IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 10, Issue 6 (May. - Jun. 2013), PP 47-59
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.Iosrjournals.Org

Impact of APEC[1] on Terms of Trade

Dr Rummana Zaheer
Assistant Professor, Department of Economics, University of Karachi (Pakistan)

Abstract: *The paper aims to see the effect of Nominal and Real (External) Exchange rates of the U.S dollar on its Terms of Trade with two of its APEC trading partners Australia and New Zealand for the period 1991 to 2010. For analysis, the whole values, percentage changes and relationships between Nominal and Real Exchange rates and Terms of Trade of U.S with the two countries has been taken into consideration. The Classical Regression analysis is used and it was found that the Real Exchange rate was overvalued as compared to the Nominal Exchange Rate. It was also found that when compared to Nominal exchange rate, Real exchange rate is more effective in explaining the TOT. The Real AUD/USD had both short run and long run impacts on the TOT of U.S.A with Australia but the Real NZD/USD had no impact on the TOT of U.S.A with New Zealand.*

I. Introduction

The APEC (Asian-Pacific Economic Cooperation) was founded initially because of the increasing interdependence of the Asia-Pacific countries and due to the dawn of several trade blocs at that time, particularly the G8. Ever since the Asian-Pacific Economic Cooperation (APEC) was established in 1989, it has succeeded in reducing major trade barriers across the Asia-Pacific region to enhance trade in the area (Baak, 2005). Not only that, the APEC forum has increased to 21 Pacific Rim countries that include many strong emerging economies such as; Canada, Indonesia, Malaysia, China, Japan, Russia, Mexico, U.S, Australia and New Zealand etc (Elek, 1991). Out of these countries, the most interesting trade pattern is the one between the United States, Australia and New Zealand.

These three countries have always had strong ties since 1951, when they signed the ANZUS treaty which specifies the three countries will cooperate on defense matters in the Pacific Ocean (King, 2003). Not only have these countries have had military alliance, the U.S has collaborated with Australia on precise issues such as investment, environment issues, labor, agriculture and intellectual property rights and has worked together with New Zealand on economic, education, labor and scientific issues (US government, 2011 and New Zealand government, 2007). Similarly, U.S's trade ties with Australia and New Zealand have resulted in mutually beneficial trade ever since the APEC free trade area was established in 1989. Recently in 2011, New Zealand became the U.S's 47th largest export market and the 59th largest imports provider. In Contrast, the US trade ties with Australia have been stronger, as Australia became the United State's 14th biggest export market and the 33rd largest supplier in 2011 (U.S government, 2011).

Being a part of APEC, these countries have promoted free trade through reducing tariffs and other trade barriers. However, when ever free trade is concerned, the effects of exchange rate changes on trade patterns should be paid attention to (Baak, 2005). There are three main exchange rates to be considered which are Nominal, Real (External) and Effective Exchange rates. While, the Nominal exchange rate is the rate that is determined by the demand and supply curves of a currency, the Real exchange rate is the measurement of the purchasing power of one currency relative to another currency. On the other hand, the Effective Exchange Rate can be defined as the weighted average of a particular basket of foreign currencies (Aftrai, 2004).

When interpreting different trends behind the pattern of trade, Real and Effective exchange rates are much more useful than the nominal exchange rates. The External Real exchange rate is based on the Purchasing Power Theory (PPP) that compares two countries through their relative prices of their basket of goods produced or consumed ((Hinkle and Nsengiyumva, 1999). When this rate is calculated using GDP deflator as base, it helps in comparing changes in productivity, however when the impact of capital inflows and the international competitiveness of the home country is measured, then using a CPI based index is more appropriate (Aftari, 2004). Since, the Real rate is Nominal rate divided by the ratio of foreign CPI over the local CPI; Real rate depreciation indicates that foreign inflation has lead to a rise in imports prices and as a result the foreign trade balance will suffer a deficit. However this is anticipated to take place only in the short run.

Keeping all this in mind; for understanding trade between the U.S, Australia and New Zealand, it is important to consider the exchange rate's impact on their trade. Since, the U.S is a more powerful and influential country than the other two and has the most monitored trade market in the world (CIA, 2005), U.S' trade and exchange

[1] Asian-Pacific Economic Cooperation

rate with the two countries has been considered in this report.In the long run, the local country's cheap exports can increase exports volume and improve its terms of trade (Kipici and Kesriyeli, 1997).

II. Literature Review

Several researchers have sought to compare bilateral trade by using Real exchange rates to see the effects of prices differentials on trade and other economic variables.

methodological issues when calculating real exchange rates were also examined by **Aftari (2004)**, who focused the research on Ghana. It was found that Ghana was more competitive when GDP deflator index was used as compared to the CPI index. It was also found that the nominal exchange rate in Ghana was mostly influenced by changes in imports.

In exploring this relationship, a different approach was taken by **Hyder and Mahboob (2005)**, where they examined the different determinants of Pakistan's Equilibrium Real Effective Exchange Rate from 1978 to 2005. They found them to be trade openness, capital inflows, worker's remittances, productivity differentials and government consumption. However this approach is different from looking at the effects of Effective Exchange Rate on Trade but it does help determine the relationship between trade and the Effective Exchange rate.

On the other hand, **Rose (1991)** analyzed the effect of the Real Effective Exchange rate on the aggregate real trade balances for five OECD countries. The results of this research showed no significant impacts of the exchange rate on the real trade balances. **Marsh and Tokarich (1996)** reached similar conclusions and concluded that to understand trade flows with the help of one variable such as real exchange rate is suboptimal.

Similarly, **Cheung et al (2010)** worked to see the effect of Real Exchange rate on the U.S-China trade balance. They found that Terms of trade of U.S-China do respond to the changes in the real exchange rate of Chinese Renminbi. They concluded that whether multinational or bilateral trade flows are concerned changes in real exchange rates do lead to major effects on the terms of trade.

The trade and real exchange rate relationship has also been analyzed through a regression analysis. **Chinn (2006)** examined the Effective and Real Effective Exchange Rate in U.S, euro region and East Asian countries. When they analyzed the relationship between exports and real exchange rates, they found exports to be sensitive to real exchange rate of the U.S. **Hooper and Richardson (1998)** also found a significant relationship between exports and real exchange rate of U.S but they reported an export sensitivity lower than that found by Chinn (2006).

Similarly, a lot of studies have worked on finding a relationship between exchange rates and exports of a country. Both **De Grauwe (1988) and Secru and Uppal (2000)** have shown an ambiguous relationship between the two variables. On the other hand, **Baccheta and Wincoop (2000)** found there to be no existence of a relationship. The empirical research **of Chowdhurry (1993), Kim and Lee (1996), Baak et al. (2003), Peree and Steinherr (1989)** and **Arize, Osang and Slottje (2000)** report a negative relationship. These results reflect that the impact of exchange rate volatility varies across regions and periods.

With respect to the U.S, **Rose and Yellen (1989)** and **Bahmani-Oskooee and Brooks (1999)** analyzed bilateral disaggregated U.S trade data and compared it with exchange rate, with respect to six major trading partners using the ARDL approach and both studies did not find any evidence of a J-curve effect. Researches have reported mixed results on the effects of exchange rate changes on the trade flows of the U.S. On the other hand, **Marwah and Klein (1996)** found evidence for an S-curve. Using OLS regression for the period 1977 to 1992, they found that trade balance initially declines after depreciation of currency, and then later experiences trade balance improvement (the typical J-curve effect).How ever, after a time period (long run), there is a tendency for the trade balance to deteriorate. As a result the S-curve shape exists.

Finally, in terms of APEC Countries, not much work has been done on exploring the Exchange rate volatility effect on Trade balances but studies like **Baak (2005)** there to be a positive effect on exports of a member country of APEC due to a depreciation of the country's currency. He also concluded there to be a positive impact of membership to APEC and adverse effects on trade when there are distances between the countries.

III. Data and methodology

Real Exchange rates are calculated from Nominal Exchange Rates and CPI's of U.S, Australia and New Zealand.

Nominal Exchange Rate of Australian Dollar per U.S dollar **= Sa**

Formula applied is:

Real Sa = Sa/ (CPI AUS / CPI US)

Nominal Exchange Rate of New Zealand Dollar per U.S dollar **= Snz**

Formula applied is:

Real Snz = Snz / (CPI NZ / CPI US)

Nominal and Real Exchange rates:

The Data has been taken in relation to the U.S dollar and trade from 1991 to 2010. The Nominal and Real Exchange rates have been manually calculated and are bilateral. While the Effective Exchange Rate (also manually calculated), is multilateral and uses the data of U.S' trade with Australia and New Zealand.

Table 1:

Nominal and Real Australian and New Zealand Dollars Rate per U.S.A Dollars, and U.S Effective Exchange Rate with Australia and New Zealand.

Year	Nominal Exchange Rate		Real Exchange Rate		Effective Exchange Rate
	AUD/USD	NZD/USD	AUD/USD	NZD/USD	Of the US Dollar
1991	0.78	1.73	0.99	3.11	100
1992	0.74	1.86	0.97	3.41	96.99
1993	0.68	1.85	0.90	3.45	90.64
1994	0.73	1.69	0.97	3.18	94.34
1995	0.74	1.52	0.97	2.84	93.60
1996	0.78	1.45	1.02	2.72	97.30
1997	0.74	1.51	0.99	2.87	93.54
1998	0.63	1.87	0.85	3.56	85.40
1999	0.65	1.89	0.88	3.67	87.91
2000	0.58	2.20	0.78	4.28	83.67
2001	0.52	2.38	0.69	4.65	80.74
2002	0.54	2.16	0.70	4.18	78.86
2003	0.65	1.72	0.84	3.35	86.21
2004	0.74	1.51	0.96	2.94	93.43
2005	0.76	1.42	0.99	2.77	94.36
2006	0.75	1.54	0.98	3.01	94.82
2007	0.84	1.36	1.10	2.66	102.65
2008	0.85	1.42	1.11	2.78	104.99
2009	0.79	1.60	1.01	3.06	99.99
2010	0.92	1.39	1.20	2.71	112.11
Avg	**0.72**	**1.70**	**0.95**	**3.26**	**93.58**

(Own Contribution)

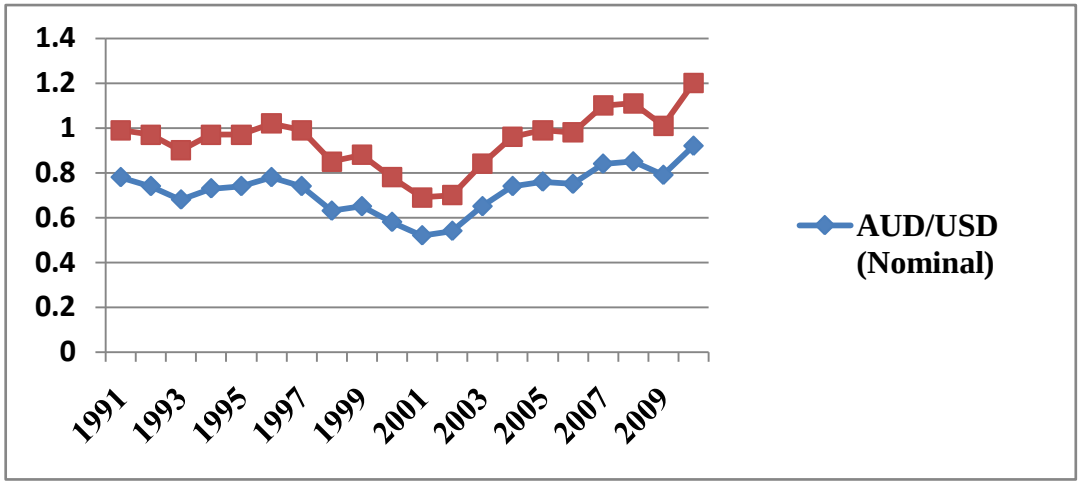
Source: Nominal Exchange Rates: U.S Federal Reserve (2012).
The data has been taken up to 2 decimal places

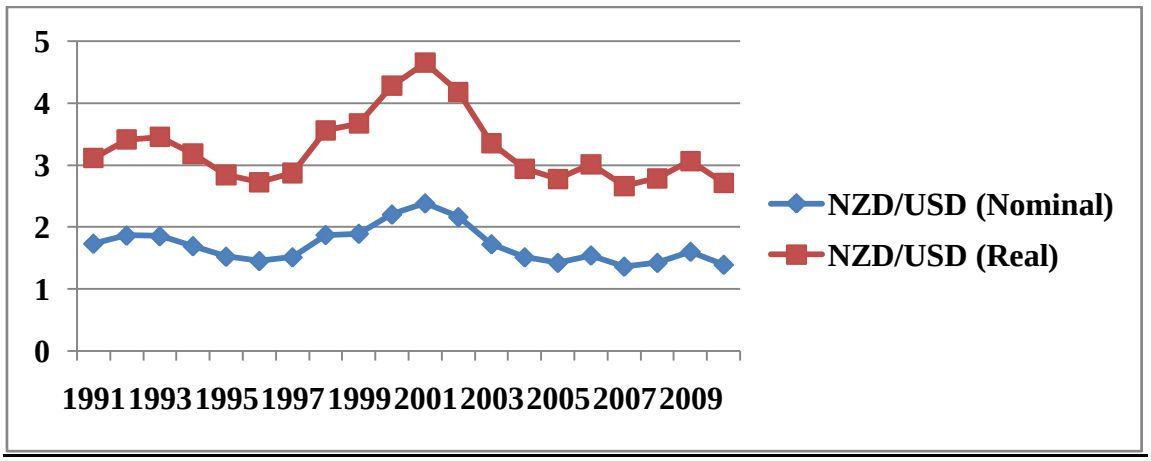
IV. Real and Effective Exchange Rates have been manually calculated.

The CPI values used to calculate Real Exchange rate are given on page 17. Trade values used to calculate Real and Effective Exchange Rate are given in Appendix A. The calculated Bilateral trade weights and Relative Exchange rates are also present in Appendix A.

Graph1:

The Australian Dollar per U.S Dollar: Nominal v.s Real exchange rates





The New Zealand Dollar per U.S Dollar: Nominal v.s Real Exchange rates

(Own Contribution)
Source: Nominal Exchange Rates: U.S Federal Reserve (2012).

V. Real Exchange rate has been manually calculated.

From the data and graphs, it can be deducted that the trends in Nominal, Real and Effective Exchange rate have been varying over the 19 years. However, the changes in these values have been seen to quite small and major volatility is not seen. Evident from the table is that the Real Exchange rate's value has been more than that of the Nominal Exchange rate.

The Effective Exchange rate has been shown to be lower than the base year 1991's value of 100. This trend is seen from 1992 to 2006. However after 2006 to 2010, the Effective Exchange rate has become more that the base rate of 100, with the exception of the year 2009.

Table 2:

The table shows the Appreciation and Depreciation rates of Nominal, Real and Effective Exchange rates.

Year	Nominal Exchange Rate Appreciation/Depreciation		Real Exchange Rate Appreciation/Depreciation		Effective Exchange Rate App/Dep
	AUD/USD	NZD/USD	AUD/USD	NZD/USD	Of the US Dollar
1991	-	-	-	-	-
1992	-5.13 %	7.51%	-3.23%	9.65%	-3.01%
1993	-8.11%	-0.54%	-7.04%	1.13%	-6.55%

1994	7.35%	-8.65%	8.05%	-7.81%	4.09%
1995	1.37%	-10.06%	-0.38%	-10.86%	-0.79%
1996	5.41%	-4.60%	5.76%	-3.97%	3.95%
1997	-5.13%	4.14%	-3.19%	5.28%	-3.85%
1998	-14.87%	23.84%	-14.27%	24.21%	-8.70%
1999	3.17%	1.07%	-3.93%	3.02%	2.94%
2000	-10.77%	16.40%	-11.72%	16.79%	-4.83%
2001	-10.34%	8.18%	-11.66%	8.55%	-3.51%
2002	3.85%	-9.24%	2.41%	-10.21%	-2.33%
2003	20.37%	20.37%	19.79%	-19.77%	9.32%
2004	13.85%	-12.21%	14.20%	-12.15%	8.37%
2005	2.70%	-5.96%	3.42%	-5.76%	0.99%
2006	-1.32%	8.45%	-1.61%	8.51%	0.49%
2007	12%	-11.69%	12.54%	-11.48%	8.26%
2008	1.19%	4.41%	0.71%	4.42%	2.28%
2009	-7.06%	12.67%	-9.06%	10.18%	-4.75%
2010	16.46%	-13.13%	18.72%	-11.49%	12.11%

(Own Contribution)

The values have been manually calculated from the each year's exchange rates taken from U.S Federal Reserve (2012) and the manually calculated Real and Effective Exchange rates.

The Nominal, Real and Effective Exchange rates have shown volatile changes over the passage of 19 years.

The Nominal value of the U.S dollar against the Australian Dollar appreciated between 1991 and 1993 at an average rate of 6.52%. After an average depreciation of 4.71% between 1994 and 1996; there has been an up down trend between 1997 and 2001, with the currency mostly appreciating against the Australian Dollar. After 2002 to 2010, there has been a continuous depreciation in the U.S Dollar, with the exception of 2006 and 2009.The Nominal value of the U.S dollar against the New Zealand Dollar has shown almost similar trends. There has been a huge depreciation in 1992 of 7.51%, however later on, the U.S dollar appreciated between 1993 and 1996. Between 1997 and 2001 there has been a continuous depreciation in its value with a high depreciation in 1998 of 23.84%. 2002 to 2010 has shown variations, in the recent time there has been a major appreciation in the U.S dollar against the New Zealand Dollar by 13.13%.

Comparing Real Exchange rate changes with Nominal changes there has been similar trends, as when Nominal Exchange rate appreciated so did the Real exchange rate and when it depreciated so did the Real Exchange rate. There have been exceptions such as 1995 and 1999 showed Nominal depreciation of the U.S dollar against the Australian Dollar but in Real terms the U.S dollar has appreciated. Similarly, in nominal terms the U.S dollar appreciated in 1993 but in real terms it depreciated. In 2003, in nominal terms there was depreciation in currency but the real rate shown an appreciation.

The Effective Exchange rate has mostly depreciated between 1992 and 2002 with the exception of 1994, 1996 and 1999. From 2003 to 2010 there has been a continuous appreciation in the Effective Exchange rate with an exception of depreciation in 2009 of 4.75%.

Table 3:
Changes in U.S Terms of Trade with Australia and New Zealand and Real Exchange Rate of AUD/USD and NZD/USD:

Year	**U.S' trade with Australia**		**U.S' trade with New Zealand**	
	Change (%) in Terms of Trade with Australia	**Change (%) in Real Exchange Rate AUD/USD**	**Change (%) in Terms of Trade with New Zealand**	**Change (%) in Real Exchange Rate NZD/USD**
1991	-	-	-	-
1992	17.50%	-3.23%	-143.90%	9.65%
1993	-4.03%	-7.04%	-53.54%	1.13%

1994	32.11%	8.05%	109.44%	-7.81%
1995	13.49%	-0.38%	176.88%	-10.86%
1996	9.02%	5.76%	10.77%	-3.97%
1997	-8.34%	-3.19%	44.33%	5.28%
1998	-12.47%	-14.27%	-36.85%	24.21%
1999	0.12%	-3.93%	-27.50%	3.02%
2000	-7.56%	-11.72%	-162.75%	16.79%
2001	-26.33%	-11.66%	-19.36%	8.55%
2002	48.36%	2.41%	428.07%	-10.21%
2003	1.03%	19.79%	18.57%	-19.77%
2004	-3.92%	14.20%	61.15%	-12.15%
2005	28.60%	3.42%	-37.08%	-5.76%
2006	13.28%	-1.61%	-44.91%	8.51%
2007	13.08%	12.54%	27.60%	-11.48%
2008	10.10%	0.71%	60.91%	4.42%
2009	-0.36%	-9.06%	-37.32%	10.18%
2010	14.04%	18.72%	-114.23%	-11.49%

(Own Contribution)

The table shows that Real Exchange rate of AUD/USD does influence the patterns of the Terms of Trade to a certain extent but In case of New Zealand, the pattern of changes of Terms of Trade and Real Exchange rate of NZD/USD do not show much of a relationship.

Base Year Choice:

The base year chosen should be normal that is it should be a stable year in terms of trade, production and their prices. Its data prices data should be reliable. Also, the base year should be as recent as possible so that by the time revised series of items and their prices are released, it should not have outlived its utility (Eaindustry, 2006).

The Base Year selected is 1991 for its stable prices and for its recent reliable data. For this reason, 1991 has been selected as a base year for further analysis of the data of Nominal, Real and Effective Exchange rates (Georges, 2000; Eaindustry, 2006 and Daniels and VanHoose, 2002).

CPI data used to in calculating Real Exchange Rate

Year	CPI of USA	CPI of Australia	CPI of New Zealand
1991	136.2	106.5	75.74
1992	140.3	107.55	76.50
1993	144.5	109.5	77.49
1994	148.2	111.575	78.75
1995	152.4	116.75	81.71
1996	156.9	119.8	83.57
1997	160.5	120.1	84.56
1998	163.0	121.125	85.62
1999	166.6	122.9	85.85
2000	172.2	128.4	88.44
2001	177.1	134.025	90.65
2002	179.9	138.05	93.07
2003	184.0	141.875	94.48
2004	188.9	145.2	96.93
2005	195.3	149.075	100.00
2006	201.6	154.35	103.17
2007	207.3	157.95	105.84
2008	215.3	164.825	109.92
2009	214.5	167.825	111.99
2010	224.9	172.6	115.25

(Own Contribution)

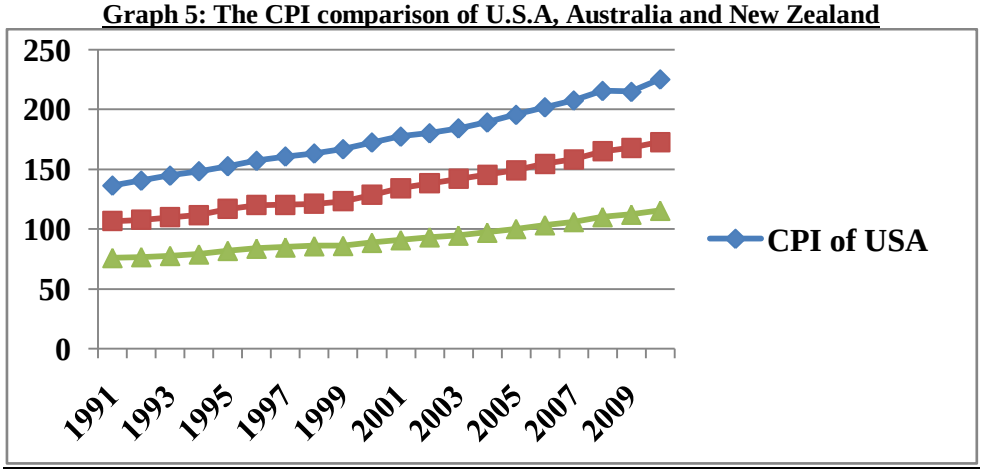
Source:

CPI of USA: U.S. Department of Labor Bureau of Labor Statistics (2012).

CPI of Australia: Australian Bureau of Statistics (2012).

CPI of New Zealand: International Monetary Fund (2012).

Graph 5: The CPI comparison of U.S.A, Australia and New Zealand



(Own Contribution)

The CPI inflation rate can help in understanding the Real Exchange rate trend over the years. There has been a continuous increase in CPI inflation in all three countries over the 19 years. The U.S CPI has been a lot more than Australia and New Zealand, with New Zealand having the least CPI inflation.

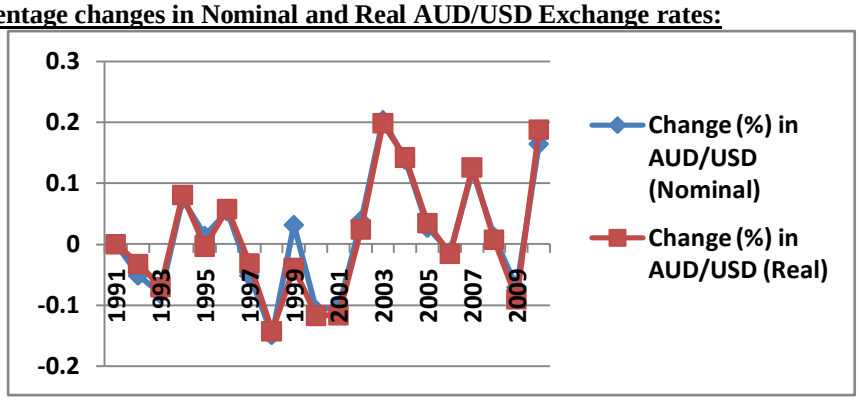
Relationship between the Nominal and Real Exchange rates of AUD/USD and NZD/USD over 1991 to 2010:

When examining the nominal and real exchange rate patterns of the Australian and New Zealand Dollar per U.S dollar, it can be seen that the Real exchange rate is more than the Nominal Exchange rate. This means that in real terms it took more Australian and New Zealand dollars to exchange in order to receive one U.S dollar. In real terms the U.S dollar has been over valued through out the period of 19 years. This can be due to the U.S inflation (CPI) being more than the inflation in Australia and New Zealand throughout the period 1991 to 2010. When inflation in U.S is higher than that of Australia and New Zealand; then more Australian and New Zealand dollars are required to buy a U.S dollar in real terms (Brahmbhatt et al, 2010).

This overvaluation of Real Exchange rate is usually not beneficial to a country. Real Exchange rate overvaluation usually leads to a negative growth of an economy (Aguirre and Calderón, 2005). How ever, this overvaluation's negative impact on growth is not evident when viewing the economic trends in the U.S, as financial crisis are more likely to decrease growth in the U.S economy than changes in the Real Exchange Rate (Simpson, 2009). Also, even though the Real Exchange rate is overvalued against the Australian and New Zealand Dollar, it does not mean that is also over valued against other currencies as well.

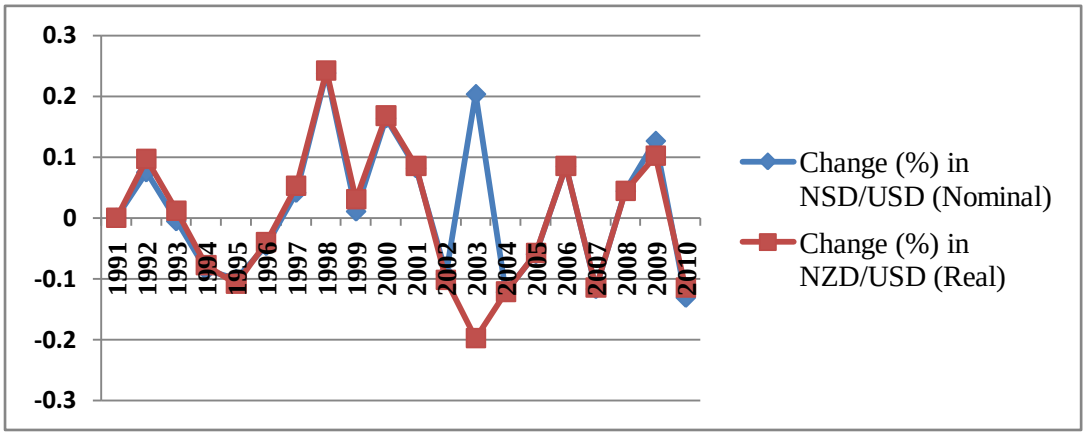
In terms of movements, the Real and Nominal Exchange rate of the U.S dollar against the Australian and New Zealand has mostly been in the same direction that when the Nominal value appreciates so does the Real value appreciates.

The Percentage changes in Nominal and Real AUD/USD Exchange rates:



The Percentage change in Nominal and Real NZD/USD Exchange rates:

(Own Contribution)



The values have been taken from manually calculated values present in table 2 on pg 12.

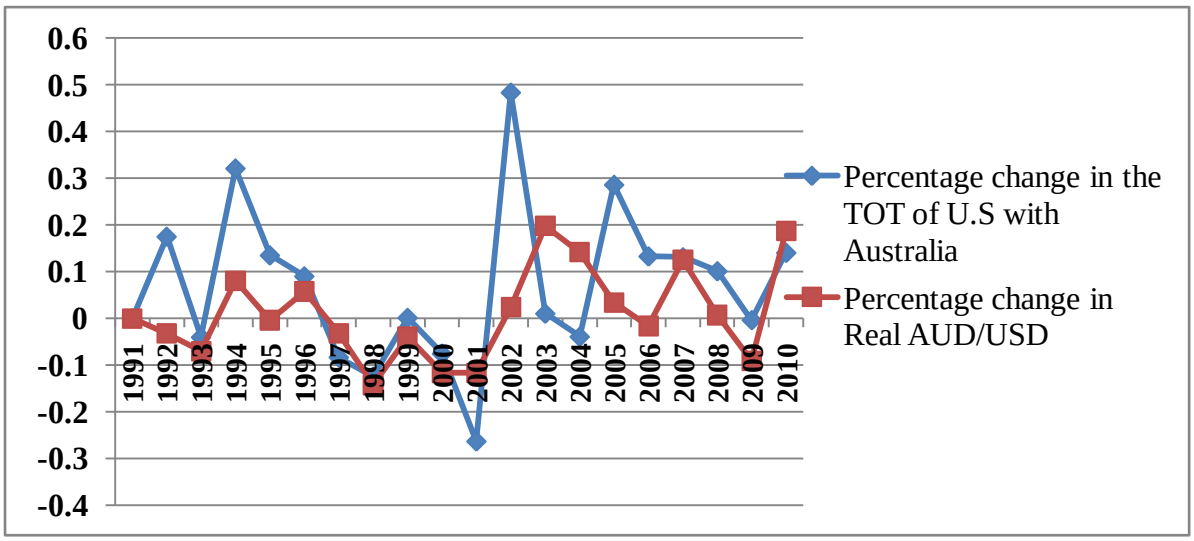
As there can be seen from the graph, the Real and Nominal Exchange rates of the AUD/USD and NZD/USD moved in the same direction over the 19 years. There has been only one exception in the NZD/USD exchange rate values in 2003 that when the nominal exchange rate depreciated by 20.37% the real exchange rate appreciated by 19.77%. This trend is due to the fact that the Inflation in U.S rose by 0.78% more than the inflation rise in the New Zealand and as a result the real values of the U.S dollar rose while the nominal value fell.

- **Real Exchange Rate impacts on the Terms of Trade:**

One impact that Real Exchange rate does have is on the terms of trade. As discussed before, Real rate depreciation indicates that foreign inflation has lead to a rise in imports prices and as a result the foreign trade balance will suffer a deficit. Similarly, Real Exchange rate appreciates in the short run the terms of trade improves and in the long run it deteriorates (Kipici and Kesriyeli, 1997).

Looking at the Real Exchange rate of Australian Dollar per U.S dollar and Terms of trade of the U.S with Australia, there can be seen a relationship between the two.

The graph shows the relationship between the percentage changes in Terms of Trade of Australia and Real Exchange rate (AUD/USD):



(Own Contribution)

The values have been taken from manually calculated values present in table 3.

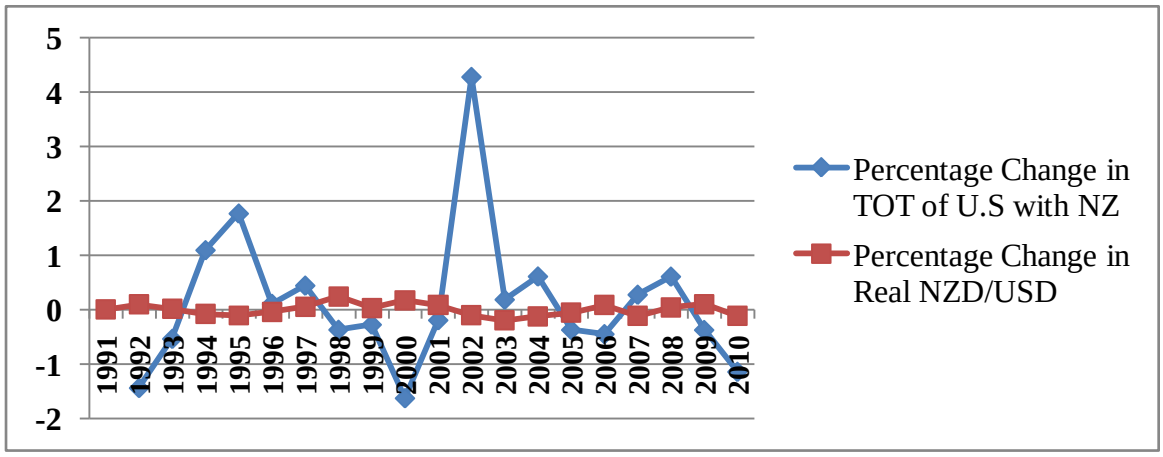
As evident from the graph above, the changes in the terms of trade and the real exchange rate of the U.S with Australia show that small changes in the real exchange rate has led to huge changes in the terms of trade. The hypothesized trend of an appreciation in Real Exchange rate leads to an improvement in the Terms of

Trade is clearly seen in the trade pattern of the U.S with Australia. When the AUD/USD depreciates the TOT deteriorates as well. However in terms of the U.S Dollar there is an opposite trend seen, that when the U.S Dollar appreciates the TOT deteriorates and when it depreciates the TOT improves. The depreciation of currency leads a competitive advantage to the country and leads to the quantity of exports to increase and imports to fall and thus the TOT improved. While the appreciation leads to imports to rise and exports to fall and leads to the deterioration of the TOT.

Each year's change in the Real exchange rate alone does not impact the TOT in that period, the impact of the Real exchange rate change in the previous year also impacts the changes as it can be seen the periods 2001 to 2010. It is most evident between 2003 and 2004; even though the real exchange rate of the U.S depreciates there is deterioration in the TOT. This can be due to the long run impacts of a previous appreciation in the Real Exchange rate that can cause the TOT to deteriorate in 2003 and 2004 despite Real Exchange rate depreciation in the period. Similarly, between 1991 and 1993, the U.S dollar real rate appreciated by 5.1% but the TOT improved as well by 6.7%. This can be due to the long run impacts of a previous depreciation in the Real Exchange rate that can cause the TOT to improve between 1991 and 1993 despite Real Exchange rate appreciation in the period.

How ever, when the relationship between the U.S Real Exchange rate against the New Zealand Dollar and its TOT with New Zealand is concerned, there is not any evidence at all of a relationship.

The graph shows the relationship between the percentage changes in Terms of Trade of New Zealand and Real Exchange rate (NZD/USD):



(Own Contribution)

The values have been taken from manually calculated values present in table 3.

As evident from the graph above, the Real exchange rate of NZD/USD has had very little or no impact on the TOT of U.S' trade with New Zealand. The deficits and surpluses of the TOT are more likely to be because of economic conditions in the two countries. The New Zealand economy has been mostly dependent on Australia, European countries and the U.S, so small shock in the U.S economy can also impact the New Zealand economy (McCarten, 2007).

The trade patterns have mostly been favoring New Zealand as the U.S is the New Zealand's second largest market for agricultural products, while New Zealand is the U.S' 47th largest export market and this can explain the fact that mostly the U.S imported more from the NZ then exported to it (New Zealand government, 2012 and U.S government, 2011). The 2000 to 2002 rise in the exports of the U.S to the New Zealand has more to do with the nominal exchange rate then with the real exchange rate, as the U.S strong currency slowly depreciated against the New Zealand Dollar up to 2001. Overall, the U.S dollar depreciated against the NZ dollar by 5.06% during 2000 to 2002, giving U.S a competitive advantage (NZ Parliamentary Library, 2004). From 2000 to 2007, the up and down trend in the TOT of the U.S with New Zealand can be due to the long term effects of appreciation and depreciation of the Nominal Exchange rate. While the decline in TOT between 2008 and 2010 are evidences of the U.S recession in that period (Simpson, 2009).

As New Zealand relies mostly on the U.S so, a U.S recession can hurt the New Zealand economy as well. This is evident in the Trade deficits of U.S' with New Zealand between the years 2008 to 2010. This could have occurred because of the loss in the GDP of New Zealand because of the U.S recessionary effects on the NZ economy.

Even though, U.S.A's trade with New Zealand is important, it is the trade with Australia that gains more importance. The Australian trade has more of a share of 83% with the U.S compared to the 17% share of New Zealand over the 19 years. Even though Australia is important for the U.S; U.S is no longer important to

Australia due to the decoupling from the U.S in terms of trading from 2000 onwards. Australia is now impacted by changes in the Asian Economy. Between the periods of 1991 to 2000, when the U.S economy witnessed a recession it impacted the Australian economy, however in the recent recession of 2008 to 2010 in the U.S, the Australian Economy is still booming (Dobell, 2011). This Australian economy boom, can benefit the U.S' terms of trade and its exports and are evident in the recent improvement of TOT of the U.S' with Australia of 9.2% between 2007 and 2010. This improvement in the trade balance was made despite U.S.A suffering from a recession and financial crisis in this period.

VI. Conclusion

When comparing the Nominal and Real Exchange rates of AUD/USD and NZD/USD, it was found that Real Exchange was overvalued compared to the Nominal Exchange rate throughout the 19 years. It had to be because the CPI of U.S.A was more than the other two countries, resulting in there being more requirements of New Zealand and Australian Dollars to buy one U.S Dollar. The appreciation and depreciation of Nominal and Real AUD/USD and NZD/USD have mostly shown to be moving in the same direction. When the Nominal value appreciated so did the Real value and when the Nominal value depreciated so did the Real value. There was an exception in the NZD/USD trend in 2003 where Nominal value depreciated while the Real value appreciated and it was due to the higher percentage rise in prices of the U.S compared to New Zealand's.

The Real Exchange rate has been found to impact the U.S' TOT with Australia a lot more than that with New Zealand. The changes in Real Exchange rate patterns of AUD/USD has shown both short term effects and the long term effects on the TOT. Short term effects were e.g., deprecation in currency leads to deterioration in TOT immediately; while Long term effects were e.g., depreciation in currency leads to an improvement in TOT later on. However, in case of New Zealand, the Real Exchange rate didn't seem to have any impact on the TOT of the U.S with the New Zealand.

References

[1]. Aftari, M.O. (2004). Measuring the Real Effective Exchange Rate (REER) in Ghana. Credit Research Paper. University of Nottingham. Pg: 1-24.
[2]. URL: http://www.nottingham.ac.uk/credit/documents/papers/04-11.pdf
[3]. Aguirre, A and Calderón, C. (2005). Real Exchange Rate Misalignments and Economic Performance. In M, Barhmbhatt; O, Canuto and E, Vostroknutova. (2010). Dealing with Dutch Disease. Economic Premise. The World Bank.Pg:1-5.
[4]. URL: http://siteresources.worldbank.org/INTPREMNET/Resources/EP16.pdf
[5]. Arize, A.C; Osang, T and Slottje, D.J. (2000). Exchange-rate volatility and foreign trade: evidence from thirteen LDC's. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[6]. URL: http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[7]. Australian Bureau of Statistics (2012). Consumer Price Index (CPI) rates. Australian Taxation Office for the Commonwealth of Australia, Australian Government.
[8]. URL:http://www.ato.gov.au/taxprofessionals/content.aspx?doc=/content/1566.htm&mnu=42881&mfp=001/005
[9]. Bacchetta, P and Eric van, W. (2000). Does exchange-rate stability increase trade and welfare? In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[10]. URL:http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[11]. Baak, S. J; Al-Mahmood, A and Vixathep, S (2003), Exchange rate volatility and exports from East Asian countries to Japan and the U.S., International Development Series. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[12]. URL:http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[13]. Baak, S.J. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[14]. URL:http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[15]. Barhmbhatt, M; Canuto, O and Vostroknutova, E. (2010). Dealing with Dutch Disease. Economic Premise. The World Bank.Pg:1-5.
[16]. URL:http://siteresources.worldbank.org/INTPREMNET/Resources/EP16.pdf
[17]. BusinessDictionary. (2012). Effective Exchange Rate (EXR). BusinessDictionary.com. WebFinance Inc.
[18]. URL:http://www.businessdictionary.com/definition/effective-exchange-rate-EXR.html
[19]. Chowdhury, A. (1993). Does exchange rate volatility depress trade flows? Evidence from error-correction models. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[20]. URL:http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[21]. Chinn, M.D. (2006). A Primer on Real Exchange Rates: Determinants, Overvaluation, Trade Flows and Competitive Devaluation. Springer Science. Business Media Inc. Pg: 118-137.
[22]. URL:http://www.ssc.wisc.edu/~mchinn/primer_OER.pdf
[23]. Cheung, Y.W; Chinn, M.D and Fujii, E. (2009). China's Current Account and Exchange Rate In R.C, Feenstra and S.J, Wei. (2010). China's Growing Role in World Trade. University of Chicago Press.
[24]. URL:http://www.nber.org/papers/w14673.pdf
[25]. CIA. (2005). United States Economy- 2005. Economy Overview. CIA World Fact Book. Geographic.org.
[26]. URL: http://www.allcountries.org/wfb2005/united_states/united_states_econoky.html
[27]. Daniels, J.P and VanHoose, D.D. (2002). International Monetary and Financial Economics. South-Western Thomson Learning. Pg: 34-65.

[28]. De Grauwe, P. (1988), Exchange rate variability and the slowdown in growth of international trade. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[29]. URL:http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[30]. Dobell, G. (2011). Australia-East Asia/ US Relations: Australia-US Alliance Enhanced as Economies Decouple. Comparative Connections. Lowly Institute for International Policy. Pg: 1- 14.
[31]. Eaindustry. (2006). Chapter 3: Choice of Base Year. Technical Report. Eaindustry. Pg: 34-37.
[32]. URL:http://eaindustry.nic.in/Technical_Report/Chap3_ChoiceofBaseYear.pdf
[33]. Elek, A. (1991). Back to Canberra: Founding APEC. The Evolution of PECC: The First 25 Years. PECC resources. Seoul. Pg: 66-76.
[34]. URL: http://www.pecc.org/resources/doc_view/601-back-to-canberra-founding-apec
[35]. Georges, C. (2000). Help with Practice Problems 1. Economics 285. Pg: 1-4.
[36]. URL: http://academics.hamilton.edu/economics/cgeorges/macro-theory-files/Ps1a.pdf
[37]. Gujarati, D.N and Sangeetha. (2007). Basic Econometrics. 4th Ed. Tata McGraw Hill Education Private Ltd, New Dehli. Pg: 1-141, 143-145.146-195.
[38]. Hinkle, L.E and Nsengiyumva, F. (1999). External Exchange Rate: Purchasing Power Parity, the Mundell-Fleming Model and competitiveness In Traded Goods, In: M.O, Aftari. (2004). Measuring the Real Effective Exchange Rate (REER) in Ghana. Credit Research Paper. University of Nottingham. Pg: 1-24.
[39]. URL: http://www.nottingham.ac.uk/credit/documents/papers/04-11.pdf
[40]. Hyder, Z and Mehboob, A. (2005). Equilibrium Real Exchange Rate and Exchange Rate Misalignment in Pakistan. Research Department. State Bank of Pakistan.
[41]. URL:http://www.sbp.org.pk/research/bulletin/2006/Equilibrium_Real_Effective_Exchange_Rate.pdf
[42]. Hooper, P and Richardson, D. (1998). International Economic Transactions: Issues in Measurement and Empirical Research. In M.D.Chinn. (2006). A Primer on Real Exchange Rates: Determinants, Overvaluation, Trade Flows and Competitive Devaluation. Springer Science. Business Media Inc. Pg: 118-137.
[43]. URL: http://www.ssc.wisc.edu/~mchinn/primer_OER.pdf
[44]. International Monetary Fund (2012). International Financial Statistics and Data files on New Zealand's CPI. Index Mundi.
[45]. URL: http://www.indexmundi.com/facts/new-zealand/consumer-price-index
[46]. King, M. (2003). Penguin History of New Zealand. Penguin Books (NZ) Ltd, Auckland 1310, New Zealand. p426;495-6.
[47]. URL: http://en.wikipedia.org/wiki/ANZUS
[48]. Kim, K and Lee, W. (1996). The impact of Korea's exchange rate volatility on Korean trade. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[49]. URL: http://www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[50]. Marwah, K and Klein, L.R. (1996). Estimation of J - Curves: United States and Canada. In T. Stucka. (2006).The Effect of Exchange Rate Change on the Trade Balance in Croatia. IMF Working Paper. International Monetary Fund. Pg: 4-7.
[51]. URL: http://www.imf.org/external/pubs/ft/wp/2004/wp0465.pdf
[52]. McCarten, M. (2007). Foreign owners muscle in as New Zealand sells off all its assets. The New Zealand Herald.
[53]. URL: http://www.nzherald.co.nz/politics/new/article.cfm?c_id=280&objectid=10419011
[54]. NZ Parliamentary Library. (2004). The New Zealand Dollar. Back Ground Note: Information briefing service members of Parliament. PG: 1-4.
[55]. URL: http://www.parliament.nz/NR/rdonlyres/0A87EAA1-D777-49B9-AD86-C2137DCDBD94/282/041NewZealandDollar1.pdf
[56]. Rose, A.K. (1991). The role of exchange rates in a popular model of international trade: Does the 'Marshall-Lerner' condition hold? University of California, Berkeley, U.S.A. Pg: 1.
[57]. URL:http://www.sciencedirect.com/science/article/pii/0022199691900242
[58]. Secru, P and Uppal, R (2000), Exchange Rate Volatility, Trade, Capital Flows under Alternative Exchange Rate Regimes. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[59]. URL: http//www.iuj.ac.jp/research/workingpapers/EMS_2004_02.pdf
[60]. Simpson, D. (2009). The Recession: Causes and Cures. Adam Smith Research Trust. ASI (Research) Ltd, UK. Pg: 10-30.
[61]. URL: http://www.adamsmith.org/sites/default/files/images/stories/the-recession.pdf
[62]. Peree, E. and Steinherr, A. (1989). Exchange rate uncertainty and foreign trade. In S.J. Baak. (2005). Exchange Rate Volatility and Trade among the Asia Pacific Countries. IUJ Research Institute Working Paper. International University of Japan. PG: 1-19.
[63]. URL: http//www.iuj.ac.jp/research/workingpapers/EMS_2004_02.
[64]. New Zealand government. (2007). United States of America. Country Information Paper. NZ Ministry of Foreign Affairs and Trade.
[65]. URL: http://www.mfat.govt.nz/Countries/North-America/United-States.php
[66]. New Zealand government. (2012). United States Relations with New Zealand. New Zealand's Ministry of Foreign Affairs and Trade.
[67]. URL: http://www.mfat.govt.nz/Countries/North-America/United-States.php
[68]. US government. (2011). U.S with New Zealand's trade facts. Office of the United States Trade Representative. The Office of the President. USA. Gov.
[69]. URL: http://www.ustr.gov/countries-regions/southeast-asia-pacific/new-zealand
[70]. US government. (2011). U.S with Australia's trade facts. Office of the United States Trade Representative. The Office of the President. USA. Gov.
[71]. URL: http://www.ustr.gov/countries-regions/southeast-asia-pacific/australia
[72]. United States Census Bureau (2012). Trade of U.S with Australia and New Zealand. U.S Department of Commerce.
[73]. URL: http://www.census.gov/foreign-trade/balance/c6021.html
[74]. U.S Federal Reserve (2012). Historical Exchange Rates of Australian New Zealand Dollar in terms of U.S Dollar. Fxtop.com.
[75]. URL: http://fxtop.com/en/historates.php?C1=AUD&C2=USD&A=1&DD1=01&MM1=01&YYYY1=1953&DD2=31&MM2=12&YYYY2=2012&MA=1&YA=1&LANG=en&CJ=0
[76]. U.S Labor of Statistics (2012). Consumer Price Index Data from 1913 to 2012. U.S Inflation Calculator. CoinNews Media Ground LLC.
[77]. URL: http://www.usinflationcalculator.com/inflation/consumer-price-index-and-annual-percent-changes-from-1913-to-2008/

Appendix A
Data
U.S trade data used to calculate Effective Exchange Rate

Year	U.S. Trade with Australia			U.S. Trade with New Zealand		
	Exports	**Imports**	**Total Trade**	**Exports**	**Imports**	**Total Trade**
1991	8,403.8	3,988.0	12,391.80	1,006.6	1,209.1	2,215.70
1992	8,875.9	3,687.6	12,563.50	1,307.0	1,218.1	2,525.10
1993	8,276.7	3,297.3	11,574.00	1,248.8	1,207.5	2,456.30
1994	9,780.6	3,202.1	12,982.70	1,507.7	1,421.2	2,928.90
1995	10,789.1	3,323.0	14,112.10	1,691.3	1,451.8	3,143.10
1996	12,008.4	3,868.9	15,877.30	1,728.4	1,463.1	3,191.50
1997	12,062.9	4,602.3	16,665.20	1,962.1	1,579.2	3,541.30
1998	11,917.5	5,387.0	17,304.50	1,886.6	1,644.8	3,531.40
1999	11,818.3	5,280.1	17,098.40	1,923.6	1,748.3	3,671.90
2000	12,482.4	6,438.0	18,920.40	1,970.2	2,080.2	4,050.40
2001	10,930.5	6,477.8	17,408.30	2,110.5	2,199.2	4309.70
2002	13,084.9	6,478.8	19,563.70	1,813.2	2,281.6	4,094.80
2003	13,087.6	6,413.7	19,501.30	1,847.7	2,403.1	4,250.80
2004	13,957.9	7,545.5	21,503.40	2,072.9	2,967.9	5,040.80
2005	15,588.5	7,342.2	22,930.70	2,592.1	3,155.2	5,747.30
2006	17,545.7	8,204.0	25,749.70	2,806.2	3,116.4	5,922.60
2007	19,178.2	8,615.0	27,793.20	2,717.6	3,113.4	5,831.00
2008	22,218.6	10,588.8	32,807.40	2,533.9	3,170.8	5,704.70
2009	19,599.3	8,011.5	27,610.80	2,158.5	2,557.7	4,716.20
2010	21,797.6	8,582.9	30,380.50	2,819.1	2,762.3	5,581.40

Source:
U.S Imports and Exports to Australia and New Zealand: U.S. Census Bureau, Foreign Trade.
Total Trade Values have been manually calculated.

The Terms of Trade of the U.S with Australia and New Zealand

Year	Terms of Trade with Australia	Terms of Trade with New Zealand
1991	4,415.80	-202.50
1992	5,188.30	88.90
1993	4,979.40	41.30
1994	6,578.50	86.50
1995	7,466.10	239.50
1996	8,139.50	265.30
1997	7,460.60	382.90
1998	6,530.50	241.80
1999	6,538.20	175.30
2000	6,044.40	-110.00
2001	4,452.70	-88.70
2002	6,606.10	-468.40
2003	6,673.90	-555.40
2004	6,412.40	-895.00
2005	8,246.30	-563.10
2006	9,341.70	-310.20
2007	10,563.20	-395.80
2008	11,629.80	-636.90
2009	11,587.80	-399.20
2010	13,214.70	56.80

These values have been manually calculated from the trade data given above.

Calculated Weights for Trade with Australia and New Zealand and Relative Exchange rates for calculation of Effective Exchange Rates:

Year	W_{aus}^{b}	W_{nz}^{b}	Relative Exchange Rate (AUD)	Relative Exchange Rate (NZD)
1991	0.85	0.15	1	1
1992	0.83	0.17	0.95	1.08
1993	0.82	0.18	0.87	1.07
1994	0.82	0.18	0.94	0.98
1995	0.82	0.18	0.95	0.88
1996	0.83	0.17	1	0.84
1997	0.83	0.18	0.95	0.87
1998	0.83	0.17	0.81	1.08
1999	0.82	0.18	0.83	1.09
2000	0.82	0.18	0.74	1.27
2001	0.80	0.20	0.67	0.38
2002	0.83	0.17	0.69	1.25
2003	0.82	0.18	0.83	0.99
2004	0.81	0.19	0.95	0.87
2005	0.79	0.20	0.97	0.82
2006	0.81	0.19	1.96	0.89
2007	0.83	0.17	1.08	0.79
2008	0.85	0.15	1.09	0.82
2009	0.85	0.15	1.01	0.92
2010	0.85	0.16	1.18	0.80

The values have been taken to the 2nd decimal place