

## **The Governor or the Sheriff? Pacific Island Nations and Dollarization.**

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**Abstract:** Recent political discussions in Australia have suggested that Pacific Island nations should “dollarize” to the Australian dollar. This is seen as a way to stabilise the economies of the region, which have been fraught with both political and economic uncertainty. Standard currency analysis techniques indicate that dollarization to the US dollar may be preferable to dollarization with the Australian dollar, as strong existing links with the US dollar are indicated, while there is less evidence to support existing relationships with the Australian dollar. With Asia likely to overtake Australia as a dominant trading partner for major Pacific Island economies, a discussion of currency reform in the Pacific should at least consider US dollarization, as Australia’s economic influence may not be as significant as previously assumed.

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## I. INTRODUCTION

No economist would disagree that an economy is affected by the decisions of its government, and that political instability is rarely associated with a sound economy. Political instability and poorly functioning economies are a hallmark of the Pacific Island nations, and the last decade has been marked by political instability (especially Fiji, the Solomon Islands and Papua New Guinea) and a lack of economic development (especially Papua New Guinea, the Solomon Islands and Vanuatu<sup>1</sup>). As Duncan and Chand (2002) point out, “.. all Pacific Island countries.. are experiencing difficulties in generating better living standards for their peoples and the political instability is making economic development even more difficult”<sup>2</sup>. Duncan and Chand cite a number of factors that contribute to economic instability in the Pacific Island nations, prime among them being high youth unemployment and low literacy rates. The Commonwealth of Australia (2003) recently offered dollarization as a panacea to the economic ills of the Pacific, an idea which has been speculated upon by both academics (Duncan, 2002; De Brouwer, 2000) and journalists<sup>3</sup> alike. The Howard government is now encouraging Pacific Island nations to form unions and to amalgamate resources in an attempt to jump-start economic growth.

There has been much discussion in the last decade as to the suitability of various currency regimes to emerging markets. Modern wisdom in the field of currency regimes for less

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<sup>1</sup> Table 10 contains figures for GDP growth in the Pacific Island nations.

<sup>2</sup> Duncan and Chand (2002), p. 1

<sup>3</sup> “Towards a Pacific Common Market”, The Sydney Morning Herald, 14 August 2003

developed nations seems to be trending toward one of two extremes: either countries should maintain an independently floating currency, such as that of the US, or should instead use a hard peg to fix the exchange rate to that of an important trading partner with a freely floating currency, such as the US dollar (Berg, Borensztein and Mauro, 2002). Dollarization, the process of adopting a major currency (usually the US dollar) as the currency of a smaller state, has been proposed for a variety of emerging market countries such as those of Latin America (Berg, Borensztein and Mauro, 2002), Eastern Europe (Rusek, 2002), and even Canada (Berg and Borensztein, 2000). Indeed, some economists believe that all emerging markets should dollarize as a remedy to currency and economic instability (Calvo and Reinhart, 1999). The dollarization proposed for the Pacific Island nations is the adoption of the Australian dollar. This has been proposed by the Commonwealth of Australia as a remedy to the regions ongoing economic malaise, and the notion is popular in Australian political and academic circles. However, the idea of “aussification” is somewhat less popular with the Pacific Island nations themselves, the suggestion having been received by Island leaders with somewhat less enthusiasm than that with which it was proposed by Australian Prime Minister John Howard<sup>4</sup>. The political import of this issue cannot be underestimated, and is the subject of many discussion papers and newspaper articles alike.

This paper seeks to contribute to the debate using recent currency data to determine whether the proposal for “aussification” has merit. Prior studies have taken the assumption of strong

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<sup>4</sup> See for example “PM cops it on the nose as islands refuse to fall into line”, Tom Allard, The Sydney Morning Herald, 15 August 2003

Australian dollar ties as fact – however, this examination finds little evidence to support the belief that the Australian dollar is the most closely related and influential currency in the Pacific region using standard currency analysis techniques. There is little evidence to support a strong and influential relationship between the floating Papua New Guinea kina and the Australian dollar, and regression testing indicates that only Tonga contains the Australian dollar in its currency basket. Cointegration testing offers a little more support for long-run relationships between the Pacific Island currencies and the Australian dollar, but equally it supports relationships with the US dollar and the New Zealand dollar. Further, trading relationships have changed markedly over the decade. The emergence of Asia as a major trading partner to many developed economies during the 1990s has been echoed in the Pacific Islands, and if recent trends continue, the US dollar value of trade with Asia will soon exceed that with Australia. With the kina the only floating Pacific currency, it is significant that the kina appears to be so strongly related to the US dollar, and it is possible that the strength of trade with Asia may lie behind this. If trade with Asia is denominated in US dollars, as is likely to be the case, then it is possible that dollarization in its true sense is preferable to “aussification”. Further investigation of the macroeconomic trading relationships between the Pacific and Asia is warranted, particularly since the economic changes made during the 1997 East Asian crisis, but will be left for other researchers.

With ties demonstrated between Pacific Island currencies and the US dollar, there is some cause to suggest the US dollar as a suitable alternative to the Australian dollar. Indeed, as the US is a less actively involved political force in the region, a decision to adopt the US dollar might prove to be far more beneficial to the Pacific Island nations than the politically-loaded

(and unlikely) decision to adopt the Australian dollar. However, this paper does not propose that the US dollar should be adopted for the Pacific. Rather, it seeks to highlight the fact that alternative proposals may be worthy of further study, particularly those of currency unions. By showing that evidence exists in favour of US dollarization, it aims to provoke further debate before “aussification” is accepted by Australian politicians as the appropriate way forward<sup>5</sup>.

## II. ISSUES AFFECTING THE PACIFIC ISLAND NATIONS

The Pacific Island nations (*PINs*) being considered for membership of the proposed Pacific Union consist of the Cook Islands, Fiji, the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, New Caledonia, Niue, the Northern Mariana Islands, Papua New Guinea, Samoa, the Solomon Islands, Tonga, Tokelau, Tuvalu and Vanuatu. Of these 16 nations only 6 have their own currency (Fiji, Papua New Guinea, Samoa, the Solomon Islands, Tonga, Vanuatu). IMF reports state that the Tongan pa’anga was pegged to the Australian dollar during the 1980s, and was subsequently pegged to a basket of currencies in 1991<sup>6</sup>. Vanuatu has likewise used a currency basket composed using a transaction-weighted methodology. The Solomon Islands and Fiji use fixed peg exchange rates, and the Papua New Guinea kina is a floating currency since 1994, which perhaps accounts for its high variance (Table 1). It should be noted, however, that there is evidence of government

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<sup>5</sup> The Commonwealth of Australia, 2003, Recommendation 1, p. xiii

<sup>6</sup> The IMF states that “the current exchange arrangement seems to serve Tonga well”. IMF Country Report 03/37 p. 13

intervention in the kina (Duncan and Xu, 2000), and it is perhaps best regarded as a managed float – a more detailed analysis, in the style of Calvo and Reinhart (2002), is outside the scope of this paper and is left for a future study. The other PINs share a currency with a more developed nation (the Cook Islands, Niue and Tokelau use the New Zealand dollar; Kiribati, Tuvalu and Naru use the Australian dollar; the Federated States of Micronesia, Northern Mariana Islands and Marshall Islands use the US dollar; and New Caledonia uses the French Pacific franc).

The PINs share many economic conditions in common – they are microeconomies, reliant on commodity exports and tourism for revenue; their economies are significantly affected by commodity export revenue variability (In and Onchoke, 1995); and they have been subject to much political instability and civil unrest (Duncan and Chand, 2002). PINs were typically colonies for much of the last two centuries before recently achieving independence, which may explain to some degree the political upheavals of their recent history. They have extremely underdeveloped economies, and are substantial consumers of Australia’s foreign aid budget. Australia is the second largest aid donor to the PINs, with Japan the largest donor and New Zealand the third largest (Commonwealth of Australia, 2003). As a result, Australia and New Zealand take a somewhat proprietary view of the region, and Australia has recently been regarded as the neighbourhood “sheriff” by the United States<sup>7</sup>, although it is debatable whether Australians, much less Pacific Island inhabitants, are comfortable with this concept.

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<sup>7</sup> “We want to take off the sheriff’s badge”, The Canberra Times, 27 October 2003

A range of currency regimes have been considered for the PINs, and indeed the Papua New Guinea kina was floated in 1993 with encouragement from Australia (Karunaratne, 1988, Commonwealth of Australia, 1995). At this time a floating exchange rate was generally regarded by economists as the most beneficial currency regime for a developing economy, but the aftermath of the Asian crisis of 1997 has seen a reassessment of this opinion<sup>8</sup>. Studies by the IMF and other prominent economic bodies have reassessed options such as currency boards, fixed pegs and dollarization in an attempt to stabilize small and emerging market economies without leaving them exposed to rapid fluctuations in their currencies which may damage their levels of trade. When discussing the problems of the Pacific Islands, dollarization to the Australian dollar is the most common proposal and indeed it is the only option considered in many papers. An alternative is the formation of a currency union, modeled perhaps on that of the Caribbean. Jayaraman (2003) examines this proposal but finds that a number of the preconditions for such a union, including levels of intra-country trade, correlations in export prices and factor mobility, are not satisfied and concludes that dollarization remains the most viable option.

In an attempt to find solutions to the economic dysfunction of the PINs, the Commonwealth of Australia (2003), taking its lead from scholarly debate, proposed that the a single economic and political community could be established, with the Australian dollar becoming the regional currency. There will be much political discussion, both within Australia and within the PINs, as to whether this is an appropriate idea. This study addresses some of the

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<sup>8</sup> See Frankel et al. (2001) for a summary of the discussion with respect to emerging markets.

empirical support for the “aussification”, or Australian dollarization, of the Pacific. Is the Australian dollar the most appropriate currency for the PINs to adopt? Certainly parts of the Australian Government are promoting this as the preferred option<sup>9</sup>. The political ramifications of such a decision are left for other studies. The focus here is on the rationale behind the adoption of the Australian dollar as the currency of the Pacific, and whether, in the rush to promote the Australian dollar, other options have not been sufficiently explored.

### **III. DOLLARIZATION**

Dollarization is the process whereby a country foregoes its own currency and adopts that of another appropriate party. The seeming success of the European Economic Community and its single currency and the proxy nature of the US dollar as the unofficial official currency of many least developed economies, has perhaps encouraged the debate as to whether dollarization is a suitable solution for the problem of Third World economic instability. During the 1990s many developing countries were urged by the IMF to float their exchange rates in an attempt to enhance economic development. However the position of the IMF has changed, partly as a result of the 1997 East Asia currency crisis, and in the early part of the new century the prescription for exchange rate regimes is less clear-cut. Issues such as currency boards, pegs and dollarization are back on the agenda and are being broadly debated in the circles of development economics.

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<sup>9</sup> Commonwealth of Australia (2002)



The arguments in favor of dollarization in developing economies are outlined succinctly by Berg and Borensztein (2000). Pegs and currency boards can become targets for currency traders and this is particularly problematic for small, fragile economies. By dollarizing to a large, liquid currency, the chances of falling victim to a speculative attack are significantly diminished. Likewise it is less likely that major investors will suddenly withdraw capital if there is no fear of a sudden or sharp devaluation. This argument suggests that the island nations of the Pacific would be less prone to speculative attacks and, more importantly, a significantly more attractive destination for foreign investment than has previously been the case if it were to use the Australian dollar as the official currency. Duncan (2002) proposes Australian dollarization of the Pacific island nations as a method to reduce government costs, stabilize monetary policy (indeed, remove the monetary policy responsibility from the island nations) and fix interest and inflation rates to those of Australia. Additionally, as dollarization may eliminate the potential for sharp revaluations in the currency, at least with respect to the currency it is dollarizing against, the increased currency stability will promote increased trade between the economies. Arguments in favor of dollarization to the Australian dollar are based primarily on the fact that, in the past, Australia has been the major trading partner of the Pacific Island nations (de Brouwer, 2000).

For better or for worse, “aussification” ties the countries of the Pacific to Australia, and once the process has commenced, dollarization is extremely difficult to reverse. Berg and Borensztein (2000) observe that the few cases of a reversal of dollarization are in newly-independent countries, such as those of the former Soviet Union, and which were previously dollarized to inconvertible currencies. Alternatives, such as currency boards, may be changed

as conditions merit. Of additional concern is the fact that in most discussions of Pacific dollarization there has been a very direct leap from the idea of dollarization to the implementation of the Australian dollar as the primary currency, rather than the US dollar, the Japanese yen, the New Zealand dollar or even the French franc, all of which may have equal claims for their adoption. Certainly when dollarization is discussed in economic literature, the US dollar is implicit in the term as the adopted currency. Certainly several countries already use the Australian dollar, but several also use the New Zealand dollar and the US dollar, and Japan is the largest donor of aid in the region. Any of these currencies could reasonably be adopted by the PINs.

A significant argument made in favour of dollarization in the Pacific is that it would result in interest rate stability. Duncan (2002) argues that interest rates would be “largely determined in Australia”<sup>10</sup>, and hence would offer some monetary policy stability to the PINs. However, it is unlikely that interest rates would be similar to those of Australia. Any issue of government debt would attract a risk premium due to the significantly greater risk of default, effectively increasing interest rates at a country level. While, as noted, dollarization may remove the ability of various governments to print currency as a way of managing deficits, it does not mean that the dollarizing nation immediately inherits the stability of the country to whose currency it is dollarizing. Certainly the issuance of bonds and their efficient servicing is a preferable way to manage government debt, but should a government choose not to play fair, and default on the bonds, the results are in every way as disastrous as the money-

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<sup>10</sup> Duncan, 2002, p. 145

printing remedy. A cessation of capital inflow at that point is not improved simply because the capital is (not) in Australian dollars. Berg and Borensztein (2000) point out that the issue of dollar-denominated debt is effectively the same as dollarizing and then issuing government debt, as in each case the debt has eliminated exchange rate risk. Issuing US or Australian dollar denominated debt would be a far simpler exercise for a Pacific Island government than going to the extreme of dollarizing the entire financial system. Further, when Berg and Borensztein examine the borrowing practices of Argentina, which has both peso- and US dollar-denominated debt, they observe that while a spread between the two types of debt exists, the interest rate of the US dollar-denominated debt is still significantly higher than that of developed countries, reflecting the default risk inherent in the bonds. While dollarization may make borrowing a little cheaper for the Pacific nations, it will still come at a price higher than that which would be charged to Australia. It would also be difficult for many Pacific Island nations to find a buyer for their bonds – government fiscal management has not been a strength of these countries, and their ability to repay loans is questionable.

Seigniorage is also lost when a country dollarizes. While this may not account for a great deal of revenue, its loss may be felt keenly to a small economy such as those of the PINs. Proposals for dollarization often include a sharing arrangement for seigniorage and it is anticipated that the Pacific Island nations would pursue such opportunities before agreeing to adopt any form of dollarization. It is possible that smaller nations, such as Australia or New Zealand, would be more willing to share seigniorage with the Pacific – it is less likely that the US would be prepared to do this.

An alternative to dollarization is the formation of a currency union. A currency union has the benefit of allowing the Pacific nations unity, while preserving their independence from former colonial powers. As such, it may be a preferable option and one which may be more palatable to Pacific leaders. Such a union would see individual members give up their individual currencies, and join a centrally administered organization much like that of the European Union. Berg, Borensztein and Mauro (2002) observe that a benefit of a currency union is improved central bank independence, and that it may also promote monetary and fiscal discipline as a central bank that is not disciplined will find it difficult to something level of confidence. They also point out that a common currency will promote intra-regional trade. Seignorage is retained, and a sharing arrangement could be negotiated between countries joining the union. Another benefit is that the currency union may serve to promote good governance practices throughout the region. Indeed, by promoting a common currency it is more likely that there will be subsequent improvements in central bank and governmental accountability as the PINs will be required to maintain credibility. The adoption of a foreign currency would eliminate this necessity – and less accountability is possibly not a scenario that is ideal for this region.

While Jayaraman (2003) failed to find compelling evidence in support of a currency union, recent work by Huang and Wei (2003) find that monetary regimes such as currency boards and dollarization are likely to fail in countries with high levels of corruption. They find that a “conservative central banker” is preferable to exchange-rate driven monetary regimes under corruption, and question the ability of low inflation targets and currency boards to motivate ethical behaviour in governments. This lends weight to proposals of a currency union in

preference to dollarization, and in light of this perhaps a new investigation into currency unions is warranted, although this will be left for future research.

#### **IV. EMPIRICAL SUPPORT FOR DOLLARIZATION**

While much discussion has taken place about the macroeconomic support for dollarization, little currency time-series work has been performed. It is interesting, therefore, to determine whether there is any support for the idea that the Australian dollar is a related currency to those currencies of the PINs – is there a “koala bloc” in the Pacific? It is to be expected that if there are significant trading relationships and economic ties between Australia and the PINs, then this will be reflected in their currency relationships. Studies of currency relationships generally fall into two categories: those using regression analysis, as per Frankel and Wei (1994); and those using cointegration analysis as per Aggarwal and Mougouè (1996). This study will use both methods, as per Bowman (2004, 2005).

Before using regression analysis, tests for stationarity should be made. Three unit root tests are used in this study: the Augmented Dickey-Fuller (ADF, 1981) test, the Phillips and Perron (PP, 1988) test, and the Zivot and Andrews (1994) test for unit roots in the presence of structural breaks. The first two tests, both of which test the null of a unit root, are widely used in currency literature (Baillie and Bollerslev, 1989; Bowman, 2005). However, the existence of breakpoints in the data, often caused by regime changes, may result in misspecification if tests do not incorporate adjustments for structural breaks. The Zivot and Andrews test addresses this, and can be used to determine stationarity in the presence of a structural break. The Zivot and Andrews test has the added advantage of dynamically

determining the location of a breakpoint – it does not require visual identification of the break, and hence is not susceptible to arbitrary period selection.

The results of these tests (Table 2) indicate that unit roots are present in most series. The ADF and PP tests fail to reject the null of a unit root for any of the currencies examined, although the results differ slightly when the Zivot and Andrews test is used. Breakpoints are identified in the Papua New Guinea kina, the Solomon Island dollar and the British pound, and the null of a unit root is rejected in each case. If these currencies do in fact contain breakpoints, then ADF and PP results are likely to be misleading as they do not adjust for structural changes in the data, and that the null of a unit root can be rejected for these currencies.

Having confirmed that most currencies examined here are likely to be characterized as unit root processes, an initial investigation into currency relationships is made using a standard OLS regression as per Frankel and Wei (1994), modeled such that

$$\Delta \ln S_C = \alpha + \beta_1 \Delta \ln S_{USD} + \beta_2 \Delta \ln S_{AUD} + \beta_3 \Delta \ln S_{NZD} + \beta_4 \Delta \ln S_{JPY} + \beta_5 \Delta \ln S_{GBP} + \varepsilon_t \quad (1)$$

where  $S_C$  represents the PIN currency,

$S_{USD}$  represents the US dollar,

$S_{AUD}$  represents the Australian dollar,

$S_{NZD}$  represents the New Zealand dollar,

and  $S_{GBP}$  represents the British pound  
with daily currency data denominated in Swiss franc.

The results of this regression are found in Table 3, with statistically significant results highlighted in bold. The evidence for the use of the Australian dollar in the Pacific is not compelling. Of the five Island currencies, only the Papua New Guinea kina is a “floating” currency, and it is the kina which shows some of the least support for a relationship with the Australian dollar. Indeed, the kina is highly related to the US dollar (93%) and as such the traditional notion of dollarization, that is the use of the US dollar as a currency, seems to be the most appropriate if existing currency behaviour is to be retained. While there remains the likelihood of significant central bank intervention, the kina nonetheless seems to be most impacted by movements in the US dollar, and the weighting for the Australian dollar is irrelevant.

The currencies of Fiji and Vanuatu likewise feature the US dollar most significantly in their basket of currencies. Vanuatu and Fiji both have currency pegs, and the implication of the regression seen here is that they peg primarily, if not entirely, to the US dollar. The high  $R^2$  values indicate that the equations are reasonably well specified: there is nothing here to suggest that the Australian dollar has a significant weighting in the respective currency baskets, and hence the decision to change to the Australian dollar would need to be supported by significant economic fundamentals, as this implies that a transition to the Australian dollar would not be economically straightforward. Only the Tongan pa'anga seems to feature the Australian dollar significantly in its currency basket, the Aussie comprising around two-

thirds of the basket, while the British pound constitutes the remainder. The Solomon Island dollar also appears to be weighted around 55% toward the British pound, with the US dollar making up the remainder. It would not appear that the pegs implemented by the Solomon Islands, Fiji or Vanuatu feature the Australian dollar.

Robustness checks can be made using cointegration testing. The Johansen (1991) test for cointegration is again commonly used in currency literature (Aggarwal and Mougoue, 1996; Zhou, 1998) to test for long-run relationships between currencies. However, if not modified to adjust for structural breaks, it may again misspecify relationships. The Gregory and Hansen (1996) test for cointegration adjusts for structural breaks, again dynamically determining the location of the breakpoint to avoid arbitrary period selection.

Johansen cointegration testing (Table 4) indicates that significant long-run relationships exist where not immediately identified by regression testing. Fiji is found to have significant long-run relationships with Australia, New Zealand, and the UK, as well as with the US dollar (as identified in regression testing). Likewise there is evidence of long-run relationships between Tonga and both Australia and New Zealand, and between Vanuatu and Australia, New Zealand and the US. However, cointegration testing indicates only the presence of relationships – it does not indicate the strength of the relationships, or define a weighting, as the Frankel and Wei regression analysis does.

While the Johansen test does not indicate the presence of cointegration for Papua New Guinea kina or the Solomon Islands dollar, this may be because the currencies contain



breakpoints (as identified by the Zivot and Andrews test), and so the results of the Gregory and Hansen test (Table 5) better specify relationships for these currencies. Indeed, the Gregory and Hansen test finds evidence of cointegration only for these currencies, and only the Solomon Islands/Australia and Solomon Islands/New Zealand relationships are significant to 10%. It is interesting that no long-run evidence is found to confirm the results of regression testing, which indicated strong US dollar relationships in each case – again, the presence of stationarity and structural breaks may be misspecifying the relationship here.

Overall, from both regression and cointegration testing, there is mixed evidence as to whether the Australian dollar is significantly related to the currencies of the Pacific Island nations. Regression analysis indicates that at least four of these currencies, including the floating Papua New Guinean kina, would be more suited to true dollarization (that is dollarization to the US dollar), which may provide a less disruptive replacement for their existing currencies. Indeed, these results imply a significant level of unofficial dollarization already exists. Cointegration testing, while offering a little more support for long-run relationships with the Australian dollar, finds equivalent support for the US dollar, and it should be noted that cointegration testing does not offer a ranking of importance, merely an indication of the existence of cointegration.

Correlations between the five PINs shed an interesting light on currency dynamics within the region (Table 6). The currencies of Papua New Guinea and the Solomon Islands are highly correlated with each other but not with the remaining countries, while the currencies of Vanuatu, Fiji and Tonga are all highly correlated. This is an interesting result, particularly

considering that the kina is a floating currency while the Solomon Island dollar is a managed peg, and appears to be weighted to the US dollar and the British pound. Economic relationships may help to explain this: Tonga, Fiji and Vanuatu have significant trading relationships with each other, with Tonga and Vanuatu being quite dependent on exports from Fiji; while the Solomon Islands and Papua New Guinea also trade between each other to a significant degree<sup>11</sup>.

The most interesting change in Pacific import and export composition over the last ten years has been the increasing relevance of Asia, both for imports and as an export destination. Conventional wisdom states that Australia is a significant trading partner for the PINs, and for this reason the Australian dollar is the most appropriate currency for dollarization (De Brouwer, 2000, Duncan, 2002). However, this has changed significantly over the decade. Figure 1 illustrates this change in trading levels – while Australia remains the largest exporter in US dollar terms to the PINs, there has been little movement between the beginning and end of the decade. A large spike in exports during the mid-1990s proved to be only temporary, and otherwise the levels of Australian exports has been fairly constant. Not so those from Asia. Exports have risen considerably over the decade, and it is obvious that these exports will eclipse those from Australia in the not-too-distant future, if past trends continue. This is perhaps behind the dominance of the US dollar in the PIN currencies – if Asian countries are denominating their goods in US dollars, as is likely, it may be that this increase in trade is responsible for the decisions to peg to the US dollar. Support for the use of the US

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<sup>11</sup> Source: IMF International Financial Statistics: figures available on request.

dollar in these circumstances may be found in prior currency studies of Asia such as Bowman (2004), which uses Frankel and Wei (1994) regression analysis to show that the currencies of East Asia remain highly related to the US dollar, despite the regime changes seen in the aftermath of the 1997 East Asian crisis.

Only Papua New Guinea and Fiji continue to send a considerable quantity of their exports to Australia (Table 8). In each case, the importance of Australia as an export destination has diminished over the decade. Exports from Papua New Guinea to Australia have fallen from around 35% of total exports to around 24%. Fiji similarly has seen the percentage of total exports fall from around 22% in 1993 to around 19% in 2002. Fiji has seen Asia become a greater market for exports, while the US, Japan and Asia are now taking the bulk of Papua New Guinea's exports. It is possible that the PINs would now find it more appropriate to peg to the US dollar rather than the Australian dollar, which appears to be losing its significance as a trading partner, and is a trend that is likely to continue over the next decade. Overall, exports from Asia to Pacific Island nations (Table 7) have increased over the decade, while exports from Australia appear to be falling. Papua New Guinea remains the only country whose trade with Australia, in terms of both imports and exports, is greater than that with Asia. All other countries now export more to Asia than Australia, and Tonga, Vanuatu and the Solomon Islands also import more from Asia than Australia. The evidence to support Australia's position as a dominant economy in the Pacific region is significantly weaker than that of a decade ago, and this fact alone is a good reason to reassess calls for the Australian dollarization of the Pacific.

## V. CONCLUSION

With corruption and recurrent political and economic turmoil being features of the Pacific Island nations, the Australian government has raised the prospect of dollarization to the Australian dollar as a panacea for the regions ills. There has been some academic discussion about the perceived benefits of dollarization, and the weight of argument has fallen in favour of the concept. However, analysis of existing currency behaviours suggest that this may not be the best solution if significant structural readjustment is to be avoided. Ideal candidates for dollarization are small economies with close trade and economic links to the originating country. But evidence seems to suggest that trade links are changing in the Pacific, and it is less likely that the status quo will remain by the time the PINs dollarize. Dollarization to the US dollar, the de-facto standard in Asia, or a move to a common currency may be preferable alternatives to dollarizing to the Australian dollar. Further, recent contributions to the less developed economy currency regime debate such as Huang and Wei (2003) indicate that dollarization may not be the best regime for an emerging economy plagued with corruption.

Of course, there are many reasons why the Australian government may find it beneficial for the region to “aussify”, rather than “dollarize”. However, these reasons fall into the domain of political economy, rather than empirical economics, and there is evidence presented here that questions such enthusiastic support for the adoption of the Australian dollar. Certainly, if trends of the last decade continue, Asia is likely to become the dominant trading partner for most PINs, and many of the arguments that favour the use of the Australian dollar over other currency options may be overtaken by events.

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**Table 1: Currency Statistics**

$$R_t = \ln(C_t/C_{t-1}) * 100$$

<b>Pacific Island Currency</b>	<b>Mean</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Variance</b>	<b>Skewness</b>	<b>Kurtosis</b>	<b>ADF</b>	<b>PP</b>	<b>Observation Period</b>
<b>Fiji</b>	-0.0040	2.2218	-2.1724	0.2138	-0.0114	4.9710	0.2004	0.2304	12/01/98 – 5/30/03
<b>Papua N.Guinea</b>	0.0531	16.0923	-12.7286	0.8739	0.6778	66.3801	-2.5419	-3.0683	12/31/93 – 5/30/03
<b>Solomon Isl.</b>	0.0328	20.6584	-10.0619	0.6823	6.6036	186.0926	-1.1301	-1.3810	6/01/93 – 5/30/03
<b>Tonga</b>	0.0011	3.3643	-5.9958	0.5366	-0.2667	6.2530	-1.5544	-1.5914	6/01/93 – 5/30/03
<b>Vanuatu</b>	-0.0002	2.5433	-1.8688	0.0990	0.1634	11.5513	-0.2884	-0.3104	12/31/93 – 5/30/03
<b>Australia</b>	0.0015	3.4683	-5.1692	0.4090	-0.2660	7.0881	-1.5961	-1.4776	6/01/93 – 5/30/03
<b>New Zealand</b>	-0.0025	3.5491	-3.9052	0.4006	0.0799	6.9989	-1.0979	-1.0221	6/01/93 – 5/30/03
<b>Japan</b>	0.0042	4.1392	-7.6854	0.5641	-0.9030	11.8159	-2.2127	-2.2076	6/01/93 – 5/30/03
<b>Britain</b>	-0.0021	3.4234	-4.2212	0.2624	-0.0600	7.0214	-2.2767	-2.2573	6/01/93 – 5/30/03
<b>United States</b>	-0.0035	3.7792	-3.7074	0.4783	-0.1928	5.3586	-1.2363	-1.1663	6/01/93 – 5/30/03

**Table 2: Unit Root Tests**

	Papua New Guinea	Fiji	Solomon Islands	Tonga	Vanuatu	Australia	New Zealand	Japan	United Kingdom	USA
<b>Augmented Dickey-Fuller</b>	-2.5419	0.2004	-1.1301	-1.5544	-0.2884	-1.5961	-1.0979	-2.2127	-2.2767	-1.2363
<b>Phillips-Perron</b>	-3.0683	0.2304	-1.3810	-1.5914	-0.3104	-1.4776	-1.0221	-2.2076	-2.2573	-1.1663
<b>Zivot and Andrews</b>										
<b>T-Statistic</b>	-3.9996*	-1.6807	-4.1437*	-2.3613	-2.7061	-2.3367	-2.4379	-3.6077	-4.4632*	-2.7356
<b><math>\lambda</math></b>	0.23	0.66	0.86	0.96	0.89	0.96	0.92	0.53	0.66	0.89
<b>Date of Break</b>	9/20/1995	1/21/2000	1/04/2002	1/02/2003	4/09/2002	1/01/2003	8/06/2002	9/30/1998	1/20/2000	4/15/2002
<b>Number of Lags</b>	8	10	11	8	9	8	9	10	2	9

\*\* Significant to 1%

\* Significant to 5%

**Notes:** US dollar denominated in Swiss franc, all other currencies denominated in US dollars. Both Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests use intercept and trend specifications unless noted otherwise and default lag lengths. There is generally no evidence to reject the null of a unit root. However, the Zivot and Andrews test identifies breakpoints and rejects the null of a unit root for the Papua New Guinea kina, Solomon Islands dollar and British pound.

**Table 2a : Zivot and Andrews calculated t-statistics**

$\lambda$	1%	5%	10%
0.1	-4.27	-3.65	-3.36
0.2	-4.41	-3.80	-3.49
0.3	-4.51	-3.87	-3.58
0.4	-4.55	-3.94	-3.66
0.5	-4.55	-3.96	-3.68
0.6	-4.57	-3.95	-3.66
0.7	-4.51	-3.85	-3.57
0.8	-4.38	-3.82	-3.50
0.9	-4.26	-3.68	-3.35

**Table 3 : Basic Regression Relationships 1993 - 2003**

Currency	$\beta_1$ USD (t-statistic)	$B_2$ AUD (t-statistic)	$B_3$ NZD (t-statistic)	$B_4$ JPY (t-statistic)	$B_5$ GBP (t-statistic)	$R^2$	DW
<b>Fiji (dollar)</b>	<b>0.9611</b> 15.37	0.0207 0.67	-0.02 -0.61	0.02 0.79	0.0080 0.23	0.69	2.25
<b>Papua N.Guinea (kina)</b>	<b>0.9293</b> 11.24	-0.0314 -0.75	0.03 0.69	0.04 1.38	-0.0002 -0.01	0.35	1.93
<b>Solomon Isl. (dollar)</b>	<b>0.4654</b> 6.99	0.0258 0.77	0.00 -0.14	0.01 0.34	<b>0.5382</b> 15.05	0.58	2.17
<b>Tonga (pa'anga)</b>	-0.2438 -5.66	<b>0.6936</b> 32.06	0.02 1.11	0.03 2.11	<b>0.4485</b> 19.36	0.80	2.70
<b>Vanuatu (vatu)</b>	<b>0.9520</b> 34.23	0.0102 0.73	0.01 0.41	0.01 0.73	0.0178 1.17	0.83	2.08

**Notes:** All currencies denominated in Swiss franc. The basic regression of equation (1) provides little support for the Australian dollar as a choice of basic currency. The greatest level of support is for the US dollar, with most currencies strongly linked. There is also more support for the British pound, which is significantly related to both the Tongan pa'anga and the Solomon Island dollar. Despite the levels of trade between Australia and the Pacific Island nations, the only currency with support for the Australian dollar is the Tongan pa'anga. The Japanese yen is not linked with any of the currencies during this period.

**Table 4: Johansen Cointegration Test**

	Papua New Guinea	Fiji	Solomon Islands	Tonga	Vanuatu
<b>Australia</b>	-	36.06** <sup>a</sup>	-	454.83** <sup>a</sup>	17.47* <sup>b</sup>
<b>New Zealand</b>	-	34.42** <sup>a</sup>	-	16.18* <sup>a</sup>	17.35* <sup>b</sup>
<b>Japan</b>	-	-	-	-	-
<b>United Kingdom</b>	-	29.36* <sup>a</sup>	-	-	-
<b>USA</b>	-	32.24** <sup>a</sup>	-	-	15.56* <sup>b</sup>

\*\* Significant to 1%

\* Significant to 5%

<sup>a</sup> Intercept and trend

<sup>b</sup> Intercept, no trend

**Notes:** Johansen cointegration testing found no cointegrating relationship between the developed economy currencies and those of Papua New Guinea or the Solomon Islands. Fiji's currency basket showed long-run cointegrating relationships with Australia, New Zealand, the United Kingdom and the USA. Tonga demonstrated long-run cointegrating relationships with the Australian dollar, which was observed from regression testing, and weaker evidence for the New Zealand dollar, which was not. Vanuatu was cointegrated with Australia, New Zealand and the USA at 5%. Lags typically numbered 1 – 4.

**Table 5: Gregory and Hansen Cointegration Test**

	Papua New Guinea		Solomon Islands	
	t	Date	t	Date
<b>Australia</b>	-	-	<b>-4.743356<sup>^</sup></b>	24/04/2002
<b>New Zealand</b>	-3.690134	19/06/2001	<b>-4.962797<sup>^</sup></b>	1/05/2002
<b>Japan</b>	-4.143921	16/06/1999	-3.987882	8/03/1995
<b>United Kingdom</b>	-3.078221	19/06/2001	-3.716524	31/01/1995
<b>USA</b>	-3.270766	11/06/1999	-4.290791	5/04/2002

\* Significant to 5%  
<sup>^</sup> Significant to 10%

**Notes:** No evidence of cointegration was found for Tonga, Vanuatu or Papua New Guinea/Australia using the Gregory and Hansen test, confirming the results of the Zivot and Andrews test, which indicate breakpoints only in the currencies of Papua New Guinea and the Solomon Islands. Evidence at significant levels was found only for Solomon Islands/Australia and Solomon Islands/New Zealand. Critical values determined by Gregory and Hansen (1996) are (-5.45, -5.21, -4.99, -4.72) for (1%, 1.5%, 5%, 10%) respectively. Significant statistics are highlighted in bold.

**Table 6 : Intra-Island Correlation 1993 - 2003**

Pacific Island Currency	Fiji (dollar)	Papua N.Guinea (kina)	Solomon Isl. (dollar)	Tonga (pa'anga)	Vanuatu (vatu)
Fiji (dollar)	1.0000				
Papua N.Guinea (kina)	0.3917	1.0000			
Solomon Isl. (dollar)	-0.0019	<b>0.8326</b>	1.0000		
Tonga (pa'anga)	<b>0.9694</b>	0.5165	0.1763	1.0000	
Vanuatu (vatu)	<b>0.9878</b>	0.2930	-0.1139	<b>0.9404</b>	1.0000

**Notes:** The correlations between nominal island currencies finds more evidence of currency relationships between the island nations than between the islands and the developed countries. There is a negative relationship between the Fiji dollar and the Solomon Islands dollar, and between the Solomon Islands and Vanuatu. The results indicate there may be two systems of relationships here: one containing Fiji, Tonga and Vanuatu, and the other comprising the Solomon Islands and Papua New Guinea.

**Table 7: Imports of Pacific Island Nations – Asia and Australia**

<b>Imports from Australia</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
FIJI	235.97	273.64	336.58	436.84	436.26	359.17	410.92	371.33	333.41	312.56
PAPUA NEW GUINEA	671.86	762.90	740.76	1039.50	973.08	704.70	668.51	608.51	574.09	589.10
SOLOMON ISLANDS	46.15	49.89	66.22	71.13	72.87	65.46	68.22	33.83	33.13	31.54
TONGA	13.87	17.04	21.48	22.17	24.11	16.98	14.55	8.49	8.30	11.39
VANUATU	42.49	33.81	32.04	37.45	34.65	30.69	35.10	31.07	27.26	29.33
<b>TOTAL</b>	1010.34	1137.28	1197.08	1607.09	1540.97	1177	1197.3	1053.23	976.19	973.92
<b>Imports from Asia<sup>1</sup></b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
FIJI	134.13	202.61	209.35	195.24	198.19	203.70	213.50	193.45	204.66	285.46
PAPUA NEW GUINEA	369.13	372.50	365.90	389.60	448.61	306.47	356.46	427.16	358.78	389.88
SOLOMON ISLANDS	45.40	45.26	50.02	48.57	67.60	57.02	61.49	61.84	54.97	52.83
TONGA	7.30	5.31	5.82	5.29	6.08	5.10	17.02	29.31	26.41	27.66
VANUATU	15.87	17.37	31.85	33.02	28.74	29.43	44.29	47.74	57.32	47.16
<b>TOTAL</b>	571.83	643.05	662.94	671.72	749.22	601.72	692.76	759.5	702.14	802.99
<b>Imports from Japan</b>										
FIJI	79.45	66.29	62.34	51.57	66.28	39.53	47.11	30.50	28.70	35.47
PAPUA NEW GUINEA	207.73	197.40	133.41	169.70	171.92	106.70	69.97	49.52	51.63	50.52
SOLOMON ISLANDS	14.26	18.22	15.75	16.65	18.41	9.74	18.78	6.62	4.07	2.32
TONGA	4.26	4.69	4.49	5.12	4.12	3.50	3.92	12.52	3.06	1.91
VANUATU	68.19	64.89	61.92	75.48	91.80	14.34	90.82	23.70	43.72	25.54
<b>TOTAL</b>	373.89	351.49	277.91	318.52	352.53	173.81	230.6	122.86	131.18	115.76

**Notes:** Total value of exports in \$million US dollars.

<sup>1</sup>The definition of Asia used here includes exports from other Pacific Island nations.

Source: IMF International Financial Statistics

**Table 8: Exports from Pacific Island Nations – Asia and Australia**

<b>Exports to Australia</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
FIJI	101.98	118.86	148.16	202.00	200.43	211.98	233.51	173.16	123.87	119.88
PAPUA NEW GUINEA	933.71	822.05	866.77	930.39	706.12	441.58	733.81	843.33	646.49	645.47
SOLOMON ISLANDS	1.79	1.69	3.82	2.44	3.04	3.75	2.17	2.64	1.34	0.78
TONGA	1.23	0.68	0.71	0.73	0.32	0.34	0.40	0.35	0.37	0.36
VANUATU	1.17	1.15	3.60	0.63	0.97	0.48	0.62	0.47	1.73	2.57
<b>TOTAL</b>	1039.88	944.43	1023.06	1136.19	910.88	658.13	970.51	1019.95	773.8	769.06
<b>Exports to Asia<sup>1</sup></b>										
FIJI	43.66	41.85	124.04	137.00	97.82	93.34	105.60	134.89	123.91	130.57
PAPUA NEW GUINEA	678.34	624.10	535.98	549.51	476.55	441.90	466.51	490.65	479.28	486.13
SOLOMON ISLANDS	57.55	57.96	74.90	80.54	71.42	93.58	75.59	58.89	53.85	65.76
TONGA	0.07	0.30	0.24	0.49	0.56	0.46	0.58	1.29	1.16	1.06
VANUATU	25.51	4.61	4.37	13.20	7.52	9.46	14.15	55.17	36.51	64.69
<b>TOTAL</b>	805.13	728.82	739.53	780.74	653.87	638.74	662.43	740.89	694.71	748.21
<b>Exports to Japan</b>										
FIJI	33.26	37.22	36.14	49.18	29.48	29.17	31.90	28.23	31.22	38.99
PAPUA NEW GUINEA	563.23	661.14	664.46	551.32	456.27	290.98	324.92	317.28	279.17	252.48
SOLOMON ISLANDS	83.07	79.01	91.36	103.95	105.56	54.53	52.95	20.98	17.09	18.78
TONGA	9.43	7.32	7.01	5.59	5.12	2.94	7.36	8.68	12.20	10.83
VANUATU	5.90	6.30	7.28	8.12	16.87	22.43	9.49	16.29	6.50	3.89
<b>TOTAL</b>	694.89	790.99	806.25	718.16	613.3	400.05	426.62	391.46	346.18	324.97

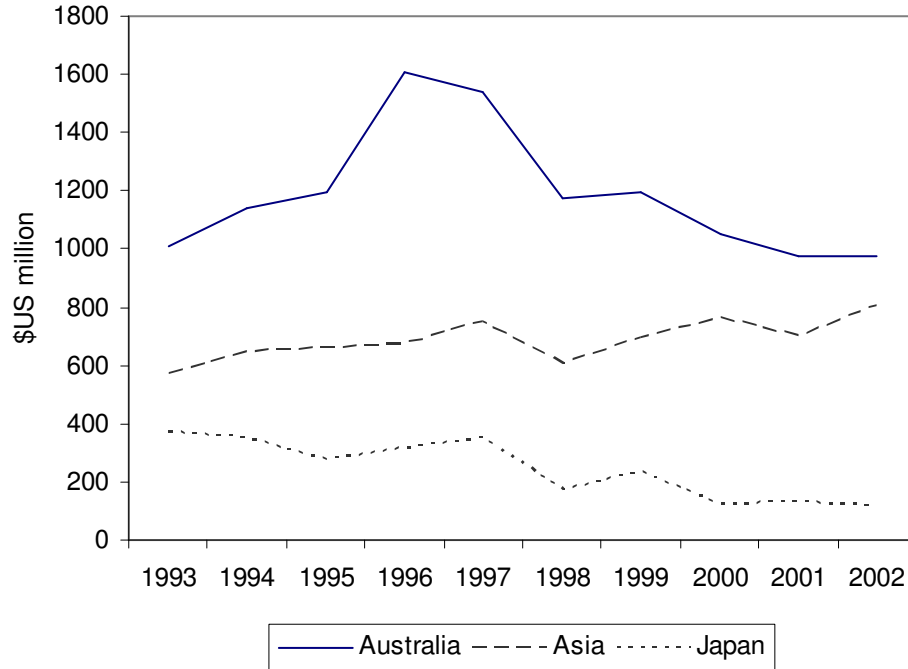
**Notes:** Total value of exports in \$million US dollars.

<sup>1</sup>The definition of Asia used here includes exports from other Pacific Island nations.

Source: IMF International Financial Statistics



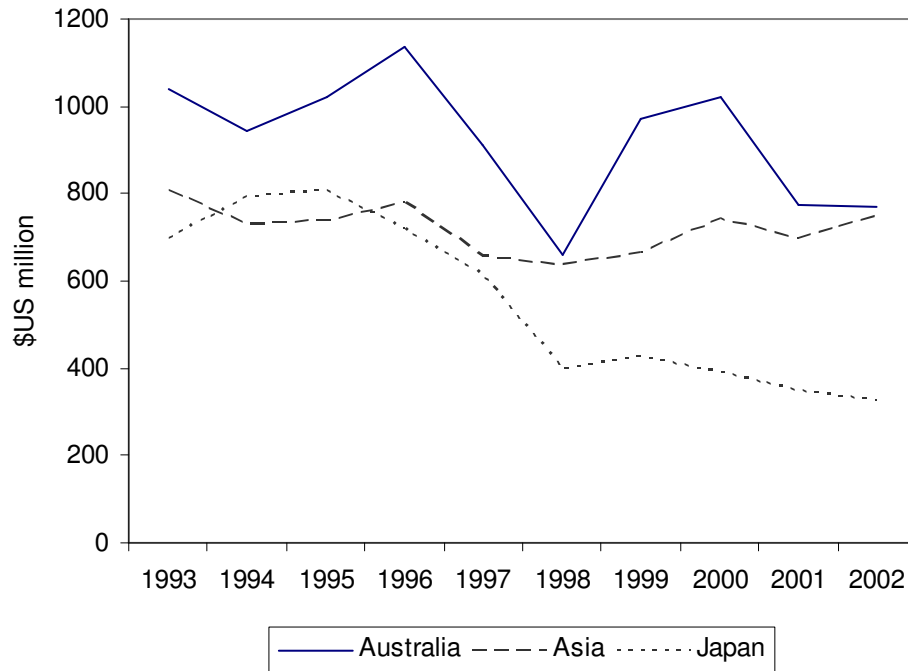
Figure 1: Value of Imports to Pacific Island Nations



**Notes:** All values in \$million USD. Import demand from Asia is growing after a slight decline around the time of the East Asian crisis (late 1997) and is continuing in an upward trend, while imports from Australia have decreased. The spike in Australian imports during the mid-1990s is primarily due to an increase in demand from Papua New Guinea, and may reflect imports of mining equipment. Imports from Japan have halved over the decade.

Source: IMF International Financial Statistics.

Figure 2: Value of Exports from Pacific Island Nations



**Notes:** All values in \$million USD. Exports to Asia (including Japan but excluding China) have again recovered post-1998, and both appear to have reached a plateau in 2001 – 2002.

Source: IMF International Financial Statistics.