Table 3: Statistical Test for Significance of the Positive Correlation between the two Inflation Rates[a]

	lnCPINAM	lnCPISA
Mean	1.98781682	1.775868771
Variance	0.18856204	0.264441999
Observations	14	14
Pearson Correlation	0.717893217	
Hypothesized Mean Difference	0	
df	13	
t Stat	1.770933383	
P(T<=t) one-tail	0.024137818	
t Critical one-tail	2.17954298	
P(T<=t) two-tail	0.048275636	
t Critical two-tail	2.160368652	

[a] at 5% level of significance

The results of the t-test summarised in Table 3 suggests the conclusion that the null hypothesis of zero correlation between the two inflation rates is rejected at 5% level of significance. It appears that the calculated value of t is less than the critical t-value. This suggests that there is no statistically significant difference between the two inflation rates of the two countries. Namibia's inflation and SA's inflation exhibit similar movements (see graph 1), therefore suggesting that Namibia's inflation is anchored to that of SA through the exchange rate peg. This is confirmed as significant as there are no statitically significant differences. This gives an indication that the currency peg served as a nominal anchor. Because of the anchor, as the SA inflation rate came down, so did the Namibian inflation rate. This naturally was only analysed for the period after 1993 as before 1993 Namibia was using the SA rand, which also implies that Namibia did not have its own monetary policy then. For the period post-1993, the similar movements in the two inflation rates could be explained at least 72% by the pegged exchange rate arrangement between Namibia and SA. The Namibian dollar has been pegged at the same rate to the rand for the past 15 years. This "nominal anchor" role of the pegged currency was supported by the harmonisation of monetary policy and underpinned by the high proportion of Namibian imports sourced from South Africa.

Monetary policy had to be implemented in order to maintain the pegged exchange rate. That means that the money stock growth rate in Namibia had to be maintained at a similar growth rate as in SA (BON, 1996:21-23). Namibian authorities would then be required to correct the money stock growth rate if there is deviation.

Graph 2: Growth of Money Stock in Namibia and SA: 1993 – 2006
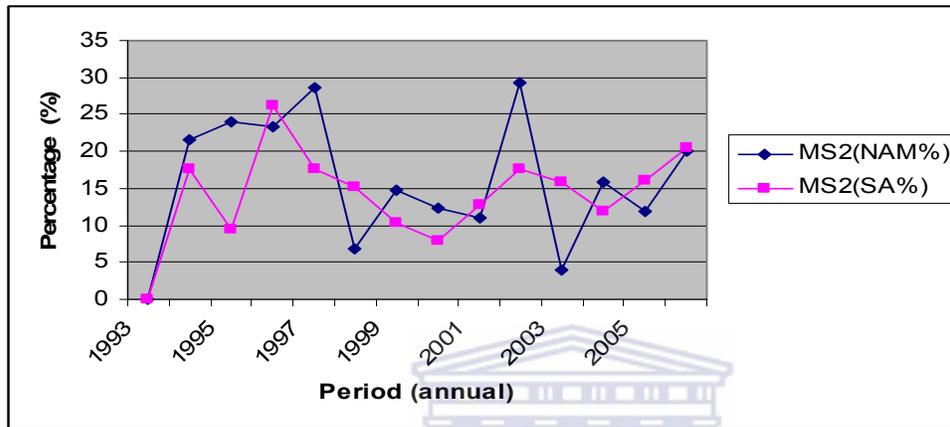
The growth of money stock (defined as the annual percentage change in money stock) in Namibia since 1993 is presented in Graph 2. It is compared to that of SA. The graph shows that the growth in money stock of the two countries are moving in the same direction in most years. This pattern is attributed to the harmonization of monetary policy of the two countries.

The money stock is influenced by various factors, including open market operations of the central bank and financial flows into and out of the country. Monetary policy is precisely about how the central bank responds to these financial flows through its open market operations in order to achieve the money stock that its policy objective requires. A high correlation of money stock growth between the two countries would therefore suggest that the Namibian monetary authorities have conducted their open market operations in such a manner that the net effect on the growth of the money stock of Namibia would be for it to grow at more or less the same rate as the SA money stock.

For the same reasons similar transformations as were performed on the inflation data were performed on the money stock data for the two countries. In Table 4 below the variable lnMSNAM refers to the natural logarithm of the annual percentage change (growth rate) of the money stock in Namibia. Likewise, the variable lnMSSA refers to the natural logarithm of the annual percentage change (growth rate) of the money stock in South Africa. The null hypothesis is that the population correlation coefficient equals zero (0).

Table 4: Statistical Test for the Natural Log of the Growth Rate in Money Stock[b]

	lnMSNAM	lnMSSA
Mean	2.710261837	2.678603146
Variance	0.344333202	0.110869727
Observations	13	13
Pearson Correlation	0.202726286	
Hypothesized Mean Difference	0	
Df	12	
t Stat	0.186157564	
P(T<=t) one-tail	0.427715523	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.855431045	
t Critical two-tail	2.178812827	

[b] at 5% level of significance

A t-statistic test is conducted to test whether the growth in money stock in Namibia deviates from the growth rate in money stock in SA. The null hypothesis is that there is a zero correlation between the growth of the money stock in Namibia and the growth of money stock in SA. The results for the t-test summarised in table 4 above indicate that at 5% level of significance the null hypothesis can be rejected. It appears that the calculated value of t is less than the critical t-value. This suggests that there is indeed no significant difference in the growth rates in money stock of the two countries. This implies that money stock growth rate in Namibia has been maintained at a similar growth as in SA. It gives an indication that the authorities have maintained the peg through control of monetary growth. The results above suggest that the money stock in Namibia grew at the same rate over time, which also implies that the pegged exchange rate has been

maintained; hence a different inflation rate would not have been caused by a different rate of monetary growth.

All the statistic test results above appear to be confidently suggesting that the pegged exchange rate arrangement between Namibia and SA has served as a nominal anchor for Namibia prices. The question remains whether the inflation rate could have been even lower if the peg were not in existence. More than 80 per cent of Namibia's imports come from SA. Under the currency peg, authorities take measures to offset the tendency for the exchange rate to depreciate. If the peg did not exist, any other exchange rate arrangement (i.e. free-float) "will be skewed towards the rand because of the following reasons. Demand for rands in Namibia would continue to be strong, not only because of imports, but also because of portfolio flows into South Africa" (Kalenga, 2001:8). Therefore, it is difficult to conclude how other policy alternatives could have been pursued successfully at a lower cost than the pegged exchange rate arrangement. Therefore, it appears unlikely that the inflation rate might have been lower if another exchange rate regime had been adopted

4.3 Concluding Remarks

This chapter presented the analysis of exchange rate policy and inflation in Namibia. The summarised results above suggest that the pegged exchange rate has served as an effective nominal anchor. This "nominal anchor" role of the pegged currency was supported by the harmonisation of monetary policy and underpinned by the high proportion of Namibian imports sourced from South Africa. In fact, the Namibian dollar has been pegged to the rand for the past 15 years. The currency peg prompted authorities to take measures to offset any tendency towards exchange rate depreciation. This strengthens the conclusion that the peg was an effective nominal anchor for price stability in the Namibian economy.

CHAPTER FIVE: GENERAL CONCLUSIONS

This study focused on the impact of the Namibian dollar on its domestic inflation. The study illustrated that pegging the national currency to an international anchor currency may enhance the credibility of anti-inflation policy. This is because currency pegging means exchange rate pegging, which in turn provides a nominal anchor that can assist in controlling domestic inflation.

The major concern with an exchange rate pegging arrangement is the fact that it is subjected to strong commitment. This involves an obligation by the central bank to limit money creation to levels comparable to those of the country to which its domestic currency is pegged, because money creation is associated with domestic inflation pressures. It is necessary for the central bank to do this under a pegged exchange rate as the economy will be as prone to inflationary pressures due to excessive expansionary polices as under any other exchange rage regime. Such expansionary policies would therefore undermine the fundamental purpose of exchange rate pegging and will therefore be contradictory with exchange rate pegging. Therefore exchange rate pegging compels the monetary authorities to show their commitment to the pegged exchange rate through the conduct of a monetary policy approach that will align the domestic growth in money supply with that of the country to whose currency the domestic currency is pegged. It is for this reason that a fixed nominal exchange rate is called an anchor because it restrains the monetary authorities from pursuing monetary policies that can accelerate the loss of value of the domestic currency. This also contributes to the conveyance of credible signals to economic agents. The information that this conveys to economic agents will also facilitate more stable inflationary expectations.

This study showed that the exchange rate pegging arrangement between Namibia and South Africa served as a nominal anchor. Over time, inflation in SA has shown a decreasing trend and the Namibian inflation followed suit. In principle, because of the anchoring, there is supposed to be no difference between the two inflation rates. The statistical test confirmed this proposition. There was not statistical reason for rejecting the

null hypothesis that the two inflation rates moved in tandem with one another. If there was any statistical difference between the two inflation rates, it would suggest that the pegged exchange rate arrangement between the two countries did not serve as a nominal anchor. In other words, a nominal anchor does not prevent inflation per se, but links the inflation rate to that of the anchor. Therefore, if the anchor goes down, so will the domestic inflation rate.

 The study also demonstrated that monetary policy in Namibia has indeed been implemented in order to maintain the peg because money stock growth rate in Namibia has been kept at a similar growth rate as in SA. This was statistically tested, and if there was any deviation, Namibian authorities applied corrective measures. This indicates that the authorities have maintained the peg through the control of monetary growth; hence, a different inflation rate would not have been caused by a different rate of monetary growth. In other words, not only can it be argued that the pegged exchange rate was effective as a nominal anchor, but it can also be shown that the Bank of Namibia actively pursued monetary policies that ensured that effectiveness. It raises the interesting question, not to be answered in this thesis, which is the more important: The pegged exchange rate or the alignment of monetary policy with that of the country to which the currency is pegged?

The study showed that exchange rate pegging has been effective to a certain extent. It would probably be difficult to argue that a differently pegged exchange rate or a flexible exchange rate would have resulted in an inflation rate for Namibia much lower than that of South Africa given the intensity of trade between the two countries. Over 80 percent of consumable goods of Namibia are imported from SA. Moreover, with the trade balance heavily in favour of South Africa there would most likely have been pressures over time for the Namibian dollar to depreciate. Under the currency peg, the authorities could offset the tendency for the exchange rate to depreciate. This may have been a significant consequence of the currency peg as the trade deficit and the deficit on the current account had to be financed by capital inflows. The likelihood of this happening would have been considerably undermined by a secularly depreciating currency, especially against the

South African rand as a substantial proportion of capital inflows into Namibia originated from South Africa.

Therefore it can be confidently concluded in this study that exchange rate pegging of the Namibian dollar to the South African rand has been an effective nominal anchor. It therefore also arguably assisted in controlling domestic inflation in Namibia.

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APPENDIX

Table 1

5% and 1% points for the distribution of the correlation coefficient under the null hypothesis that the population correlation is 0 in a two-tailed test

Sample size	r values for two-tailed probabilities (P)		Sample size	Two-tailed probabilities (P)	
	0.05	0.01		0.05	0.01
3	1.00	1.00	23	0.41	0.53
4	0.95	0.99	24	0.40	0.52
5	0.88	0.96	25	0.40	0.51
6	0.81	0.92	26	0.39	0.50
7	0.75	0.87	27	0.38	0.49
8	0.71	0.83	28	0.37	0.48
9	0.67	0.80	29	0.37	0.47
10	0.63	0.76	30	0.36	0.46
11	0.60	0.73	40	0.31	0.40
12	0.58	0.71	50	0.28	0.36
13	0.55	0.68	60	0.25	0.33
14	0.53	0.66	70	0.24	0.31
15	0.51	0.64	80	0.22	0.29
16	0.50	0.62	90	0.21	0.27
17	0.48	0.61	100	0.20	0.26
18	0.47	0.59	110	0.19	0.24
19	0.46	0.58	120	0.18	0.23
20	0.44	**0.56**	130	0.17	0.23
21	0.43	0.55	140	0.17	0.22
22	0.42	0.54	150	0.16	0.21

Generated using the standard formula [2].

Source: http://ccforum.com/content/7/6/451

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Table 2: CPI's transformed to natural logarithmic values

lnCPI(NAM)	lnCPI(SA)
2.525728644	2.5257286
2.694627181	2.7212954
2.740840024	2.6878475
2.48490665	2.5176965
2.208274414	2.442347
2.48490665	2.7911651
2.595254707	2.9231616
2.533696814	2.7788193
2.557227311	2.5572273
2.714694744	2.6878475
2.48490665	2.6672282
2.4765384	2.7278528
2.87356464	2.6390573
2.140066163	2.2925348
2.379546134	2.1747517
2.302585093	2.163323
2.079441542	1.9878743
2.186051277	2.1517622
1.824549292	1.9315214
2.151762203	1.6486586
2.224623552	1.686399
2.2300144	1.7404662
2.42568729	2.2192035
1.987874348	1.7578579
1.435084525	0.3364722
0.832909123	1.2237754
1.62924054	1.5475625