

The Decline of Correspondent Banking in Pacific Island Countries

Technical Paper 6: Empirical Analysis

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1 Overview

The literature review presented in Technical Papers 2, 3 and 4 provides some evidence on the extent and impact of the withdrawal of CBRs in PIF countries. However, this is limited, patchy and inconclusive. This Technical Report provides an overview of a body of work carried out during the past few months which assembled publicly available empirical data, and sought to draw such conclusions as are possible from it.

In what follows, after a brief summary of relevant evidence on the economic performance of each country, 'best estimates' of the extent of CBR decline are presented. The impact of the decline in CBRs on exports is explored; and whether the decline in CBR has had an impact on remittance costs is investigated. Countries are clustered, using measures of risk and connectivity, to assist in the development of policy recommendations. The relationship between CBR decline and compliance with Financial Action Task Force (FATF) regulations is explored. Estimates of criminality and resilience are used to reinforce cluster analysis of the countries.

Annex A lists the primary data sources used; Annex B provides definitions of data used; Annex C presents interpolated CBR trends; Annex D provides a list of commercial banks in PIF countries; Annex E lists the main natural disasters that have occurred in the period; and Annex F summarises the main commodities exported from each country.

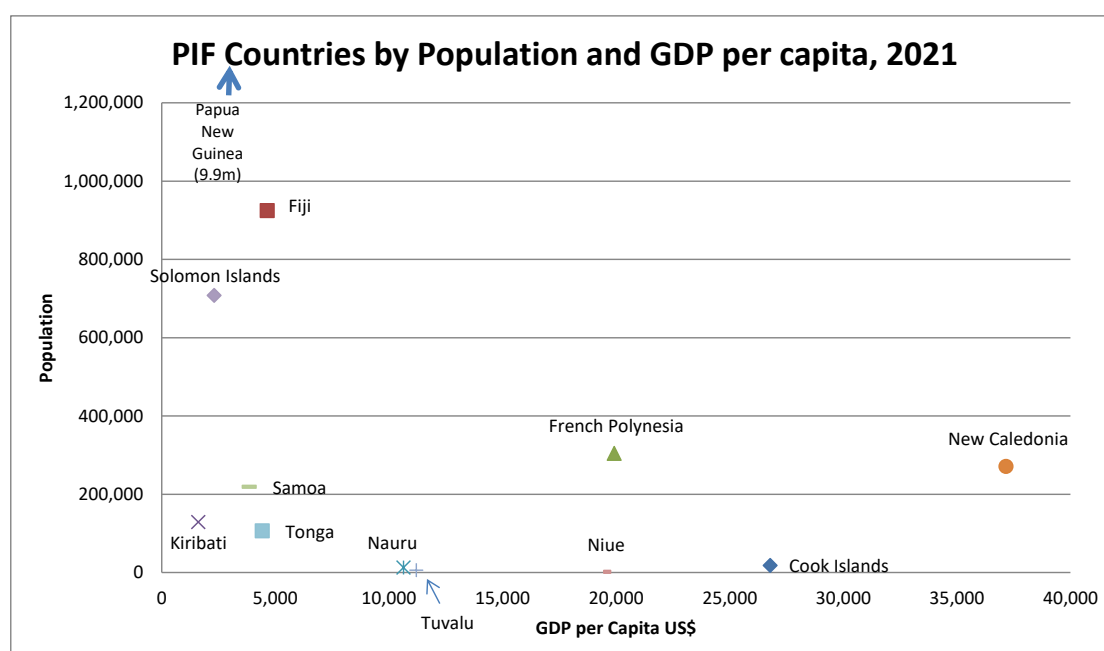
2 Economic Performance of PIF Countries

A key question is whether the decline in CBRs, and persistently high remittance costs, have impacted the trade and other economic performance of the PIF countries. As background, recent economic indicators for the twelve countries are presented below.

The two main sources of data used for this purpose are the World Bank's 'World Development Indicators' (WDI) database, recently updated on 3rd March 2023, and the Asian Development Bank's 'Asian Development Outlook' (ADO). The latter is published every year, and also updated periodically. The update used for this report was issued in September 2022. As figures in the ADO for the same year change from issue to issue, the latest update was used wherever possible. In some cases, neither the WDI nor the ADO provide relevant figures for individual countries, so estimates were obtained from the websites of country central banks or treasuries, or from third parties.

Figure 1 shows how varied the Pacific Island Forum countries are, both by population and by GDP per capita. Four – Nauru, Tuvalu, Niue and Cook Islands – have less than 20,000 people. Only four – Niue, French Polynesia, Cook Islands and New Caledonia – have GDP per capita greater than around US\$20,000. Papua New Guinea, with a population of 9.9 million, is home to 77% of all the people in the group of countries.

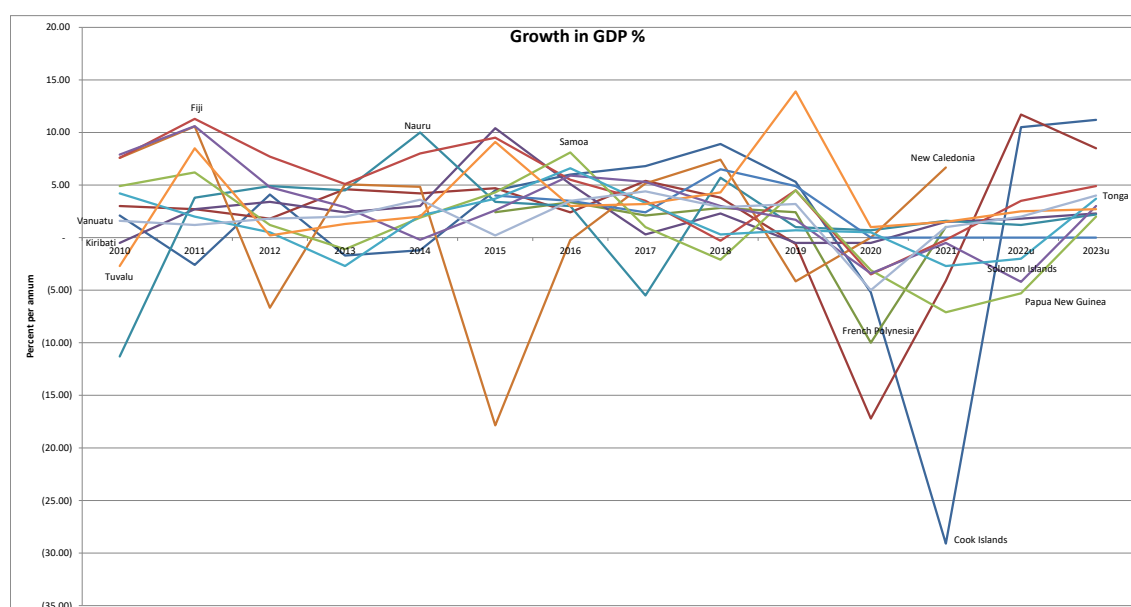
Figure 1 PIF Countries by Population and GDP per Capita, 2021



Sources: World Bank World Development Indicators, Worldometers¹, SPC², MFEM Cook Islands³, World Bank staff estimates.

Recent economic experience has been quite variable, as shown in Figure 2 which presents annual percentage growth in GDP.

Figure 2 Economic Growth in PIF Countries 2010-2021



Source: Asian Development Bank, Asian Development Outlook, various issues, World Bank staff estimates

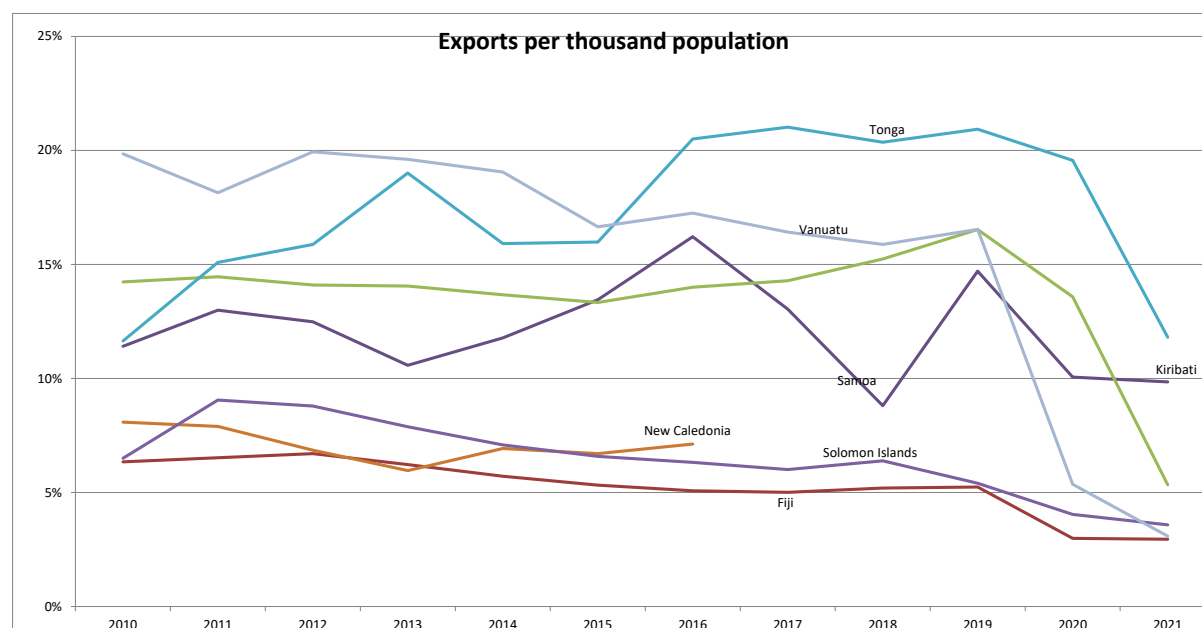
¹ <https://www.worldometers.info/world-population/niue-population/>

² <https://spc.int/our-members/niue/details>

³ <https://www.mfem.gov.ck/statistics/134-economic-statistics/national-accounts>

Exports per 1,000 population have been flat or declining until recently, with a fall in the last few years, as shown in Figure 3.

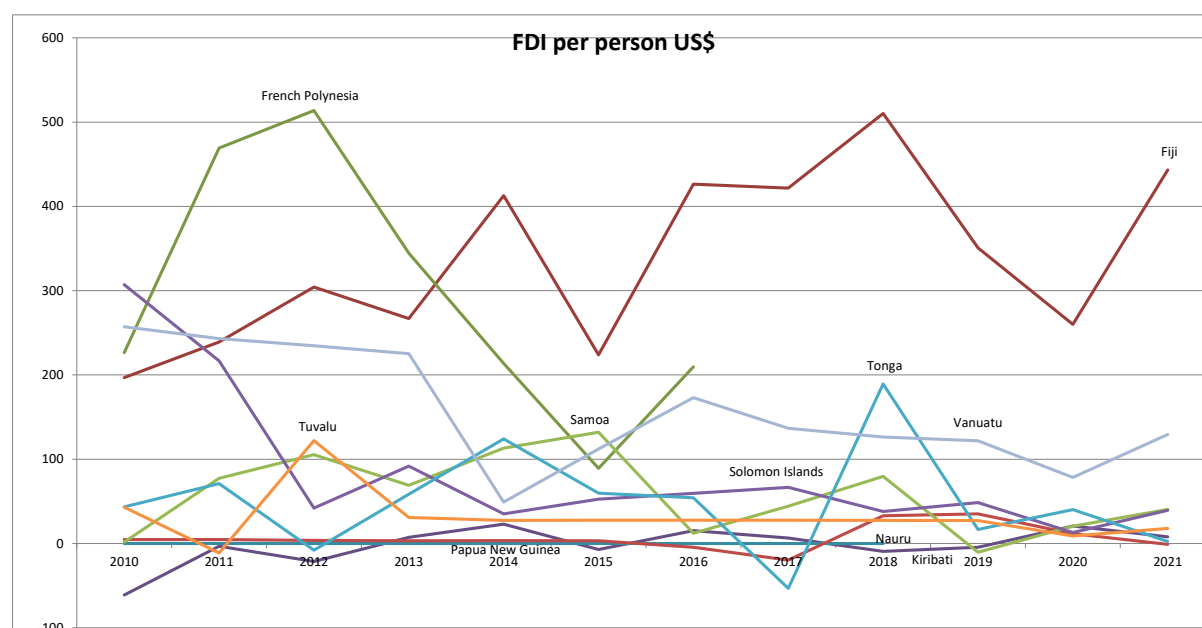
Figure 3 Exports per 1,000 population, 2010-2021



Source: World Bank World Development Indicators, World Bank staff estimates

Foreign Direct Investment has also been quite variable, with not much of a discernible trend, except perhaps for Fiji, as shown in Figure 4. As GDP has been quite volatile in the PDF countries, population was also used as the denominator for this comparison.

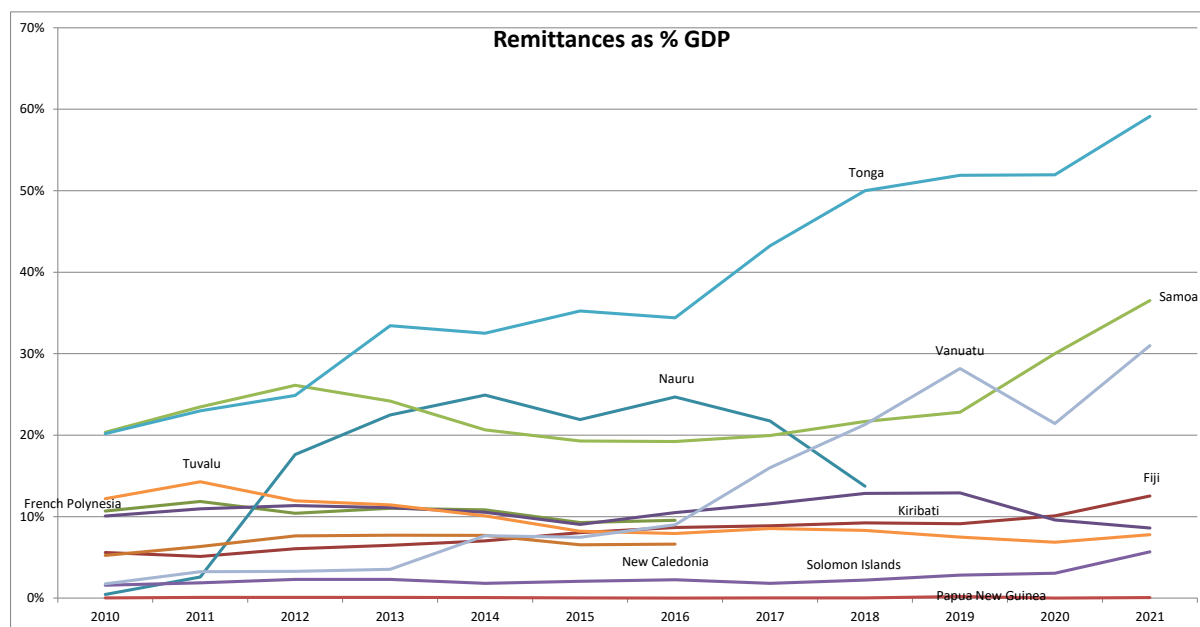
Figure 4 Foreign Direct Investment per person, US\$



Source: World Bank World Development Indicators, World Bank staff estimates

Remittances have been growing in importance as a share of GDP in many countries, especially in Tonga, Samoa and Vanuatu, as shown in Figure 5. For Tonga, Samoa and Vanuatu, the fact that remittances now comprise more than 30% of GDP makes the cost of remittances an important factor in the welfare of those countries.

Figure 5 Remittances as % GDP, PIF Countries



Source: World Bank World Development Indicators, World Bank staff estimates

3 The Extent of CBR Decline

The extent to which correspondent banking facilities have been withdrawn from Pacific Island Forum (PIF) countries is recorded in data held by SWIFT. However, SWIFT does not publish these data on an individual country basis year-by-year and has so far refused to make them available for this study. The data for an individual country can be requested by the relevant Central Bank, but SWIFT does not allow it to pass the data on to third parties.

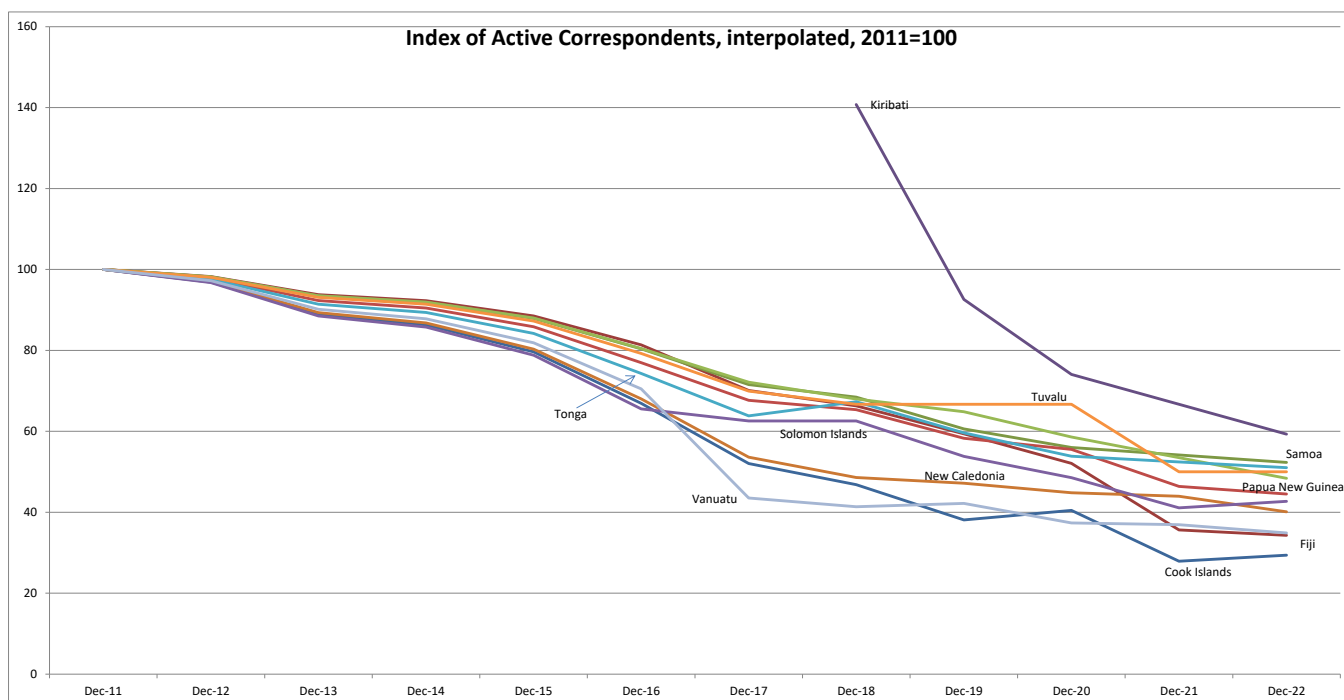
SWIFT have released limited data for some countries, through the Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlements (BIS), on four occasions, in 2023 (relating to 2022), 2020, 2019 and 2018. This does not provide year-by-year information for individual countries, but rather a single number for how much of a decline there had been since 2011.

SWIFT have also, on one occasion, provided detailed information for the number of active correspondents in six countries, namely Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu, for the years 2016 to 2019 (the 'PIRI' data). The CPMI information also provides year-by-year information for the region of Oceania (which includes Australia and New Zealand).

3.1 Interpolation of SWIFT data

Interpolation and comparison between countries has been used to prepare a table of ‘best estimates’ of the pattern of CBR decline for the PIF countries in the period 2011-2020, presented in Figure 6 below.

Figure 6 Index of Active Correspondents, interpolated, 2011=100



Source: SWIFT data, presented through CPMI and PIRI, World Bank staff estimates

Although there is no agreed benchmark for the number of CBR channels that are necessary to service an economy of a given size, it is perhaps helpful to compare the amount of GDP that each CBR channel services, as shown in Table 1 for those countries where this information is available.

Table 1 Active Correspondents compared to GDP, 2011 and 2020

	2011			2020		
	GDP \$m	No of CBRs	GDP \$m per CBR	GDP \$m	No of CBRs	GDP \$m per CBR
Fiji	3,779	552	6.8	4,477	288	15.6
Papua New Guinea	17,985	432	41.6	23,850	240	99.3
Samoa	744	140	5.3	869	82	10.6
Solomon Islands	1,064	217	4.9	1,536	106	14.6
Tonga	415	122	3.4	485	66	7.4
Vanuatu	770	268	2.9	897	100	9.0

Source: SWIFT data, presented through CPMI and PIRI, World Bank staff estimates; GDP from World Bank, World Development Indicators

SWIFT also provided some limited information through CPMI on how the number and value of transactions has changed since 2011, but again did not provide a time series. Table 2 shows that all countries have increased the number of transactions (through a reduced number of channels), and several have increased the value of transactions.

Table 2 SWIFT data on changes to Number and Value of Transactions through CBRs

	2022/2011	Changes %
	cumul_trans	cumul_val
Cook Islands	8.90	-86.8
Fiji	42.50	61.20
French Polynesia	46.90	-10.6
Kiribati	67.70	13,297.70
Nauru		
New Caledonia	0.10	-15.9
Niue		
Papua New Guinea	126.20	-26.0
Samoa	39.10	278.30
Solomon Islands	30.20	641.30
Tonga	27.80	-33.4
Tuvalu	30.20	91.00
Vanuatu	38.00	13.70

Source: SWIFT data, presented through CPMI

Note: The figures in the table above show the percentage change over the period 2011-2022, so the number '8.90' for the Cook Islands, for example, means that cumulative transactions rose 8.9% over that whole period, and the number -86.8 means that cumulative value fell by 86.8%, again over the whole period.

The 2022 CPMI 'Chartpack' released in May 2023 also provides detail of how the number of active correspondents (CBRs) has changed between 2011 and 2022 for Melanesia, Polynesia and Micronesia.

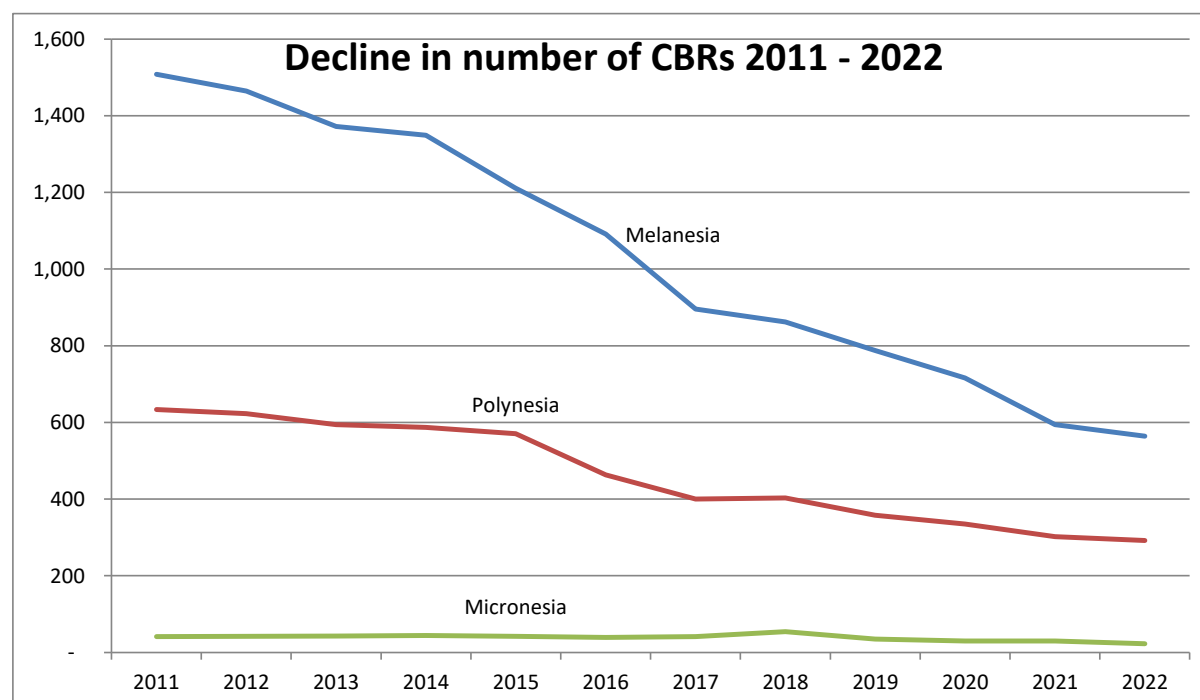
Micronesia is composed of the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, and Palau, plus three territories which are Guam, Northern Mariana Islands and Norfolk Island.

Melanesia is composed of Papua New Guinea, Fiji, Solomon Islands and Vanuatu and one territory which is New Caledonia.

Polynesia is composed of New Zealand, Samoa, Tonga and Tuvalu, plus two territories which are Tokelau and the Cook Islands.

Figure 7 shows how the number of CBRs has declined in all three subregions.

Figure 7 CBR decline in Melanesia, Polynesia and Micronesia



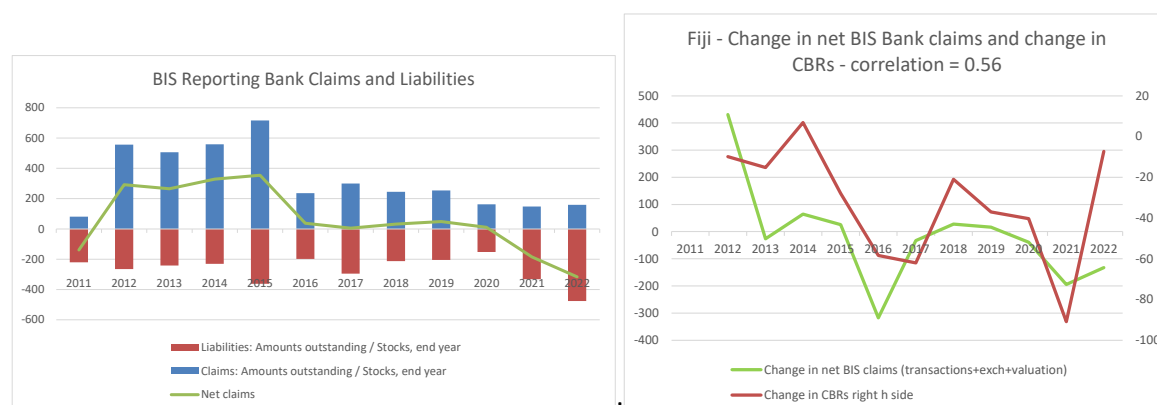
Micronesia has very few CBRs – 23 in 2022 – a decline from 41 in 2011. Melanesia has faced the steepest decline, from 1,508 to 564 in 2022. Polynesian CBRs have fallen from 634 to 292.

3.2 Seeking an Instrumental Variable: BIS Data

BIS Data provides cross-border claims and liabilities by all banks to each country for which it holds data. The possibility of using this as an instrumental variable for correspondent banking was explored.⁴

Taking Fiji as an example, some correlation can be seen, as shown in Figure 8.

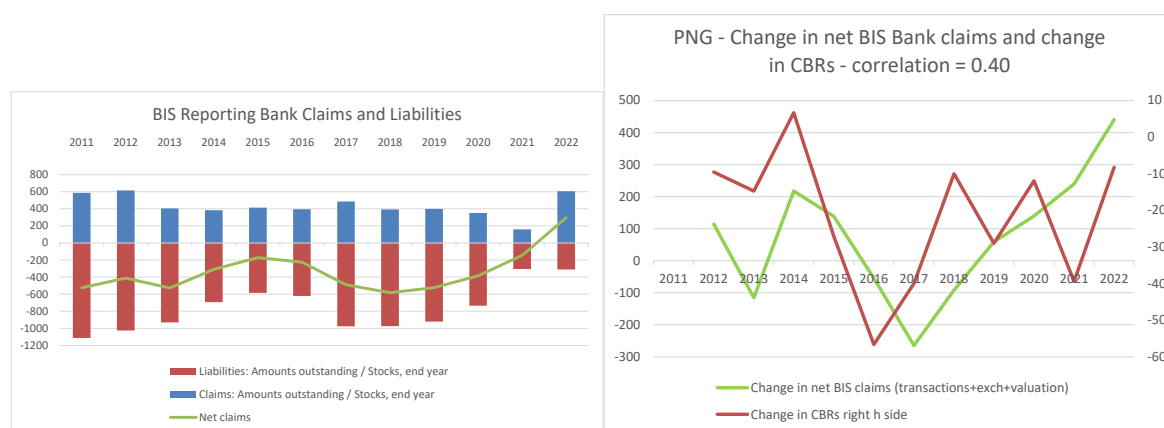
Figure 8 BIS Instrumental variable for change in CBRs: Fiji



Similarly promising results for PNG were derived for PNG, as shown in Figure 9.

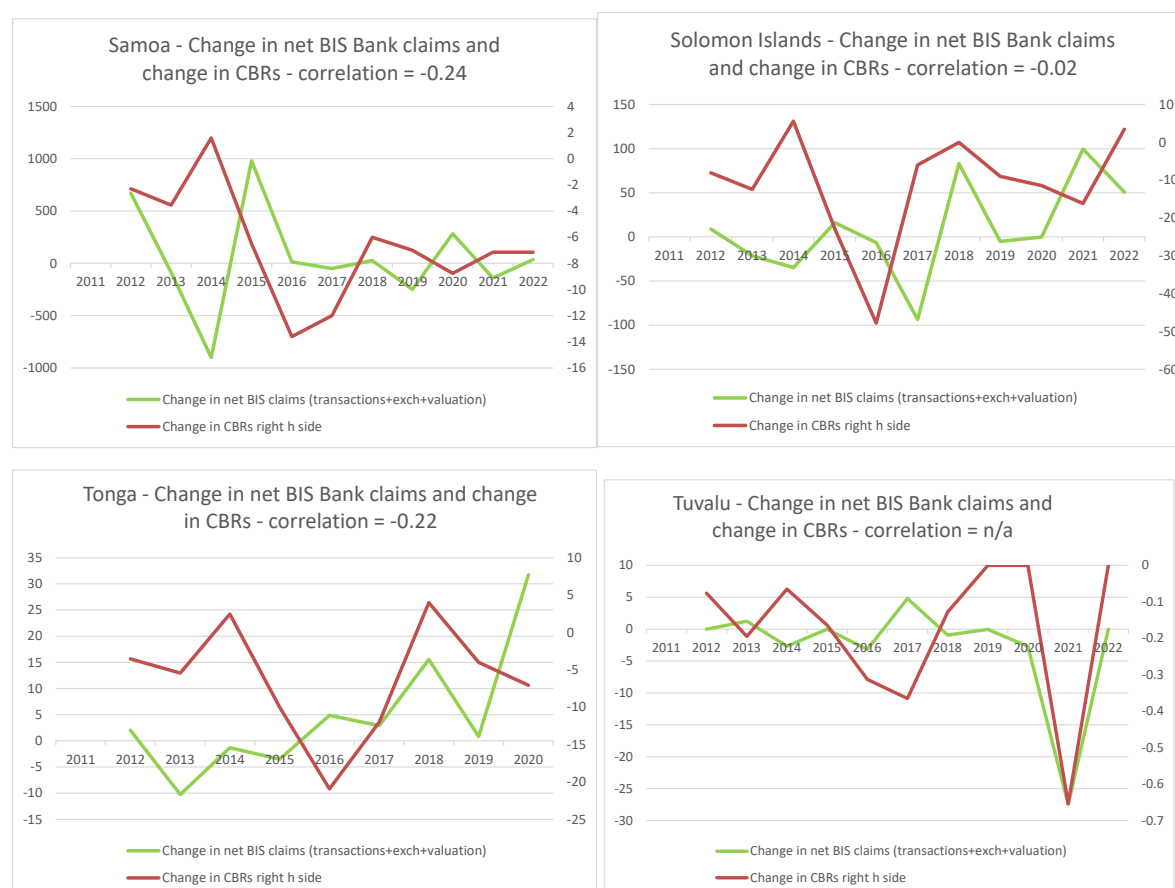
⁴ Thank go to Chris Becker of OEDAP, IMF for helping with this idea.

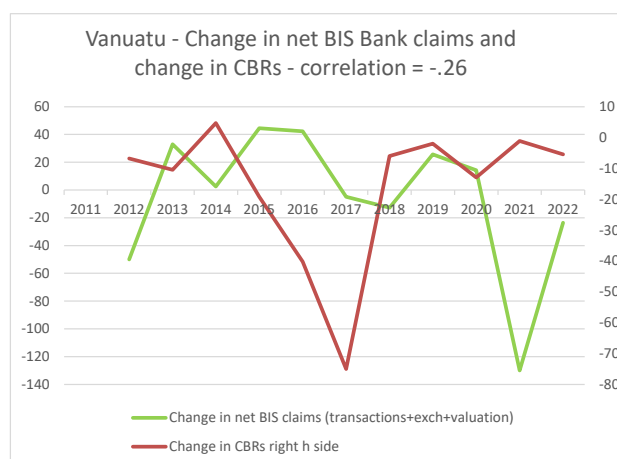
Figure 9 BIS Instrumental variable for change in CBRs: PNG



However, when applying the idea to smaller countries, does not yield the same degree of correlation, as shown in Figure 10.

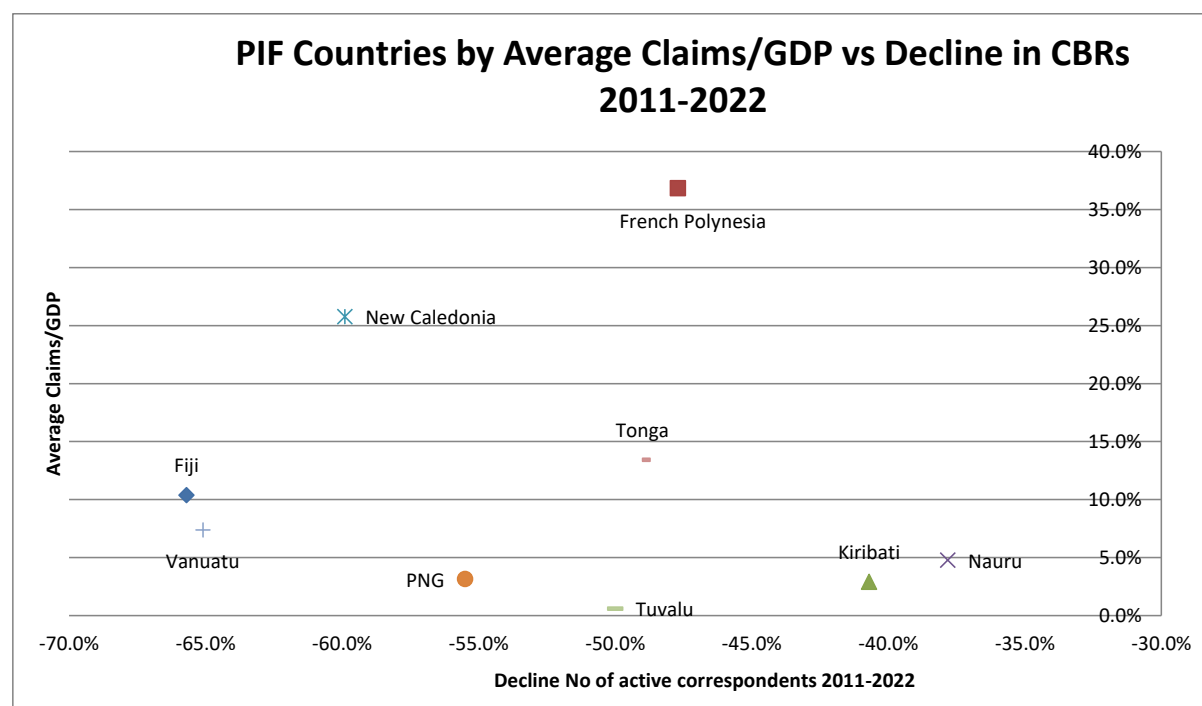
Figure 10 BIS Instrumental variable for change in CBRs: Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu





Examining the relationship between CBR decline and the presence of international banks in other regards (as measured by claims in the BIS data) provides an interesting picture, shown in Figure 11 .

Figure 11 Comparing Claims/GDP with decline in CBRs, 2011-2022



Smaller countries with a lower Claims/GDP ratio – Tuvalu, Kiribati and Nauru – have had smaller proportional declines in CBR. Fiji and Vanuatu, with a higher Claims/GDP ratio, have had a larger decline. PNG and Tonga are outliers – PNG has a lower Claims/GDP ratio, but has had a larger decline, Tonga has a higher claims/GDP ratio but a smaller decline. New Caledonia and French Polynesia, presumably because of their links to France, have a much higher Claims/GDP ratio.

4 Impact of Decline in CBRs on Exports

4.1 Methodology

This section analyses whether anything can be said about whether the decline in CBR has affected the economic performance of the PIF countries. In particular, the section seeks to establish a relationship between the decline in CBR and change in exports as a share of GDP.

To explore this, a database has been created for all the PIF countries which has exports/GDP as a dependant variable, and a range of possible independent variables which may help us to explain the variance observed. These variables include, as well as the CBR indicator, a COVID dummy (in the years 2020 and 2021), an indicator of the impact and strength of natural disasters, an exchange rate index, a measure of the average growth of the five largest trading partners for each country, and a measure of the average commodity price movement for the main exports of each country. Each of these is explained in more detail below.

Preliminary investigation of the time series data exhibited stationarity, reflected in very high R^2 for the estimating equations. A first differences approach was therefore used, with change in exports/GDP as the dependant variable, and change in CBR/GDP (the latter normalised to allow for the very different size of the various economies) as the primary independent variable of interest.

The methodology used follows that recently employed in analysing the impact of FATF regulations on developing countries.⁵ That study used a ‘pooled cross-section time series’ approach. This aims to establish a statistical relationship between the dependent variable (in this case exports as a share of GDP) and suitable explanatory variables (such as the decline in the number of unique correspondent banking counterparties (CBRs)). The standard econometric technique, ordinary least squares (OLS), calculates the line of best fit which minimises the sum of the squared errors of the model. For OLS to produce unbiased estimates, however, a number of restrictive assumptions apply.

These assumptions imply that all observations – across all countries and all years - are assumed to be equivalent and independent. However in practice there is considerable heterogeneity between countries, and time periods may not be equivalent due to historical events such as FATF greylisting, cyclones and the COVID pandemic. Therefore heterogeneity is expected both cross-sectionally and over time, and will result in biased parameter estimates unless corrected. Correction is done by introducing a ‘fixed effects’ model to allow for the heterogeneity.

In a fixed effects model, the unobserved variables that drive the heterogeneity across countries are accounted for by using a dummy variable for each country, creating a different intercept or fixed coefficient for each country.⁶ A fixed effects model can also include dummy variables for each year, or for a subset of years in which unusual events occur (such as the COVID pandemic or natural disasters such as cyclones) in which case the estimating equation is of the form:

$$Y_{ti} = \alpha_i + \delta_t + \sum_k \beta_k X_{kti} + \varepsilon_{ti} \quad (1)$$

⁵ Louis De Koker, John Howell, Nicholas Morris (2023) ‘Economic Consequences of Greylisting by the Financial Action Task Force’, Risks, April 2023.

⁶ So that ‘special events’ not related to CBR declines such as cyclones, would be taken account of in the coefficient estimated for the dummy variable in that country-year.

Where:

α_i is the cross-section effects, a vector of dummy variables indicating cross-section i (fixed effects)

δ_t is a vector of dummy variables indicating time t (fixed effects)

X_{kti} are the k independent variables that vary over cross-section and time

β_k are the respective coefficients indicating the effect of X_k on Y

ϵ_{ti} are the stochastic errors that vary over both cross-section and time.

Under this specification, all variation across countries is absorbed by α_i and all variation over time is absorbed by δ_t .

Introducing fixed effect dummies across both countries and time will reduce the degrees of freedom of the analysis significantly however, leading to less efficient estimates of the co-efficients. One method of improving the efficiency of parameter estimation is to estimate fixed effects parameters either over the cross section (by country) or over time, but not both. For this study, the heterogeneity across countries is likely to be significantly more important than the heterogeneity over time, so the study uses the estimating equation:

$$Y_{ti} = \alpha_i + \sum_k \beta_k X_{kti} + \epsilon_{ti} \quad (2)$$

Thus the study is choosing a hybrid system of fixed effects with country variation and some time variation. Working with a dataset of 12 countries and 12 years,⁷ a total of 144 observations, gives some room for manoeuvre. Therefore the fixed effects formulation was chosen, as this avoids the potential for bias caused by individual countries' intercepts being correlated with the explanatory variables.⁸

4.2 Definition and Source of Variables

The analysis uses data for the time period 2011 to 2022. The dependant variable – Exports as a share of GDP – was primarily derived from WDI data. However, in the case of the Cook Islands, French Polynesia, Nauru and New Caledonia exports data was obtained from OEC. GDP data for the Cook Islands was obtained from the Ministry of Finance and Economic Development.⁹ For 2022, a year which is not yet covered by the WDI database, a variety of sources were used, including ministry websites, OEC, and other third party estimates. Definitions of variables used may be found in Annex B.

The CBR Index, with 2011=100, was derived as described in Annex A, and this was then used in combination with PIRI data to estimate the number of active correspondent banking counterparties in each year, a variable called 'CBR'.¹⁰ The COVID Dummy takes the number 1 in 2020 and 2021, zero in all other years. The Natural Disasters indicator is as described in Annex B, and takes the form of

⁷ There was insufficient credible data for Niue to include it in the estimation

⁸ For discussion of the relative merits of fixed and random effects formulations, see Raffalovich, L.E. and R. Chung (2014) 'Models for Pooled Time-Series Cross Section data' LICV Vol 8, pp 209-212

⁹ National Accounts - December Quarter 2020 - Cook Islands - Ministry of Finance and Economic Management (mfem.gov.ck)

¹⁰ Note that this is a best estimate, not a measured fact, and includes some interpolation. If a the relevant SWIFT data becomes available it will be possible to replace the estimates with actual data.

major disasters dummies multiplied by the absolute value of the Southern Oscillation Index for the relevant year.¹¹ The US\$ exchange rate to local currency is taken from WDI where available and from <https://www.xe.com/currencytables/> where not.

The five largest export partners for each country were derived from OEC,¹² and are as shown in Table 3. A simple average of the GDP growth rates of these countries¹³ was derived for use as an explanatory variable.

Table 3 Top 5 Export Partners for PIF Countries

Top 5 Trading Partners					
Cook Islands	Japan	China	Indonesia	USA	Australia
Fiji	USA	Australia	China	New Zealand	Tonga
French Polynesia	USA	France	Japan	Netherlands	Poland
Kiribati	Thailand	Indonesia	Philippines	Japan	South Korea
Nauru	Thailand	Indonesia	Philippines	Japan	South Korea
New Caledonia	China	South Korea	Japan	Spain	France
Papua New Guinea	Australia	Japan	China	South Korea	Taiwan
Samoa	USA	New Zealand	Am. Samoa	Thailand	Australia
Solomon Islands	China	Italy	India	Netherlands	Australia
Tonga	USA	South Africa	New Zealand	Australia	South Korea
Tuvalu	Thailand	Nigeria	Philippines	South Korea	Japan
Vanuatu	Thailand	Japan	South Korea	Cyprus	China

Annex F presents the approximate percentage of exports for each country by commodity group.¹⁴ This does not include, for example, manufactures, textiles or shipbuilding, which are not included in this analysis. Nor does it include trade in rare coins, jewellery or perfume. This percentage is then applied to the average movement in commodity price as shown in the World Bank's 'Pink Sheet'¹⁵ for the relevant year to create a weighted average movement in commodity prices that the country faces.

¹¹ The Southern Oscillation Index (SOI) is a measure of the intensity or strength of the Walker Circulation. It measures the difference in surface air pressure between Tahiti and Darwin. See [http://www.bom.gov.au/climate/enso/history/ln-2010-12/SOI-what.shtml#:~:text=The%20Southern%20Oscillation%20Index%20\(SOI\)%20is%20a%20measure%20of%20the,impacts%20on%20the%20Australian%20region.](http://www.bom.gov.au/climate/enso/history/ln-2010-12/SOI-what.shtml#:~:text=The%20Southern%20Oscillation%20Index%20(SOI)%20is%20a%20measure%20of%20the,impacts%20on%20the%20Australian%20region.)

¹² <https://oec.world/en/>

¹³ Taken from World Bank World Development Indicators database

¹⁴ This analysis based on the detail provided in The Observatory of Economic Complexity (OEC), <https://oec.world/en/>

¹⁵ As updated on March 2nd 2023, <https://thedocs.worldbank.org/en/doc/5d903e848db1d1b83e0ec8f744e55570-0350012021/related/CMO-Pink-Sheet-January-2023.pdf>

4.3 Econometric Analysis of Impact of Declining CBRs on Exports

Bringing all these variables together for the PIF countries over the period 2011-2022, the following econometric results were obtained:

Multiple Regression for Change in Exports/GDP %					R-Squared	0.1926
Variable	Coefficient	Standard Error	t-statistic	Probability	Adjusted R-squared	0.0812
Change in CBR %	-2.3628	0.9264	-2.5505	0.0121	Std. Error	0.7752
COVID Dummy	0.3124	0.2029	1.5397	0.1264		
Nat Disaster * abs(SOI)	0.0179	0.0253	0.7063	0.4814	Sum of squares	16.624
Exchange Rate US\$	-0.3470	0.3084	-1.1250	0.2629	F-statistic	1.729
Ave Growth Trading Partners %	6.6199	4.9857	1.3278	0.1869	p-value	5.045E-02
Ave Commodity Price	0.1832	0.4171	0.4392	0.6613		
					t-statistic levels	
					95%	1.96
					90%	1.645
					80%	1.282
					70%	1.036
<u>Country Dummies</u>						
Cook Islands	-0.3307	0.3273	-1.0104	0.3144		
Fiji	-0.3335	0.2935	-1.1360	0.2583		
Kiribati	-0.0923	0.3126	-0.2951	0.7684		
New Caledonia	-0.0596	0.3187	-0.1869	0.8521		
PNG	-0.1788	0.2974	-0.6011	0.5490		
Samoa	-0.1392	0.3259	-0.4270	0.6702		
Solomon Islands	-0.3053	0.2922	-1.0449	0.2983		
Tonga	-0.1229	0.3118	-0.3942	0.6941		
Tuvalu	0.8053	0.3227	2.4958	0.0140		
Vanuatu	-0.3150	0.3179	-0.9908	0.3238		

A strongly significant negative coefficient for the change in CBR provides some evidence that the decline in CBR has had an impact on export performance. None of the other variables are significant at the 95% probability level. The signs for average growth rates of trading partners and average price of exported commodities are intuitively plausible – both have a positive effect on exports. However, the signs on the COVID dummy and natural disasters are counter-intuitive, indicating a positive, not a negative, effect of both. Multi-collinearity testing indicates that the exchange rate variable may be collinear with other explanatory variables.

Dropping the COVID dummy, the natural disaster indicator, the exchange rate variable, and the (barely significant) commodity price variable yields the following result:

Multiple Regression for Change in Exports/GDP %					R-Squared	0.1669
Variable	Coefficient	Error	t-statistic	Probability	squared	0.0836
Change in CBR %	-2.2794	0.8399	-2.7140	0.0076	Std. Error	0.7742
Ave Growth Trading Partners %	2.3569	3.9231	0.6008	0.5491		
					Sum of squares	14.409
					F-statistic	2.003
					p-value	2.946E-02
					t-statistic levels	
					95%	1.96
					90%	1.645
					80%	1.282
					70%	1.036
<u>Country Dummies</u>						
Cook Islands	-0.3076	0.2743	-1.1214	0.2644		
Fiji	-0.3506	0.2711	-1.2934	0.1984		
Kiribati	-0.1120	0.2502	-0.4474	0.6554		
New Caledonia	-0.2003	0.2556	-0.7834	0.4349		
PNG	-0.2421	0.2676	-0.9047	0.3674		
Samoa	-0.1841	0.2460	-0.7486	0.4556		
Solomon Islands	-0.2997	0.2700	-1.1102	0.2691		
Tonga	-0.1531	0.2542	-0.6024	0.5481		
Tuvalu	0.7555	0.2452	3.0812	0.0026		
Vanuatu	-0.3266	0.2651	-1.2322	0.2203		

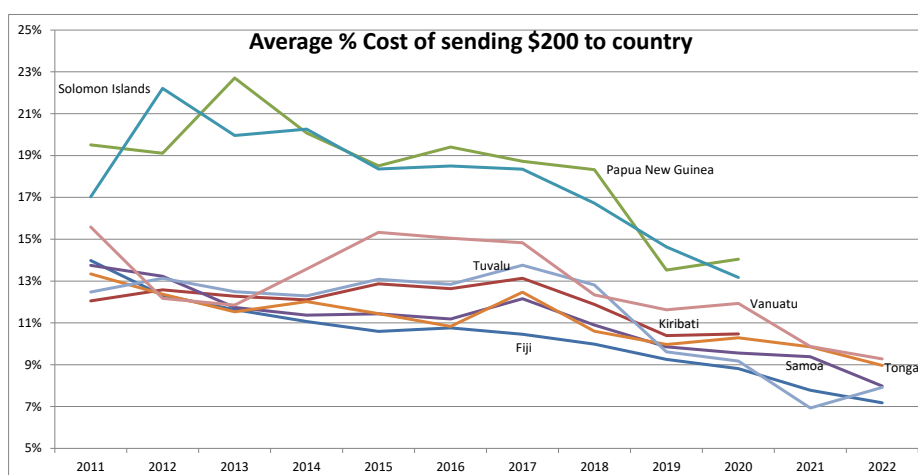
The negative and significant change in CBR coefficient persists, as does the positive coefficient on average growth of trading partners. However, the latter is barely significant.

5 Impact of Decline in CBRs on Remittance Costs

5.1 Available data on remittance costs

Data on the cost of remittances is provided for four PIF countries (Fiji, Samoa, Toga and Vanuatu) in the World Bank's Remittance Cost database for the period from 2011 onwards. This is based on a survey of remittances, believed to be reasonably representative of transactions carried out by individuals, and standardised on transfer of US\$200 equivalent, from anywhere in the world. In addition, Saver Global have assembled data for this study for eight PIF countries¹⁶ for transfers from Australia (of A\$200) and New Zealand (of NZ\$200) for the period from 2010 onwards. Figure 12 takes a weighted average of all entries in the database¹⁷ for the relevant country in each calendar year. The average cost includes fees and the difference in exchange rate between that charged and the interbank rate.

Figure 12 Average Remittance Costs in PIF Countries (Percentage of \$200 equivalent)



Source: World Bank Remittances Database, Saver Global Database, World Bank staff estimates

The period of steep rise in costs in Vanuatu coincided with the period when Vanuatu was being 'greylisted' by FATF.

The various channels that were used in each year have also been analysed, in each of the four countries present in the World Bank data, presented in Table 4.

¹⁶ Fiji, Tonga, Samoa and Vanuatu, plus Kiribati, Papua New Guinea, Solomon Islands and Tuvalu. We are grateful to Jonathan Capal and Vibhor Jain for their assistance in assembling the latter data.

¹⁷ The World Bank data also includes observations for Kiribati, Papua New Guinea, Solomon Islands and Tuvalu for 2011 only. In total, the World Bank data comprises 6,704 observations from 2011 to 2022, the Saver Global data 8,311 observations from 2010 to 2022.

Table 4: Use of Different Channels for Remittances, 2011-2022

Fiji					Samoa				
	Bank	Cash	Online/card	Mobile/other		Bank	Cash	Online/card	Mobile/other
2011	40.5%	28.4%	28.4%	2.7%	2011	35.6%	27.8%	30.0%	6.7%
2012	39.5%	25.0%	25.0%	10.5%	2012	32.6%	29.3%	33.7%	4.3%
2013	37.7%	24.7%	26.7%	11.0%	2013	31.1%	31.1%	33.3%	4.5%
2014	48.3%	24.8%	14.5%	12.4%	2014	40.3%	32.7%	20.8%	6.3%
2015	46.3%	25.0%	16.9%	11.8%	2015	35.9%	30.3%	29.0%	4.8%
2016	33.1%	23.4%	34.5%	9.0%	2016	23.0%	29.1%	42.6%	5.4%
2017	25.0%	24.4%	43.1%	7.5%	2017	17.3%	30.0%	47.3%	5.3%
2018	22.4%	26.8%	44.3%	6.6%	2018	16.8%	29.8%	48.4%	5.0%
2019	19.7%	28.5%	45.6%	6.2%	2019	14.2%	33.2%	48.4%	4.2%
2020	21.2%	25.5%	47.8%	5.4%	2020	15.3%	29.5%	51.7%	3.4%
2021	19.9%	18.8%	61.3%	0.0%	2021	14.3%	24.0%	61.7%	0.0%
2022	21.3%	17.3%	61.3%	0.0%	2022	18.8%	24.6%	56.5%	0.0%

Tonga					Vanuatu				
	Bank	Cash	Online/card	Mobile/other		Bank	Cash	Online/card	Mobile/other
2011	35.6%	27.6%	31.0%	5.7%	2011	47.6%	15.9%	33.3%	3.2%
2012	33.7%	28.3%	33.7%	4.3%	2012	28.3%	13.0%	19.6%	0.0%
2013	33.1%	27.2%	34.9%	4.7%	2013	27.2%	14.2%	21.9%	0.0%
2014	40.9%	29.9%	22.1%	7.1%	2014	42.9%	15.6%	7.1%	0.0%
2015	44.3%	20.5%	28.7%	6.6%	2015	52.5%	18.0%	6.6%	0.0%
2016	31.8%	17.1%	44.2%	7.0%	2016	46.7%	21.7%	31.5%	0.0%
2017	23.2%	18.1%	52.9%	5.8%	2017	35.0%	20.4%	44.7%	0.0%
2018	22.4%	23.1%	49.4%	5.1%	2018	32.5%	17.5%	50.0%	0.0%
2019	17.2%	28.0%	50.5%	4.3%	2019	30.5%	20.3%	47.5%	1.7%
2020	15.8%	26.9%	53.8%	3.5%	2020	30.5%	20.3%	49.2%	0.0%
2021	15.7%	21.9%	62.4%	0.0%	2021	31.0%	15.0%	54.0%	0.0%
2022	18.3%	22.1%	59.5%	0.0%	2022	32.2%	13.8%	54.0%	0.0%

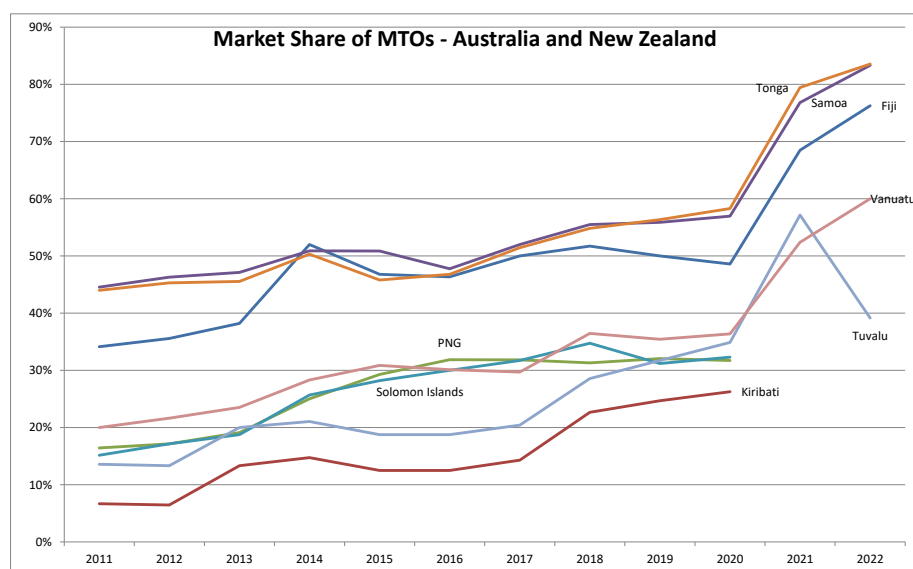
Source: World Bank Remittances Database, World Bank staff estimates

The table shows how in the period technological changes have caused a shift from simple use of bank accounts to online, mobile money and use of prepaid cards etc. This may, in part, be an explanation for the reduction in transaction costs.¹⁸

The Saver Global data provides a breakdown between transfers made by bank and by money transfer operator (MTO) channels. For the Australia and New Zealand channels combined, Figure 13 shows how MTOs share of the remittance market has increased in all eight countries for which data is available, and particularly so in Tonga, Samoa, Fiji and Vanuatu.

¹⁸ The cessation of the category 'mobile/other' in 2021/22 in the four countries (which did not occur in other countries) may be to do with data definitions or may be an on-the-ground fact – this was not explored, as it is outside the main data period.

Figure 13 Market Share of MTOs – Australia and New Zealand remittances to country



Source: Saver Global database, World Bank staff estimates

Despite the fall in costs in the eight countries, average costs in these countries remain stubbornly high relative to countries in SE Asia and S Asia, as shown in Table 5.

Table 5 Remittance costs in PIF Countries compared to SE and S Asia

	2011	2016	2020	2022
Fiji	14.0%	10.8%	8.8%	7.2%
Kiribati	12.1%	12.6%	10.5%	
Papua New Guinea	19.5%	19.4%	14.0%	
Samoa	13.8%	11.2%	9.6%	8.0%
Solomon Islands	17.0%	18.5%	13.2%	
Tonga	13.3%	10.8%	10.3%	9.0%
Tuvalu	12.5%	12.8%	9.2%	7.9%
Vanuatu	15.6%	15.0%	11.9%	9.3%
Indonesia	6.4%	7.6%	6.5%	5.5%
Malaysia	6.5%	8.3%	5.4%	5.4%
Philippines	6.1%	5.8%	4.6%	4.1%
Thailand	8.3%	10.1%	7.9%	6.4%
Bangladesh	4.1%	4.1%	4.4%	4.3%
India	7.8%	6.4%	5.5%	4.8%
Nepal	5.2%	4.3%	4.4%	3.7%
Pakistan	7.5%	4.8%	4.1%	3.7%
Sri Lanka	5.7%	5.3%	4.4%	4.2%

Source: World Bank Remittances Database, Saver Global database, World Bank staff estimates

Note that Sustainability Development Goal SDG 10.c “commits, by 2030, to reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent.”

5.2 Econometric Analysis of the Impact of Declining CBRs on Remittance Costs

Following a suggestion by Chris Becker of OEDAP, IMF, the cost of remittances was explored further by examining whether they can be explained, at least in part, by correspondent banking connections (CBR), the number of commercial banks in the country (or possibly some other proxy for local banking competition such as spreads) (LBK) and the amount of competition provided by BIS reporting bank cross border lending into the country (BIS). This is represented in the equation:

$$REM_t^k = \alpha + \beta_1 CBR_t^k + \beta_2 LBK_t^k + \beta_3 BIS_t^k + \epsilon$$

Where REM is the cost of remittances. Once again a pooled cross-section time series approach was used.

The number of local banks in the country in each year was determined from a combination of our own investigation, reported in the Annex, World Bank (2022), ADB’s ‘Pacific Finance Sector Briefs’, the information presented in the CPMI chartpacks and a recent table provided by the World Bank¹⁹.

The BIS variable is taken from the full disaggregated BIS database, representing the stock of cross-border claims by international banks extant at the end of each calendar year. BIS data does not exist for the Cook Islands or Niue, so they have been excluded from the analysis. Tuvalu does not have claims data in the BIS database, so it has also been excluded.

Remittance costs have been falling worldwide, partly or possibly mainly because of the introduction of new payment technologies. The question is whether, because of the reduction in CBRs in PIF countries, the fall in remittance costs in the Pacific has been slower than in other places, thus creating a competitive disadvantage for those countries. Hence the differential between costs in PIF country and the worldwide average was explored. The latter were obtained from the World Bank’s ‘Remittance Prices Worldwide Quarterly’, specifically the Q4 issue for each year.

Taking the various information described above, a variety of econometric techniques were tested, all based on the pooled cross-section/time series methodology. Problems were found both with multicollinearity and with stationarity, and so a first differences approach was employed, using change in remittance cost as a percentage of a US\$200 equivalent transaction, over the period 2011 to 2022, as the dependant variable. The main explanatory variable was percentage change in CBR, normalised by GDP (to allow for differential size of country), and international claims, spread²⁰, the percentage of technological channels, and number of local banks were tested as indicators for the degree of banking competition.

¹⁹ Botir Baltabaev, provided 20.4.23

²⁰ This variable from World Bank World Development Indicators database

The following econometric results were found:

Multiple Regression for Change in remit cost %					R-Squared	0.2734
					Adjusted R-squared	0.1674
Variable	Coefficient	Standard Error	t-statistic	Probability	Std. Error	0.0863
Change in CBR %	-0.0794	0.1169	-0.6792	0.4987		
Changes in Local Banks %	-0.0140	0.0875	-0.1598	0.8734		
Change in International Claims %	0.0009	0.0014	0.6126	0.5416		
Spread	0.9691	0.5658	1.7127	0.0900		
Remit Tech %	-0.1970	0.0534	-3.6887	0.0004		
<u>Country Dummies</u>						
Fiji	-0.0097	0.0353	-0.2754	0.7836		
Kiribati	0.0217	0.0374	0.5807	0.5628		
New Caledonia	0.0054	0.0351	0.1533	0.8785		
PNG	0.0108	0.0351	0.3088	0.7581		
Samoa	0.0042	0.0350	0.1200	0.9047		
Solomon Islands	0.0169	0.0351	0.4802	0.6321		
Tonga	0.0302	0.0350	0.8621	0.3908		
Tuvalu	0.0178	0.0350	0.5085	0.6123		
Vanuatu	0.0095	0.0352	0.2709	0.7870		

t-statistic levels		
95%	1.96	
90%	1.645	
80%	1.282	
70%	1.036	

Although the coefficient on the change in CBR is negative, meaning that a decline in CBRs has an upward effect on remittance costs, it is only barely significant. Most of the other variables have expected signs: a reduction in local banks (thus reducing competition in the banking industry) also has an upward effect on remittance costs; a wider spread (again indicating reduced competition) is related to an increase in costs; and a greater use of technology reduces remittance costs. The only possibly counter-intuitive sign is for changes in international claims, which indicates greater involvement of overseas banks in the local market, also seems to put upward pressure on costs. Dropping the less significant local banks and international claims variables makes little difference to the coefficients on the three main variables.

6 Clustering of Countries

The literature review noted some interest in whether PIF countries could be helpfully grouped using cluster analysis. Becker (IMF, 2022) has suggested that one way of doing this would be to relate economic exposure (a measure of the riskiness of the economy) to the number of correspondent banking channels. In developing a 'CBR Policy Matrix', he divided countries into those with low or high connectivity (as measured by CBRs) and low or high value of transactions. Where low risk transactions, like remittances, dominate, he suggests that policy may be best focussed on maintaining infrastructure and reducing costs. However, where transaction values are high and connectivity is low, the need for action is more urgent. He suggested a possible proxy for economic exposure was the ratio of exports²¹ to remittances.

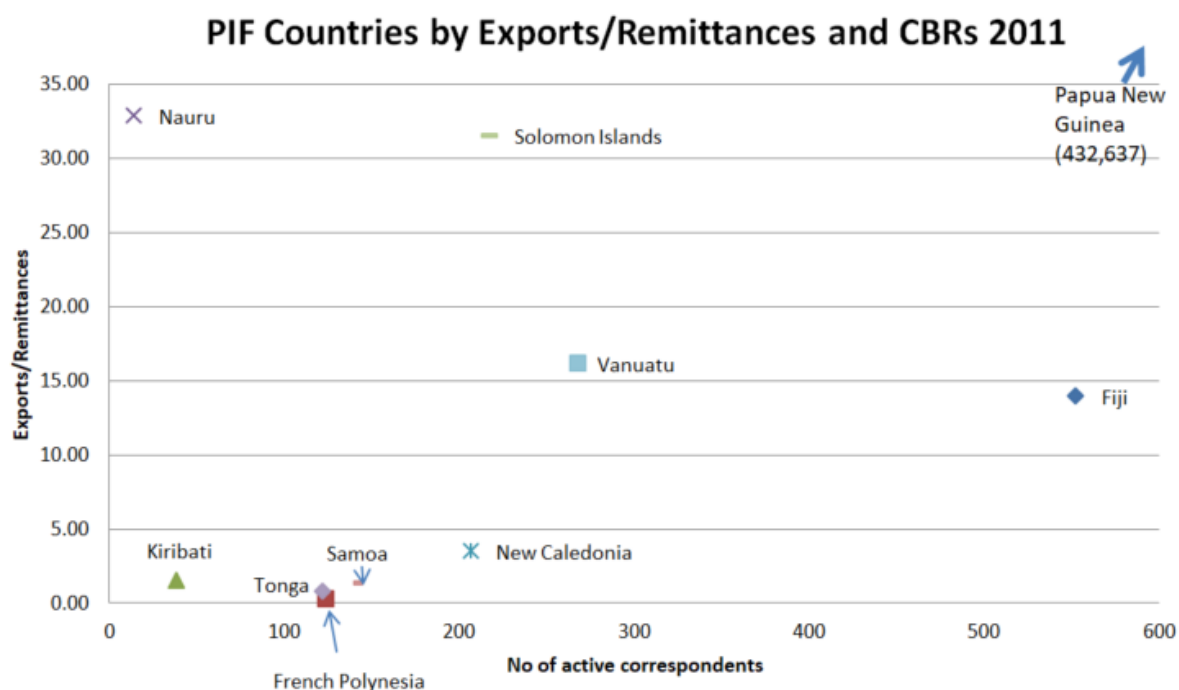
6.1 Relationship between CBRs and value of transactions

At the beginning of the data period, Figure 14 shows that five of the countries with relevant data had an exports/remittances measure below 5, Vanuatu and Fiji were around 15, Nauru and Solomon

²¹ The measure of exports used is exports of goods, services and primary income, <https://data.worldbank.org/indicator/BX.GSR.TOTL.CD>

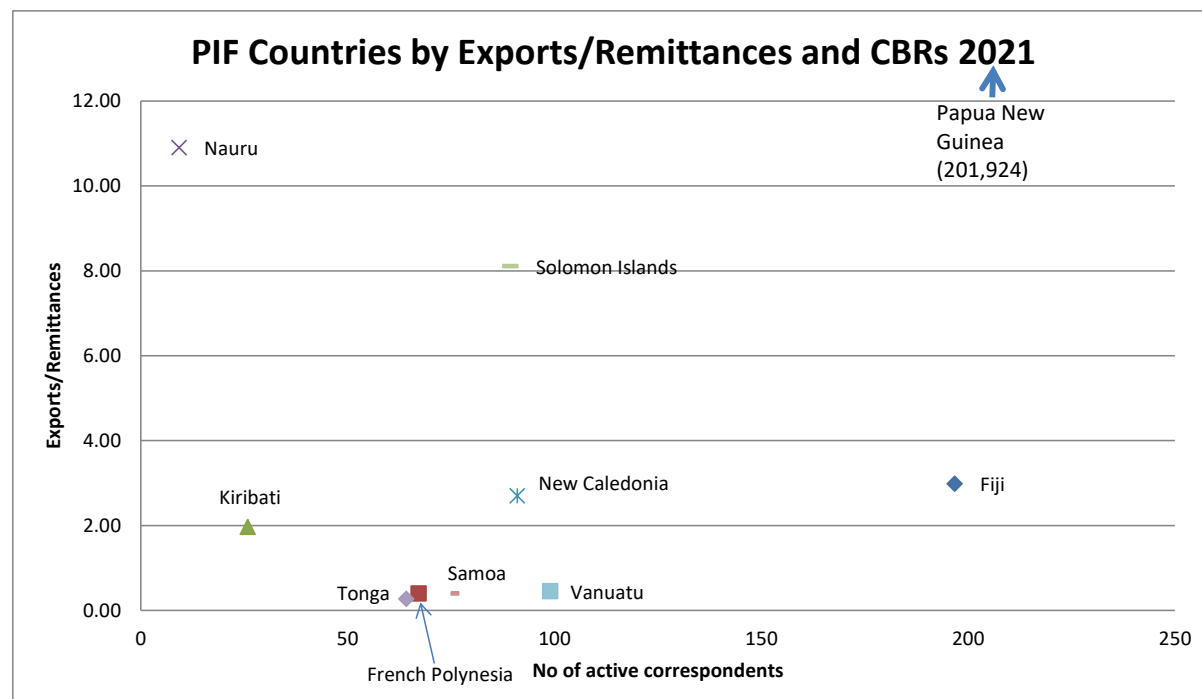
Islands just over 30. PNG is an outlier in terms of size of economy and number of correspondents, Fiji an outlier in terms of number of correspondents.

Figure 14 Clustering of PIF Countries in 2011



At the end of the data period²², although there has been a general fall in the number of CBRs, and in the level of exposure, the relative picture has not changed much.

Figure 15 Clustering of PIF Countries in 2021



²² The latest World Bank data on remittance flows relates to 2021

6.2 Relationship between FATF/APG investigations and CBR decline

In the period considered, FATF/APG have undertaken Mutual Evaluation Reports (MERs) and Follow-up Reports (FURs) on nine of the PIF countries, and greylisted two of them (Vanuatu and PNG).

Not all of FATF/APG findings have been made public, but those that have been made public have been assembled into Figure 16.

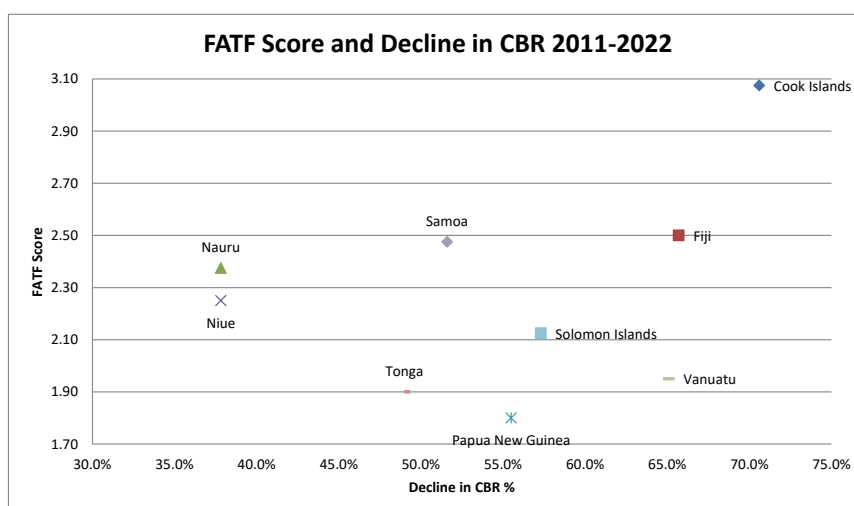
Figure 16 FATF/APG Assessments of PIF Country Technical Compliance 2011-2021

Updated 3 April 2023			Technical Compliance																			
			Ratings which reflect the extent to which a country has implemented the technical requirements of the FATF Recommendations. For more information see: FATF Methodology FATF Recommendations																			
Jurisdiction (click on the country name to go to the report on www.fatf-gafi.org)	Report Type	Report Date	R.1	R.2	R.3	R.4	R.5	R.6	R.7	R.8	R.9	R.10	R.11	R.12	R.13	R.14	R.15	R.16	R.17	R.18	R.19	R.20
Cook Islands	MER	Sep-18	LC	C	LC	LC	LC	LC	PC	LC	C	LC	LC	LC	LC	C	LC	LC	LC	LC	LC	LC
Fiji	MER+FURs	Jan-21	LC	LC	LC	C	C	PC	PC	PC	C	LC	C	C	C	C	C	LC	LC	LC	C	LC
Fiji	MER	Nov-16	PC	PC	LC	C	PC	NC	NC	PC	C	PC	PC	PC	C	C	PC	PC	PC	PC	NC	LC
Fiji	FUR	Oct-17	LC	PC	LC	C	C	PC	PC	PC	C	LC	C	PC	C	C	PC	LC	LC	LC	NC	LC
Fiji	FUR	Sep-18	LC	LC	LC	C	C	PC	PC	PC	C	LC	C	C	C	C	C	LC	LC	LC	C	LC
Fiji	FUR	Aug-19	LC	LC	LC	C	C	PC	PC	PC	C	LC	C	C	C	C	C	LC	LC	LC	C	LC
Fiji	FUR (no rerating)	Jan-21	LC	LC	LC	C	C	PC	PC	PC	C	LC	C	C	C	C	C	LC	LC	LC	C	LC
Nauru		2012	PC	LC	PC	C	PC	LC	NA	NC	LC	LC	LC	PC	PC	C	PC	PC	PC	PC	C	C
Niue		2012	PC	LC	PC	C	PC	PC	NC	PC	NA	LC	LC	PC	PC	C	PC	PC	PC	PC	C	LC
Papua New Guinea		2011	PC	PC	PC	LC	NC	NC	NC	NC	NC	PC	NC	NC	PC	LC	PC	NC	NC	NC	C	C
Samoa	MER+FURs	Sep-18	PC	LC	LC	LC	LC	PC	NC	PC	C	LC	C	PC	PC	C	PC	PC	PC	LC	NC	LC
Samoa	MER	Oct-15	PC	PC	PC	LC	PC	PC	NC	PC	C	PC	C	PC	PC	C	PC	PC	PC	LC	NC	LC
Samoa	FUR	Oct-17	PC	LC	PC	LC	PC	PC	NC	PC	C	PC	C	PC	PC	C	PC	PC	PC	LC	NC	LC
Samoa	FUR	Sep-18	PC	LC	LC	LC	PC	PC	NC	PC	C	LC	C	PC	PC	C	PC	PC	PC	LC	NC	LC
Solomon Islands	MER	Oct-19	PC	PC	LC	LC	LC	NC	NC	NC	NC	PC	PC	NC	PC	NC	PC	NC	PC	NC	NC	C
Tonga	MER	Sep-21	PC	LC	PC	LC	PC	PC	NC	PC	C	NC	PC	NC	NC	LC	NC	NC	NC	NC	NC	NC
Vanuatu	MER+FURs	Sep-18	C	C	C	C	C	C	C	LC	LC	LC	LC	LC	LC	C	LC	C	C	LC	PC	LC
Vanuatu	MER	Oct-15	NC	NC	NC	PC	PC	PC	NC	NC	LC	PC	LC	LC	LC	PC	LC	NC	NC	NC	PC	LC
Vanuatu	FUR	Nov-17	NC	NC	NC	PC	PC	PC	NC	NC	LC	PC	LC	LC	LC	PC	LC	NC	NC	NC	PC	LC
Vanuatu	FUR	Sep-18	C	C	C	C	C	C	C	LC	LC	LC	LC	LC	LC	C	LC	C	C	LC	PC	LC
			C	Compliant																		
			LC	Largely compliant - There are only minor shortcomings.																		
			PC	Partially compliant - There are moderate shortcomings.																		
			NC	Non-compliant - There are major shortcomings.																		
			NA	Not applicable - A requirement does not apply, due to the structural.																		
Jurisdiction (click on the country name to go to the report on www.fatf-gafi.org)	Report Type	Report Date	R.21	R.22	R.23	R.24	R.25	R.26	R.27	R.28	R.29	R.30	R.31	R.32	R.33	R.34	R.35	R.36	R.37	R.38	R.39	R.40
Cook Islands	MER	Sep-18	C	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	PC	LC	LC	LC	LC	LC
Fiji	MER+FURs	Jan-21	LC	LC	LC	PC	PC	LC	LC	LC	C	C	LC	LC	C	LC	LC	LC	LC	C	PC	LC
Fiji	MER	Nov-16	LC	NC	PC	PC	PC	LC	LC	PC	C	C	LC	LC	PC	LC	PC	PC	LC	C	PC	LC
Fiji	FUR	Oct-17	LC	PC	PC	PC	PC	LC	LC	PC	C	C	LC	LC	PC	LC	LC	PC	LC	C	PC	LC
Fiji	FUR	Sep-18	LC	LC	LC	PC	PC	LC	LC	LC	C	C	LC	LC	PC	LC	LC	LC	LC	C	PC	LC
Fiji	FUR	Aug-19	LC	LC	LC	PC	PC	LC	LC	LC	C	C	LC	LC	C	LC	LC	LC	LC	C	PC	LC
Fiji	FUR (no rerating)	Jan-21	LC	LC	LC	PC	PC	LC	LC	LC	C	C	LC	LC	C	LC	LC	LC	LC	C	PC	LC
Nauru		2012	PC	NA	PC	PC	PC	PC	PC	LC	LC	PC	LC	PC	NC	NC	NC	LC	LC	LC	PC	PC
Niue		2012	PC	NC	PC	PC	PC	PC	PC	LC	LC	PC	LC	PC	NC	NC	NC	LC	LC	LC	NC	PC
Papua New Guinea		2011	NC	NC	NC	NC	PC	NC	PC	NC	NC	NC	PC	NC	PC	PC	PC	PC	PC	LC	LC	LC
Samoa	MER+FURs	Sep-18	C	PC	PC	PC	PC	PC	PC	PC	LC	C	LC	LC	LC	PC	PC	PC	LC	LC	LC	LC
Samoa	MER	Oct-15	C	PC	PC	PC	PC	PC	PC	PC	LC	C	LC	LC	LC	PC	PC	PC	LC	LC	LC	LC
Samoa	FUR	Oct-17	C	PC	PC	PC	PC	PC	PC	PC	LC	C	LC	LC	LC	PC	PC	PC	LC	LC	LC	LC
Samoa	FUR	Sep-18	C	PC	PC	PC	PC	PC	PC	PC	LC	C	LC	LC	LC	PC	PC	PC	LC	LC	LC	LC
Solomon Islands	MER	Oct-19	C	NC	PC	PC	NC	PC	PC	PC	LC	C	LC	LC	PC	PC	PC	PC	PC	PC	PC	PC
Tonga	MER	Sep-21	LC	NC	NC	PC	NC	PC	PC	PC	PC	LC	PC	PC	LC	PC	PC	PC	PC	PC	LC	PC
Vanuatu	MER+FURs	Sep-18	LC	LC	LC	LC	LC	LC	C	LC	LC	C	C	LC	C	C	C	C	C	C	LC	LC
Vanuatu	MER	Oct-15	LC	PC	PC	NC	NC	PC	PC	PC	LC	C	PC	LC	NC	PC	PC	PC	PC	NC	PC	NC
Vanuatu	FUR	Nov-17	LC	PC	PC	NC	NC	LC	PC	PC	LC	C	PC	LC	NC	PC	PC	PC	PC	NC	PC	NC
Vanuatu	FUR	Sep-18	LC	LC	LC	LC	LC	C	C	LC	LC	C	C	LC	LC	C	C	C	C	LC	C	LC

C	Compliant	4	Score applied
LC	Largely compliant - There are only minor shortcomings.	3	
PC	Partially compliant - There are moderate shortcomings.	2	
NC	Non-compliant - There are major shortcomings.	1	
NA	Not applicable - A requirement does not apply, due to the structural, legal or institutional features of the country.	2	

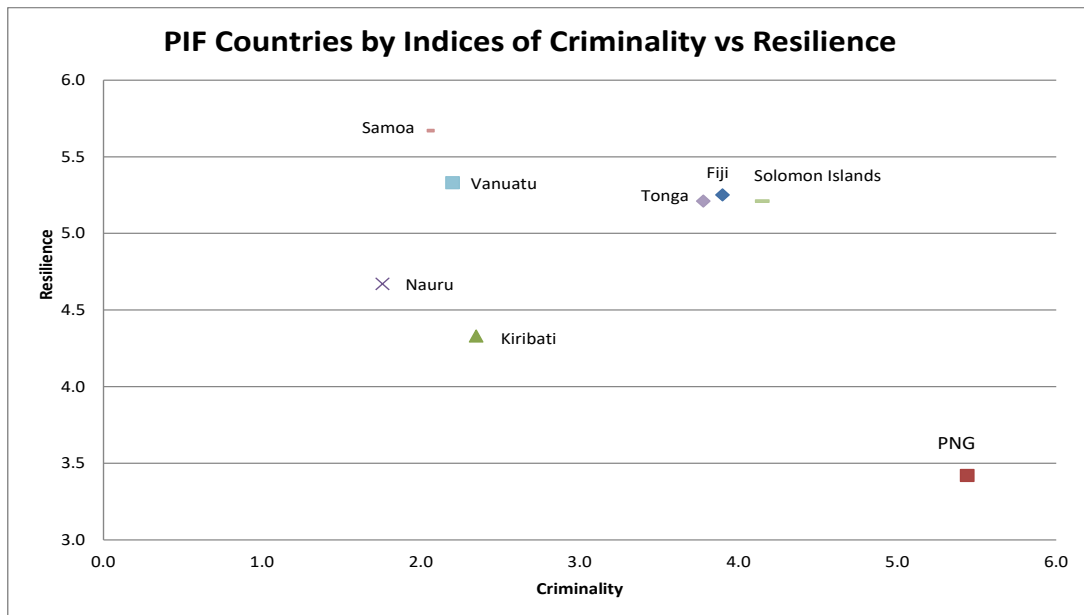
The average compliance score computed for each country is the simple average over all 40 technical assessments, for the main/original MER in the period.²³ Figure 17 relates this to decline in CBR.

Figure 17 Ave FATF/APG Technical Compliance Score related to Decline in CBR 2011-2022



The *Global Organised Crime Index 2021* reflects “criminality” scores for 193 jurisdictions (based on prevalence of criminal markets and the structure and influence of criminal actors) and “resilience” scores for each (reflecting the existence, capacity and effectiveness of country responses to organized crime based on 12 factors, including AML/CFT). Figure 3 reflects the scores for Pacific jurisdictions included in the Index. The figure shows three distinct clusters. Firstly Samoa, Nauru, Vanuatu and Kiribati have an average criminality index of 2 and a resilience index of 5. A second group that comprises Tonga, Fiji and Solomon Islands have a similar level of resilience (an average of 5) but greater score on the criminality index (an average of 4). PNG is less resilient, with a resilience index of 3.4, and with a higher criminality index score of 5.4.

²³ For Fiji, for example, this is the one carried out in November 2016, for Vanuatu and Samoa in October 2015 etc.



Annex A: Primary data sources

SWIFT data, as presented in CPMI and PIRI

Bank for International Settlements (BIS) Locational Statistics

World Bank Remittance Cost Database

Saver Global Remittance Cost Database

World Bank, World Development Indicators, latest update (3 March 2023)

ADB, Asian Development Outlook, various issues (latest Dec 2022)

Global Organised Crime Index

Observatory of Economic Complexity (OEC)

World Bank Commodity Price Data (the Pink Sheet)

Ministry and Central Bank data where available

Internet searches to fill gaps in data

FATF/APG MERs and FURs, FATF 4th Round Ratings

Annex B: Definitions of Key Variables and Data Sources

The SWIFT data presented in the CPMI Chartpacks reflects for each country:

Number of Active Correspondents

“An active corridor is defined as a country pair that processed at least one transaction. The count of active correspondents measures, corridor by corridor, the number of banks that have sent or received messages. As a result, correspondents present in more than one corridor are counted several times.”

Cumulative Value of Transactions

Is computed by SWIFT based on MT 103 and MT 202 from the stated sub-region, excluding MT 202COV

Data provided by the Bank for International Settlements (BIS) includes, on a quarterly basis:

FX and break adjusted change (BIS calculated) – Total Claims

FX and break adjusted change (BIS calculated) – Total Liabilities

Amounts outstanding / Stocks – Total Claims

Amounts outstanding / Stocks – Total Liabilities

Data utilised from the World Development Indicators database includes:

Exports of goods and services (% of GDP) - NE.EXP.GNFS.ZS

Official exchange rate (LCU per US\$, period average) - PA.NUS.FCRF

GDP (current US\$) - NY.GDP.MKTP.CD

GDP growth (annual %) - NY.GDP.MKTP.KD.ZG

Personal remittances, received (current US\$) - BX.TRF.PWKR.CD.DT

Interest rate spread (lending rate minus deposit rate, %) - FR.INR.LNDP

Merchandise exports (current US\$) - TX.VAL.MRCH.CD.WT

Exports of goods, services and primary income (BoP, current US\$) - BX.GSR.TOTL.CD

Current account balance (BoP, current US\$) - BN.CAB.XOKA.CD

IBRD loans and IDA credits (DOD, current US\$) - DT.DOD.MWBG.CD

Net official development assistance and official aid received (current US\$) - DT.ODA.ALLD.CD

Net capital account (BoP, current US\$) - BN.TRF.KOGT.CD

Inflation, consumer prices (annual %) - FP.CPI.TOTL.ZG

Exports of goods and services (annual % growth) - NE.EXP.GNFS.KD.ZG

GDP per capita (current US\$) - NY.GDP.PCAP.CD

GDP per capita growth (annual %) - NY.GDP.PCAP.KD.ZG

Average transaction cost of sending remittances to a specific country (%) - SI.RMT.COST.IB.ZS

Foreign direct investment, net inflows (BoP, current US\$) - BX.KLT.DINV.CD.WD

Exports of goods and services (% of GDP) - NE.EXP.GNFS.ZS

Imports of goods and services (% of GDP) - NE.IMP.GNFS.ZS

Population, total - SP.POP.TOTL

Other Sources used in 2022 update

Trading Economics Database – for example <https://tradingeconomics.com/fiji/exports>

Exchange Rates – for example <https://www.exchangerates.org.uk/FJD-USD-spot-exchange-rates-history-2022.html> and
<https://www.xe.com/currencycharts/?from=PGK&to=USD&view=10Y>

Trend Economy data - for example
<https://trendeconomy.com/data/h2/FrenchPolynesia/TOTAL>

CIA World Factbook – for example <https://www.cia.gov/the-world-factbook/countries/french-polynesia/#:~:text=Background,Society%20Islands%20around%20A.D.%20300>.

St Louis Fed database – for example <https://fred.stlouisfed.org/series/KIRNGDPDUSD>

World Population Review - for example <https://worldpopulationreview.com/countries/new-caledonia-population>

World Economics database - for example <https://www.worldeconomics.com/Country-Size/Papua%20New%20Guinea.aspx>

Annex C: Interpolated CBR Trends

Index of Active Correspondents

	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	
Cook Islands	100	96.88	88.96	86.32	79.64	66.91	52.04	46.8	38.1	40.5	Black='fact' as presented by CPMI/SWIFT
Fiji	100	98.24	93.77	92.28	88.52	81.3	70.1	66.3	59.4	52.1	Blue='fact' as presented by PIRI/SWIFT
French Polynesia	100	98.15	93.45	91.89	87.93	80.38	71.56	68.5	60.6	56.0	Green=interpolated using Oceania
Kiribati	100	105.8	111.6	117.5	123.3	129.1	134.9	140.7	92.6	74.1	Red=follows Oceania
Nauru	100	98.8	95.7	94.6	92.0	87.0	81.1	79.1	74.4	69.8	Orange=linear interpolation
New Caledonia	100	96.99	89.32	86.77	80.32	68.00	53.63	48.6	47.2	44.8	
Niue	100	98.8	95.7	94.6	92.0	87.0	81.1	79.1	74.4	69.8	
Papua New Guinea	100	97.83	92.31	90.47	85.83	77.0	67.7	65.3	58.3	55.5	
Samoa	100	98.16	93.48	91.92	87.98	80.5	72.1	68.0	64.8	58.6	
Solomon Islands	100	96.76	88.51	85.76	78.81	65.6	62.6	62.6	53.8	48.5	
Tonga	100	97.58	91.42	89.37	84.19	74.3	63.8	67.3	59.6	53.8	
Tuvalu	100	98.05	93.08	91.42	87.24	79.26	69.94	66.7	66.7	66.7	
Vanuatu	100	97.22	90.16	87.80	81.85	70.5	43.5	41.4	42.2	37.3	
Oceania	100	98.77	95.66	94.62	91.99	86.98	81.13	79.08	74.41	69.78	

Annex D: Commercial Banks in PIF Countries

	Commercial banks					
Cook Islands	ANZ	Bank of the Cook Islands	BSP	Capital Security Bank Cook Islands		
Fiji	ANZ	Westpac	BSP	HFC Bank	Bank of Baroda	
French Polynesia	Banque de Tahiti	Banque de Polynesie	Societe Generale	Bank of Takiti	PIB	
Kiribati	Bank of Kiribati				Bred Bank	
Nauru	Bendigo Bank	No independent central bank				
New Caledonia	BNP Paribas New Caledonia	Societe Generale	Banque de Nouvelle Caledonie	BCI	Banque SMC	
Niue	BSP	Niue has only one bank in the Commercial Centre of Alofi				
Papua New Guinea	ANZ	Westpac	BSP	Kina Bank	Maybank	National Development Bank
Samoa	ANZ	BSP	National Bank of Samoa	Samoa Commercial Bank		
Solomon Islands	ANZ	BSP	POB	Bred Bank		
Tonga	ANZ	BSP	MBf Bank	Tonga Development Bank		
Tuvalu	BSP	Tuvalu National Bank				
Vanuatu	ANZ	Westpac	BSP	NBV	Bred Bank	

Annex E: Natural Disasters

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cook Islands											Cyclone Pat
			Floods		Floods		Tropical Cyclones Winston/Zena		Tropical Cyclone Keni		
Fiji	Cyclone Oli										
French Polynesia											
Kiribati											
Nauru											
New Caledonia											
Niue											
Papua New Guinea						El Nino Drought and Frost	El Nino Drought and Frost		7.5 Earthquake		
Samoa			Tropical Cyclone Evan						Tropical Cyclone Gita		
Solomon Islands					Large scale floods						
					Tropical Cyclone Kofi				Tropical Cyclone Gita		Tropical Cyclone Harold
Tonga											
						Tropical Cyclone Pam					
Tuvalu											
						Super Cyclone Pam			Volcano Ambae Island		
Vanuatu											

Annex F: Commodities Export Pattern for PIF Countries

	Beverages	Fish	Fruit and Veg	Gas	Oil	Gold	Copper	Wood	Palm oil	Nickel	Silver	Sugar	Phosphate Rock	Iron Ore
Fiji	25%	6%			5%	6%		9%	8%	6%	6%	6%		
PNG		2%		38%	10%	16%	8%	5%	8%	6%				
Samoa	4%	9%	18%			3%		71%	9%					
Solomon		14%	2%											
Tonga		28%	37%	18%										
Vanuatu		48%	3%											
Cook Islands		74%	4%											
French Polynesia		10%	3%						7%		27%			
Kiribati		78%							3%					
Nauru		66%											17%	
New Caledonia										55%				42%
Tuvalu		15%												