes	Quarterly
China Consumer expectation index j	CHNBSCXIR	no	Quarterly
China Newly started projects:	CHNSPRAHP	yes	Quarterly
China Newly started projects: Beijing	CHNSPRBEP	yes	Quarterly
China Newly started projects: Central area	CHNSPRCEP	yes	Quarterly
China Newly started projects: Chongqing	CHNSPRCHP	yes	Quarterly
China Newly started projects: Eastern area	CHNSPREAP	yes	Quarterly
China Newly started projects: Fujian	CHNSPRFJP	yes	Quarterly
China Newly started projects: Gansu	CHNSPRGAP	yes	Quarterly
China Newly started projects: Guangdong	CHNSPRGUP	yes	Quarterly
China Newly started projects: Guangxi	CHNSPRGXP	yes	Quarterly
China Newly started projects: Guizhou	CHNSPRGIP	yes	Quarterly
China Newly started projects: Hainan	CHNSPRHAP	yes	Quarterly
China newly started projects: Hebei	CHNSPRHIP	yes	Quarterly
China newly started projects: Heilongjiang	CHNSPRHJP	yes	Quarterly
China newly started projects: Henan	CHNSPRHEP	yes	Quarterly
China newly started projects: Hubei	CHNSPRHBP	yes	Quarterly
China GDP (DS calculated)	CHGDP...A	yes	Quarterly
China Composite leading indicator	CHCYLEADQ	no	Quarterly
China Gold and foreign reserves - foreign reserve	CHRESERVA	yes	Quarterly
China Exports	CHEXPGDSA	yes	Quarterly
China Imports	CHIMPGDSA	yes	Quarterly

China External trade balance	CHVISGDSA	yes	Quarterly
China Chinese Yuan to US dollar (average amount)	CHXRUSD.	yes	Quarterly
China Money supply - currency in circulation	CHM0....A	yes	Quarterly
China Newly started projects: Hunan	CHNSPRHUP	yes	Quarterly
China Newly started projects: Inner Mongolia	CHNSPRMNP	yes	Quarterly
China Newly started projects: Jiangsu	CHNSPRJSP	yes	Quarterly
China Newly started projects: Jiangxi	CHNSPRJNP	yes	Quarterly
China Newly started projects: Jilin	CHNSPRJLP	yes	Quarterly
China Newly started projects: Liaoning	CHNSPRLIP	yes	Quarterly
China Newly started projects: Ningxia	CHNSPRNIP	yes	Quarterly
China Newly started projects: Qinghai	CHNSPRQIP	yes	Quarterly
China Newly started projects: Shaanxi	CHNSPRSXP	yes	Quarterly
China Newly started projects: Shandong	CHNSPRSDP	yes	Quarterly
China Newly started projects: Shanghai	CHNSPRSHP	yes	Quarterly
China Newly started projects: Shanxi	CHNSPRSIP	yes	Quarterly
China Newly started projects: Sichuan	CHNSPRSNP	yes	Quarterly
China Newly started projects: Tianjin	CHNSPRTIP	yes	Quarterly
China Newly started projects: Tibet	CHNSPRTBP	yes	Quarterly
China Newly started projects: Western area	CHNSPRWEP	yes	Quarterly
China Newly started projects: Xinjiang	CHNSPRXJP	yes	Quarterly
China Newly started projects: Yunnan	CHNSPRYUP	yes	Quarterly
China Newly started projects: Zhejiang	CHNSPRZHP	yes	Quarterly
China Projects under construction: Anhui	CHPCNRAHP	yes	Quarterly
China Projects under construction: Beijing	CHPCNRBEP	yes	Quarterly
China Projects under construction: Central area	CHPCNRCEP	yes	Quarterly
China Projects under construction: Chinaongqing	CHPCNRCHP	yes	Quarterly
China projects under construction: Eastern area	CHPCNREAP	yes	Quarterly
China projects under construction: Fujian	CHPCNRFJP	yes	Quarterly
China projects under construction: Gansu	CHPCNRGAP	yes	Quarterly
China projects under construction: Guangdong	CHPCNRGUP	yes	Quarterly
China projects under construction: Guangxi	CHPCNRGXP	yes	Quarterly
China projects under construction: Guizhou	CHPCNRGIP	yes	Quarterly
China projects under construction: Hainan	CHPCNRHAP	yes	Quarterly
China projects under construction: Hebei	CHPCNRHIP	yes	Quarterly
China projects under construction: Heilongjiang	CHPCNRHJP	yes	Quarterly
China projects under construction: Henan	CHPCNRHEP	yes	Quarterly
China projects under construction: Hubei	CHPCNRHBP	yes	Quarterly
China projects under construction: Hunan	CHPCNRHUP	yes	Quarterly
China projects under construction: Inner Mongolia	CHPCNRMNP	yes	Quarterly
China projects under construction: Jiangsu	CHPCNRJSP	yes	Quarterly
China projects under construction: Jiangxi	CHPCNRJNP	yes	Quarterly
China projects under construction: Jilin	CHPCNRJLP	yes	Quarterly
China projects under construction: Liaoning	CHPCNRLIP	yes	Quarterly
China projects under construction: Ningxia	CHPCNRNIP	yes	Quarterly
China projects under construction: Qinghai	CHPCNRQIP	yes	Quarterly
China projects under construction: Shaanxi	CHPCNRSXP	yes	Quarterly
China projects under construction: Shandong	CHPCNRSDP	yes	Quarterly
China projects under construction: Shanghai	CHPCNRSHP	yes	Quarterly
China projects under construction: Shanxi	CHPCNRSIP	yes	Quarterly
China projects under construction: Sichuan	CHPCNRSNP	yes	Quarterly
China projects under construction: Tianjin	CHPCNRTIP	yes	Quarterly
China projects under construction: Tibet	CHPCNRTBP	yes	Quarterly
China projects under construction: Western area	CHPCNRWEP	yes	Quarterly

China projects under construction: Xinjiang	CHPCNRXJP	yes	Quarterly
China projects under construction: Yunnan	CHPCNRYUP	yes	Quarterly
China projects under construction: Zhejiang	CHPCNRZHP	yes	Quarterly
China newly started projects: Hunan	CHNSPRHUP	yes	Quarterly
China newly started projects: Inner Mongolia	CHNSPRMNP	yes	Quarterly
China newly started projects: Jiangsu	CHNSPRJSP	yes	Quarterly
China newly started projects: Jiangxi	CHNSPRJNP	yes	Quarterly
China newly started projects: Jilin	CHNSPRJLP	yes	Quarterly
China newly started projects: liaoning	CHNSPRLIP	yes	Quarterly

Table 10. Input data for the German economic factor

Variable	Identifier	SA	Frequency
Germany GDP	BDGDP...D	Yes	Quarterly
Germany Chain-type price index - GDP	BDGDP..CF	Yes	Quarterly
Germany Consumer expenditure	BDCNPER.D	No	Quarterly
Germany Government consumption	BDCNGOV.D	Yes	Quarterly
Germany Fixed investment	BDGFCF..D	Yes	Quarterly
Germany GCF - changes in inventories	BDINVCH.B	Yes	Quarterly
Germany Change in stocks	BDINVCH.A	Yes	Quarterly
Germany Exports of goods & services	BDEXNGS.D	Yes	Quarterly
Germany Imports of goods & services	BDIMNGS.D	Yes	Quarterly
Germany GNI	BDGNP...B	Yes	Quarterly
Germany IPD of GDP	BDGDPIPDE	No	Quarterly
Germany Business expectations (pan Germany)	BDCYLEADQ	No	Quarterly
Germany Composite leading indicator - trend restored	BDCYLEADT	No	Quarterly
Germany BOP capital and financial account balance (pan Germany)	BDCAFBALA	Yes	Quarterly
Germany Current account balance	BDCURBALA	No	Quarterly
Germany Exports fob	BDEXPBOPB	No	Quarterly
Germany Imports	BDIMPBOPB	Yes	Quarterly
Germany Visible trade balance (pan Germany m0790)	BDVISBOPB	Yes	Quarterly
Germany Exports fob (pan Germany m0790)	BDEXPGDSB	Yes	Quarterly
Germany Imports cif (pan Germany m0790)	BDIMPGDSB	Yes	Quarterly
Germany Visible trade balance	BDVISGDSB	Yes	Quarterly
Germany Reserves - monetary: total	BDRESERVA	Yes	Quarterly
Germany Exports (trade volume on 2005 basis)	BDEXPGDSD	Yes	Quarterly
Germany Imports (trade volume on 2005 basis)	BDIMPGDSD	No	Quarterly
Germany Visible trade balance (trade volume on 2005 basis)	BDVISGDSD	Yes	Quarterly
Germany German marks to US$ (mth.avg.)	BDXRUSD.	No	Quarterly
Germany US $ to 1 euro (Deutschemark derived history prior 1999)	BDXRUSE.	No	Quarterly
Germany Money supply m0	BDM0....A	Yes	Quarterly
Germany Money supply-German contribution to euro m1	BDM1....A	Yes	Quarterly
Germany GDP	BDGDP...D	Yes	Quarterly
Germany Chain-type price index - GDP	BDGDP..CF	Yes	Quarterly
Germany Consumer expenditure	BDCNPER.D	No	Quarterly
Germany Government consumption	BDCNGOV.D	Yes	Quarterly
Germany Fixed investment	BDGFCF..D	Yes	Quarterly
Germany GCF - changes in inventories	BDINVCH.B	Yes	Quarterly
Germany Change in stocks	BDINVCH.A	Yes	Quarterly
Germany Exports of goods & services	BDEXNGS.D	Yes	Quarterly
Germany Imports of goods & services	BDIMNGS.D	Yes	Quarterly
Germany GNI	BDGNP...B	Yes	Quarterly
Germany IPD of GDP	BDGDPIPDE	No	Quarterly
Germany Business expectations (pan Germany)	BDCYLEADQ	No	Quarterly
Germany Composite leading indicator - trend restored	BDCYLEADT	No	Quarterly
Germany BOP capital and financial account balance	BDCAFBALA	Yes	Quarterly
Germany Current account balance	BDCURBALA	No	Quarterly
Germany Exports fob	BDEXPBOPB	No	Quarterly
Germany Imports	BDIMPBOPB	Yes	Quarterly
Germany Visible trade balance (pan Germany m0790)	BDVISBOPB	Yes	Quarterly
Germany Exports fob (pan Germany m0790)	BDEXPGDSB	Yes	Quarterly
Germany Imports cif (pan Germany m0790)	BDIMPGDSB	Yes	Quarterly
Germany Visible trade balance	BDVISGDSB	Yes	Quarterly

Germany German marks to US$ (mth.avg.)	BDXRUSD.	No	Quarterly
Germany US $ to 1 euro (deutschemark derived history prior 1999)	BDXRUSE.	No	Quarterly
Germany Money supply M0	BDM0....A	Yes	Quarterly
Germany Money supply-German contribution to euro m1	BDM1....A	Yes	Quarterly
Germany Money supply- M2	BDM2....B	Yes	Quarterly
Germany Money supply- M3	BDM3....B	Yes	Quarterly
Germany Discount rate / short term euro repo rate	BDPRATE.	Yes	Quarterly
Germany FIBOR - 3 month (mth.avg.)	BDINTER3	Yes	Quarterly
Germany Bank prime lending rate / ecb marginal lending facility	BDBANKR.	Yes	Quarterly
Germany Long term government bond yield - 9-10 years	BDGBOND.	Yes	Quarterly
Germany DAX share price index,	BDSHRPRCF	Yes	Quarterly
Germany Federal/lander government deficit/surplus	BDGOVBALA	Yes	Quarterly
Germany Consumer confidence indicator - Germany	BDCNFCONQ	No	Quarterly
Germany New passenger car registrations	BDCAR...P	Yes	Quarterly
Germany Retail sales excl.cars (expanded sample from 0106)	BDRETTOTE	Yes	Quarterly
Germany Personal savings ratio (pan Germany q0191)	BDPERSAVE	Yes	Quarterly
Germany Disposable income (pan Germany q0191)	BDPERDISB	Yes	Quarterly
Germany Employed persons (residence concept, ILO)	BDEMPTOTO	Yes	Quarterly
Germany Unemployment level (pan Germany from Sept 1990)	BDUNPTOTP	Yes	Quarterly
Germany Unemployment level (pan Germany from Jan 1992)	BDUNPTOTO	Yes	Quarterly
Germany Unemployment: % civilian labour dependent labour to	BDUNTOTR	Yes	Quarterly
Germany Unemployment: % civilian labour dependent labour to	BDUNTOTQ	Yes	Quarterly
East Germany Unemployment rate civilian labour force)	EGUNTOTQ	No	Quarterly
West Germany Unemployment: % civilian labour dependent	WGUNTOTQ	Yes	Quarterly
Germany Productivity & labour costs: labour costs per unit of output	BDLCOST.E	Yes	Quarterly
Germany Wages and salaries per unit of output - prod. Sector	BDLCOST0G	Yes	Quarterly
Germany Capacity utilisation-mfg.	BDCAPUTLQ	No	Quarterly
Germany Unemployment ratio as % of dependent labour force	BDUSCC03Q	No	Quarterly
Germany Vacancies (pan Germany from m0790)	BDVACTOTP	Yes	Quarterly
Germany Wage & salary, overall economy-on a mthly basis	BDWAGES.F	Yes	Quarterly
Germany Wage & salary: on hrly. Basis - prdg. Sector	BDWAGMANF	Yes	Quarterly
Germany Productivity: output per man-hour worked in industry	BDPRODVTQ	No	Quarterly

Table 11. Input data for the Japanese economic factor

Variable	Identifier	SA	Frequency
Japan GDP	JPGDP...D	Yes	Quarterly
Japan Private consumption expenditure	JPCNPER.D	Yes	Quarterly
Japan Government consumption expenditure	JPCNGOV.D	Yes	Quarterly
Japan GFCF	JPGFCF..D	Yes	Quarterly
Japan Changes in stocks	JPINVCH.D	Yes	Quarterly
Japan Exports of goods & services	JPEXNGS.D	Yes	Quarterly
Japan Imports of goods & services	JPIMNGS.D	Yes	Quarterly
Japan GNI	JPGNP...D	Yes	Quarterly
Japan Import excluding FISIM	JPIMPEFID	Yes	Quarterly
Japan Export excluding FISIM	JPEXPEFID	Yes	Quarterly
Japan Household final expenditure: durable goods	JPCHFEDGD	Yes	Quarterly
Japan Household final expenditure: services	JPCHFESVD	No	Quarterly
Japan New housing construction started	JPHOUSE.O	Yes	Quarterly
Japan New housing construction started	JPHOUSSTO	Yes	Quarterly
Japan Building construction started	JPBCNTOTP	Yes	Quarterly
Japan LPI: nationwide	JPLANDPIF	Yes	Quarterly
Japan Construction works: new orders	JPCONWNOA	Yes	Quarterly
Japan Leading diffusion index	JPCYLEADR	Yes	Quarterly
Japan BOP: capital & financial account balance	JPCAFBALA	Yes	Quarterly
Japan BOP: visible trade balance	JPVISBOPB	No	Quarterly
Japan BOP: imports of goods	JPIMPBOPB	Yes	Quarterly
Japan BOP: exports of goods	JPEXPBOPB	No	Quarterly
Japan Japanese Yen to US $	JPXRUSD.	No	Quarterly
Japan Japanese Yen real effective exchange rate index	JPXTW..RF	Yes	Quarterly
Japan Japanese Yen effective exchange rate index	JPXTW..NF	No	Quarterly
Japan Overnight call money rate, uncollateralised	JPPRATE.	No	Quarterly
Japan Money supply: m4 broad liquidity	JPM4....A	No	Quarterly
Japan Overnight uncollaterised call money rate (avg.)	JPCALLM%	No	Quarterly
Japan Prime rate - long term	JPBANKR.	No	Quarterly
Japan Interest-bearing government bonds - 10-year	JPGBOND.	Yes	Quarterly
Japan Tokyo stock exchange - TOPIX	JPSHRPRCF	No	Quarterly
Japan Motor vehicle new registrations: passenger cars excl.below	JPCAR...P	Yes	Quarterly
Japan Retail sales	JPRETTOTA	Yes	Quarterly
Japan Monthly workers savings & insurance rate	JPPERSAV	Yes	Quarterly
Japan Retail sales index	JPRETTOTE	Yes	Quarterly
Japan Empd pers. - non agl. Inds	JPEMPALLO	Yes	Quarterly
Japan Unemployment level	JPUNPTOTO	Yes	Quarterly
Japan Unempd seeking empl	JPUNPTOTP	Yes	Quarterly
Japan Unemployment rate	JPUN%TOTQ	Yes	Quarterly
Japan Unfilled vacancies: new job offers	JPVACTOTO	Yes	Quarterly
Japan Average monthly cash earn.- manufacturing	JPWAGMANA	Yes	Quarterly
Japan Wage index: cash earnings - manufacturing	JPWAGMANE	Yes	Quarterly
Japan Wage index: cash earnings - all industries	JPWAGES.E	Yes	Quarterly
Japan Wage index: contract cash earnings - manufacturing	JPWGMFREE	Yes	Quarterly
Japan GDP	JPGDP...D	Yes	Quarterly
Japan Private consumption expenditure	JPCNPER.D	Yes	Quarterly
Japan Government consumption expenditure	JPCNGOV.D	Yes	Quarterly
Japan GDFCF	JPGFCF..D	Yes	Quarterly
Japan Changes in stocks	JPINVCH.D	Yes	Quarterly
Japan Exports of goods & services	JPEXNGS.D	Yes	Quarterly
Japan Imports of goods & services	JPIMNGS.D	Yes	Quarterly

Japan Labor productivity index - all industries sadj	JPPRODVTE	Yes	Quarterly
Japan Aggregate bank lending (excl. Shinkin banks)	JPBANKLPA	Yes	Quarterly
Japan Outlook svy.of large co.on ind.bus.cndtns,actl	JPCNFBUSQ	Yes	Quarterly
Japan Industrial production - mining & manufacturing	JPIPTOT.G	Yes	Quarterly
Japan Industrial production - manufacturing	JPIPMAN.G	Yes	Quarterly
Japan Incorporated business: current profits - all industries	JPPROFTSA	Yes	Quarterly
Japan Machinery orders: private-sectors (excl. Ships)	JPNEWORDB	Yes	Quarterly
Japan Business failures	JPBNKRPTP	Yes	Quarterly
Japan CPI: national measure	JPCONPRCE	Yes	Quarterly
Japan CPI: national measure	JPCONPRCF	Yes	Quarterly
Japan Tankan: bus. Cndtn. - all entps., ind., actl.	JPTKALABF	Yes	Quarterly
Japan Tankan: capex - all entps., all industries, actual	JPTKAAX.R	Yes	Quarterly
Japan Tankan: bus. Cndtn. - large entps., non-mfg., actl.	JPTKNMLBF	Yes	Quarterly
Japan Tankan: bus. Cndtn. - small entps., mfg., actl.	JPTKMFSBF	Yes	Quarterly
Japan Tankan: bus. Cndtn. - large entps., mfg., actl.	JPTKMFLBF	Yes	Quarterly
Japan Workers household living expenditure (incl. Aff)	JPHLEXPWA	Yes	Quarterly
Japan Workers hh living expnd. Index (incl. Aff)	JPILTLW.G	Yes	Quarterly
Japan Leading composite index	JPCMLEAD	Yes	Quarterly
Japan exports	JPEXPGDSA	Yes	Quarterly
Japan Imports	JPIMPGDSA	Yes	Quarterly
Japan Visible trade balance	JPVISGDSA	Yes	Quarterly
Japan Economy watchers svy.: total, actl.	JPBSTOTAR	Yes	Quarterly
Japan Orders received for mach-priv.sector excl.volatile orders	JPLEMORDD	Yes	Quarterly
Japan New housing construction started - total floor area	JPLEFLHCO	Yes	Quarterly
Japan Interest rate spread	JPINTRTS	Yes	Quarterly
Japan Investment climate index - manufacturing	JPLEIVTCE	Yes	Quarterly
Japan Producer's inventory ratio: fg(final demand gds,inverted)	JPLEPFDGE	Yes	Quarterly
Japan Producer's inventory ratio: fg (mining & mfg., inverted)	JPPRIRFGG	Yes	Quarterly
Japan New job offers except for new graduates - all industries	JPLENJOFE	Yes	Quarterly
Japan Consumer confidence index (incl.1 person hh.)	JPEPACOFR	Yes	Quarterly
Japan Nikkei commodity price index (42 items)	JPLENX42F	Yes	Quarterly
Japan Stock prices (topix)	JPSTOPRIF	Yes	Quarterly
Japan Sales forecast d.i. Of small business	JPSFSMBUQ	Yes	Quarterly
Japan Producer' shipments-producer goods for mining & mfg	JPPRSPGMG	Yes	Quarterly
Japan Electric power consumption - large corporations	JPCCEPCSE	Yes	Quarterly
Japan Producer's shipment: durable consumer goods	JPPRSDCGG	Yes	Quarterly
Japan Hours worked index: overtime - industries covered	JPHEALREG	Yes	Quarterly
Japan Producers shipment: investment goods excl. Transport	JPCCPSIGG	Yes	Quarterly
Japan Retail sales value s	JPRETSALE	Yes	Quarterly
Japan Wholesale business sales index	JPCCSWHSE	Yes	Quarterly
Japan Operating profits - all industries (cao)	JPCPOINMB	Yes	Quarterly
Japan Producers shipment: small & mid sized enterprises - mfg.	JPCCSMPSG	Yes	Quarterly
Japan Ratio of effective job offers per one applicant	JPJOBAPPE	Yes	Quarterly
Japan Tertiary inds. Activity index: business services	JP3RDISBE	Yes	Quarterly
Japan Employment: regular workers(%yoy)	JPRWREMAQ	Yes	Quarterly
Japan Business expend.s for new plant & equipment-all inds.	JPLABEPMD	Yes	Quarterly
Japan Family expend.s - workers household, excld. Aff (%yoy)	JPLAFLEXE	Yes	Quarterly
Japan CORPORATE tax revenue	JPLACRTXB	Yes	Quarterly
Japan unemployment rate (metho break mar 2011)	JPTOTUN%E	Yes	Quarterly

Table 12. Input data for the Korean economic factor

Variable	Identifier	SA	Frequency
Korea GNI	KOGNP...B	Yes	Quarterly
Korea GDP	KOGDP...D	Yes	Quarterly
Korea Private consumption expenditure	KOCNPER.D	Yes	Quarterly
Korea Final consumption expenditure	KOCNEXP.B	Yes	Quarterly
Korea Final consumption expenditure	KOCNEXP.D	Yes	Quarterly
Korea Government consumption expenditure	KOCNGOV.B	Yes	Quarterly
Korea Government consumption expenditure	KOCNGOV.D	Yes	Quarterly
Korea GFCF	KOGFCF..D	Yes	Quarterly
Korea Changes in inventories	KOINVCH.D	Yes	Quarterly
Korea Exports of goods & services	KOEXNGS.D	Yes	Quarterly
Korea Imports of goods & services	KOIMNGS.D	Yes	Quarterly
Korea Leading composite index	KOCYLEADR	Yes	Quarterly
Korea Government consumption expenditure	KOCNGOV.D	Yes	Quarterly
Korea Private consumption expenditure	KOCNPER.D	No	Quarterly
Korea Final consumption expenditure	KOCNEXP.D	No	Quarterly
Korea Producers shipment	KOPRSHIPG	Yes	Quarterly
Korea Producers shipment for domestic market	KOIPSHDOG	No	Quarterly
Korea Producers shipment for export	KOIPSHEXG	No	Quarterly
Korea Manufacturing shipment - consumer non-durable goods	KOMSCONNG	No	Quarterly
Korea Manufacturing shipment - consumer durable goods	KOMSCONDG	No	Quarterly
Korea Manufacturing shipment - consumer goods	KOMSCONGG	No	Quarterly
Korea Construction orders - dwellings	KOHOUSESA	Yes	Quarterly
Korea Housing purchase price index	KOHOUSE.F	No	Quarterly
Korea Housing purchase price index - apartment (Seoul)	KOHOUSASF	No	Quarterly

Table 13. Input data for the UK economic factor

Variable	Identifier	SA	Frequency
UK Gross national income cura	UKGNP...B	Yes	Quarterly
UK GDP at market prices (cvm) cona	UKGDP...D	Yes	Quarterly
UK Consumer spending (cvm) cona	UKCNPER.D	Yes	Quarterly
UK General government: final consumption expenditure(cvm) cona	UKCNGOV.D	Yes	Quarterly
UK GFCF (cvm) cona	UKGFCF..D	Yes	Quarterly
UK Changes in inventories including alignment adjustment(cvm)	UKINVCH.D	Yes	Quarterly
UK Balance of payments: trade in goods & services: total exports	UKEXNGS.D	Yes	Quarterly
UK Imports of goods and services (cvm) cona	UKIMNGS.D	Yes	Quarterly
UK Composite leading indicator - trend restored sadj	UKCYLEADT	Yes	Quarterly
UK Balance of payments: current account balance cura	UKCURBALB	Yes	Quarterly
UK Balance of payments: financial & capital account balance curn	UKCAFBALA	Yes	Quarterly
UK Exports - balance of payments basis cura	UKEXPBOPB	Yes	Quarterly
UK Imports - balance of payments basis cura	UKIMPBOPB	Yes	Quarterly
UK Visible trade balance - balance of payments basis cura	UKVISBOPB	Yes	Quarterly
UK Exports curn	UKEXPGDSA	Yes	Quarterly
UK Imports curn	UKIMPGDSA	No	Quarterly
UK Visible trade balance curn	UKVISGDSA	No	Quarterly
UK UK government gross reserve assets (ep) curn	UKRESERVA	Yes	Quarterly
UK US $ to 1	UKXRUSD.	Yes	Quarterly
UK GBP sterling effective exchange rate index (2005=100) nadj	UKXTW..NF	Yes	Quarterly
UK JP Morgan trade weighted index UK, real,broad basis nadj	UKXTW..RF	Yes	Quarterly
UK Money supply M0: notes & coins in circ.outside bank of englan	UKM0....B	Yes	Quarterly
UK Money supply M1 (estimate of emu aggregate for the UK) cura	UKM1....B	Yes	Quarterly
UK Money supply M2: retail deposits and cash in m4 (ep) cura	UKM2....B	Yes	Quarterly
UK Money supply m3(estimate of emu aggregate for the UK) cura	UKM3....B	No	Quarterly
UK Money supply M4 (ep) (method break jan 2010) cura	UKM4....B	Yes	Quarterly
UK Bank of England base rate (ep)	UKPRATE.	No	Quarterly
UK Interbank rate - 3 month (month avg)	UKINTER3	No	Quarterly
UK Major banks prime lending rate (ep)	UKBANKR.	Yes	Quarterly
UK Gross redemption yield on 20 year gilts (period average) nadj	UKGBOND.	No	Quarterly
UK FT all share index (ep) nadj	UKSHRPRCF	No	Quarterly
UK Public sector net cash requirement curn	UKGOVBALA	No	Quarterly
UK Net international investment position curn	UKEXDEBTA	No	Quarterly
UK Total consumer credit: amount outstanding cura	UKCRDCONB	No	Quarterly
UK Consumer confidence indicator - UK sadj	UKCNFCONQ	Yes	Quarterly
UK Car registrations voln	UKCAR...P	No	Quarterly
UK Retail sales incl. Automotive fuel (method break jan 96) vola	UKRETTOTG	No	Quarterly
UK Retail sales (monthly estimate, ds calculated) cura	UKRETTOTB	Yes	Quarterly
UK Household savings ratio sadj	UKPERSAVE	Yes	Quarterly
UK Households' disposable income cona	UKPERDISD	Yes	Quarterly
UK Workforce jobs - UK vola	UKEMPTOTO	Yes	Quarterly
UK Unemployment claimant count vola	UKUNPTOTO	Yes	Quarterly
UK Unemployment rate sadj	UKUN%TOTQ	Yes	Quarterly
UK Vacancies: total b-s - avg 3 month level vola	UKVACTOTO	Yes	Quarterly
UK Awe: whole economy total pay cura	UKWAGES.B	Yes	Quarterly
UK Awe: manufacturing total pay cura	UKWAGMANB	Yes	Quarterly
UK Productivity - whole economy sadj	UKPRODVTQ	Yes	Quarterly
UK Unit labour cost index - whole economy sadj	UKLCOST.E	Yes	Quarterly
UK CBI enquiry: % working below capacity nadj	UKCAPUTLR	Yes	Quarterly
UK Bank and building society lending total cura	UKBANKLPB	Yes	Quarterly
UK CBI enquiry: business optimism nadj	UKCNFBUSR	Yes	Quarterly

UK Index of production - all production industries vola	UKIPTOT.G	Yes	Quarterly
UK Industrial production index - manufacturing vola	UKIPMAN.G	Yes	Quarterly
UK Total gross operating surplus of corporations cura	UKPROFTSB	Yes	Quarterly
UK New orders obtained - new work (total) cona	UKNEWORDD	Yes	Quarterly
UK Company insolvencies vola	UKBNKRPTO	Yes	Quarterly
UK Export price index - balance of payments basis nadj	UKEXPPRCF	Yes	Quarterly
UK Import price index - balance of payments basis nadj	UKIMPPRCF	Yes	Quarterly
UK Terms of trade - export/import prices (bop basis) nadj	UKTOTPRCF	Yes	Quarterly
UK GFK consumer confidence index nadj	UKGFKCCNR	Yes	Quarterly
UK BOE agents scores: turnover - retail sales nadj	UKAGTORSR	Yes	Quarterly
UK BOE agents scores: turnover - consumer services nadj	UKAGTOCSR	Yes	Quarterly
UK BOE agents scores: turnover - business services nadj	UKAGTB..R	Yes	Quarterly
UK BOE agents scores: output - domestic manufacturing nadj	UKAGOMDMR	Yes	Quarterly
UK BOE agents scores: output - export manufacturing nadj	UKAGOMEXR	Yes	Quarterly
UK BOE agents scores: output - construction nadj	UKAGOCNSR	Yes	Quarterly
UK BOE agents scores: investment intentions - manufacturing nadj	UKAGIMFGR	Yes	Quarterly
UK BOE agents scores: investment intentions - services nadj	UKAGISVSR	Yes	Quarterly
UK BOE agents scores: costs - materials nadj	UKAGCTMTR	Yes	Quarterly
UK BOE agents scores: labour cost per employee-mfg. Nadj	UKAGCEMGR	Yes	Quarterly
UK BOE agents scores: labour cost per employee - services nadj	UKAGCESVR	Yes	Quarterly
UK BOE agents scores: prices - domestic manufacturers nadj	UKAGPMDMR	Yes	Quarterly
UK BOE agents scores: prices - retail goods nadj	UKAGPRTGR	Yes	Quarterly
UK BOE agents scores: prices - retail services nadj	UKAGPRTSR	Yes	Quarterly
UK BOE agents scores: employment intentions - manufacturing nadj	UKAGLEMGR	Yes	Quarterly
UK BOE agents scores: emplmt. Intentions - total services nadj	UKAGLE..R	Yes	Quarterly
UK BOE agents scores: capacity constraints - manufacturing nadj	UKAGCPMGR	Yes	Quarterly
UK BOE agents scores: capacity constraints - services nadj	UKAGCPSVR	Yes	Quarterly
UK Halifax house price index - all houses (seasonally adj.) Sadj	UKHLFXAHE	Yes	Quarterly

Table 14. Input data for the US economic factor

Variable	Identifier	SA	Frequency
US GDP	USGDP...D	Yes	Quarterly
US Personal consumption expenditures	USCNPER.D	Yes	Quarterly
US Government consumption & investment	USCNGOV.D	Yes	Quarterly
US Private domestic fixed investment	USGFCF..D	Yes	Quarterly
US Exports of goods & services	USEXNGS.D	Yes	Quarterly
US Imports of goods & services	USIMNGS.D	Yes	Quarterly
US The Conference Board leading economic indicators index	USCYLEADQ	Yes	Quarterly
US Current account balance	USCURBALB	Yes	Quarterly
US Exports of goods on a balance of payments basis	USEXPBOPB	Yes	Quarterly
US Imports of goods on a balance of payments basis	USIMPBOPB	Yes	Quarterly
US Goods trade balance on a balance of payments basis	USVISBOPB	Yes	Quarterly
US Capital and financial account balance	USCAFBALB	Yes	Quarterly
US Foreign reserve assets	USRESERVA	Yes	Quarterly
US traDe-weighted value of US dollar against major currencies	USXTW..NF	Yes	Quarterly
US Monetary base	USM0....B	Yes	Quarterly
US Federal funds target rate	USPRATE.	No	Quarterly
US Treasury bill rate - 3 month	USGBILL3	No	Quarterly
US Interbank rate - 3 month (London) (month avg)	USINTER3	Yes	Quarterly
US Prime rate charged by banks (month avg)	USBANKR.	Yes	Quarterly
US Treasury yield adjusted to constant maturity - 20 year	USGBOND.	Yes	Quarterly
US Dow Jones industrials share price index	USSHRPRCF	Yes	Quarterly
US Federal government budget balance curn	USGOVBALA	Yes	Quarterly
US Consumer credit outstanding	USCRDCONB	Yes	Quarterly
US Consumer confidence index	USCNFCONQ	No	Quarterly
US New passenger cars - total registrations	USCAR...P	Yes	Quarterly
US Retail sales & food services, total	USRETTOTB	No	Quarterly
US Personal saving as % of disposable personal income	USPERSAVE	No	Quarterly
US Disposable personal income	USPERDISB	Yes	Quarterly
US Employed - nonfarm industries total (payroll survey)	USEMPALLO	No	Quarterly
US Total civilian employment	USEMPTOTO	No	Quarterly
US Unemployed (16 yrs & over)	USUNPTOTO	No	Quarterly
US Unemployment rate	USUN%TOTQ	No	Quarterly
US Avg hrly earn prod wrkrs-manufacturing	USWAGMANA	No	Quarterly
US Output per hour of all persons - business sector	USPRODVTQ	No	Quarterly
US Capacity utilization rate - all industry	USCAPUTLQ	Yes	Quarterly
US ISM purchasing managers index (mfg survey)	USCNFBUSQ	Yes	Quarterly
US Industrial production - total index	USIPTOT.G	Yes	Quarterly
US Bankruptcy filings - total business (12 mo ending)	USBNKRPTP	Yes	Quarterly
US CPI - all items less food & energy (core)	USCPCOREE	Yes	Quarterly
US Export price index - all commodities (end use)	USEXPPRCF	Yes	Quarterly
US Import price index - all commodities (end use)	USIMPPRCF	Yes	Quarterly
US Terms of trade rebased to 1975=100	USTOTPRCF	Yes	Quarterly
US Philadelphia fed outlook survey-diffusion index,mfg.	USFRBPIM	Yes	Quarterly
US Household loan svy-banks willing to make instalment loans	USFLCIW.R	Yes	Quarterly
US FRB Richmond mfg cndtn svy,present - manufacturing index	USFRPMFGQ	Yes	Quarterly
US Total measure of CEO confidence	USCEOCNFR	Yes	Quarterly
US University of Michigan consumer sentiment index	USUMCONSH	Yes	Quarterly
US Univ of Michigan consumer sentiment – expectations	USUMCONEH	Yes	Quarterly
US Univ of Michigan consumer sentiment - current conditions	USUMCONCH	Yes	Quarterly
ECRI weekly leading growth - economic series	USECWLG	Yes	Quarterly
US economic cycle research institute weekly leading index	USECRIWLH	Yes	Quarterly

US New private housing units authorized by bldg.permit	USHOUSATE	Yes	Quarterly
US New private housing units started	USHOUSE.O	Yes	Quarterly
US S&P/Case-Shiller national home price index	USCSHP..F	Yes	Quarterly
US Retail sales & food svcs,total excl motor vehicle & parts dealers	USSRAFSXB	Yes	Quarterly
US Trade-weighted value of US dollar against major currencies	US$CWMCNF	Yes	Quarterly
US Personal consumption expenditures - durables	USCNDURBD	Yes	Quarterly
US Personal consmptn.expend.s - motor vehicles & parts	USCNMVHCD	Yes	Quarterly
US PCE - furniture & household equipment	USCNFURND	Yes	Quarterly
US Personal consumption expenditures - food	USCNFOODD	Yes	Quarterly
US PCE - gasoline, fuel oil, other energy goods	USCNENGGD	Yes	Quarterly