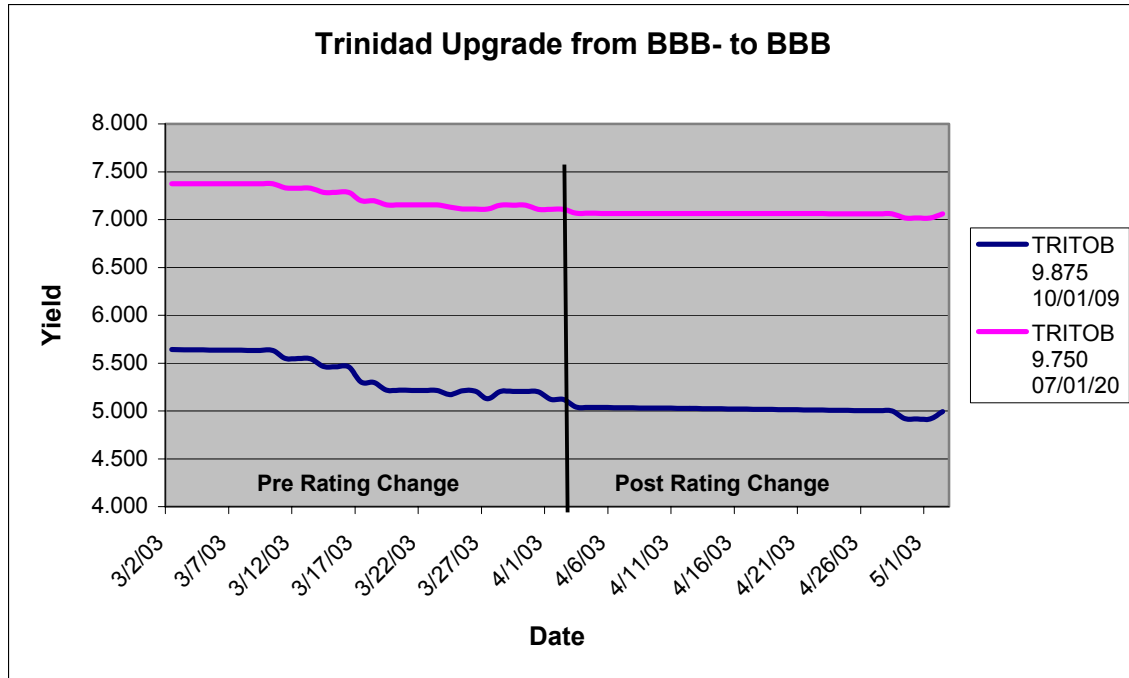# Appendix 1

Trinidad and Tobago

The graph above shows the downward trend in yields as a result of the rating upgrade on the 2nd April 2003.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

H0: Post rating change mean >= pre rating change mean
H1: Post rating change mean < pre rating change mean

Trinidad and Tobago 2020

Test of difference>=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	-0.170
Pooled standard deviation	0.076
Std error of difference	0.020
Degrees of freedom	58
t-test statistic	-8.650
p-value	0.000

Trinidad and Tobago 2009
Test of difference>=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	-0.355
Pooled standard deviation	0.141
Std error of difference	0.036
Degrees of freedom	58
t-test statistic	-9.740
p-value	0.000

The results of the tests for the both shows that we reject the null hypothesis and conclude that there is a fall in rates after the rating upgrade.

Mexico
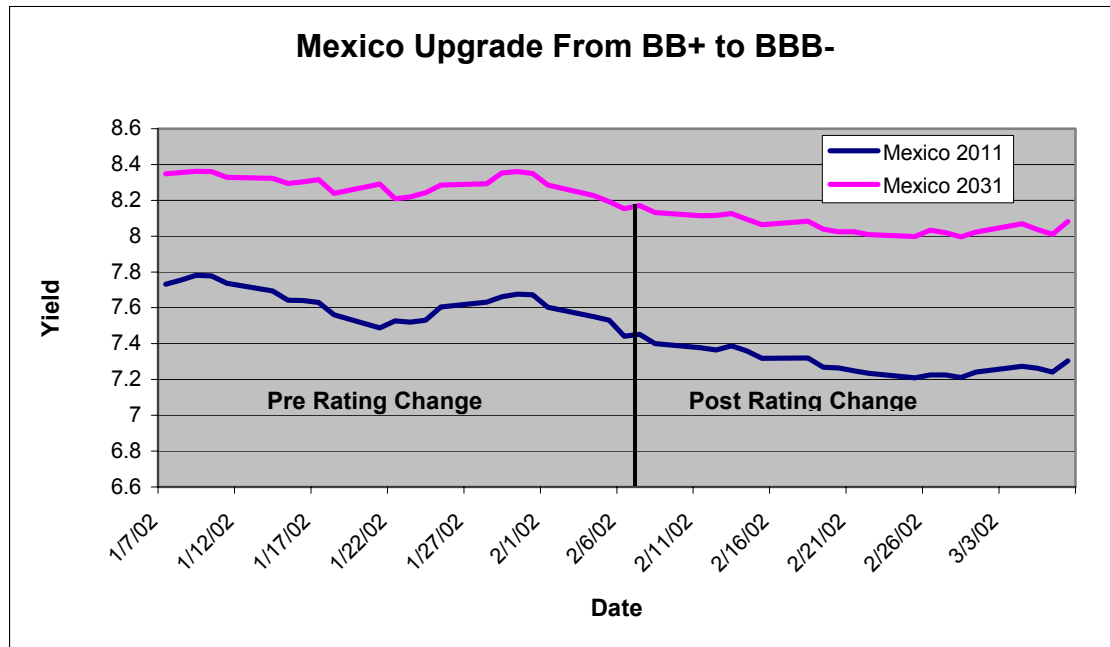
The graph above shows the downward trend in yields as a result of the rating upgrade on the 7th February 2002.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

H0: Post rating change mean >= pre rating change mean
H1: Post rating change mean < pre rating change mean

Mexico 2011
Test of difference>=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	-0.319
Pooled standard deviation	0.082
Std error of difference	0.025
Degrees of freedom	40
t-test statistic	-12.599
p-value	0.000

Mexico 2031

Test of difference>=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	-0.217
Pooled standard deviation	0.054
Std error of difference	0.017
Degrees of freedom	38
t-test statistic	-12.779
p-value	0.000

The results of the tests for the both shows that we reject the null hypothesis and conclude that there is a fall in rates after the rating upgrade.

Dominican Republic
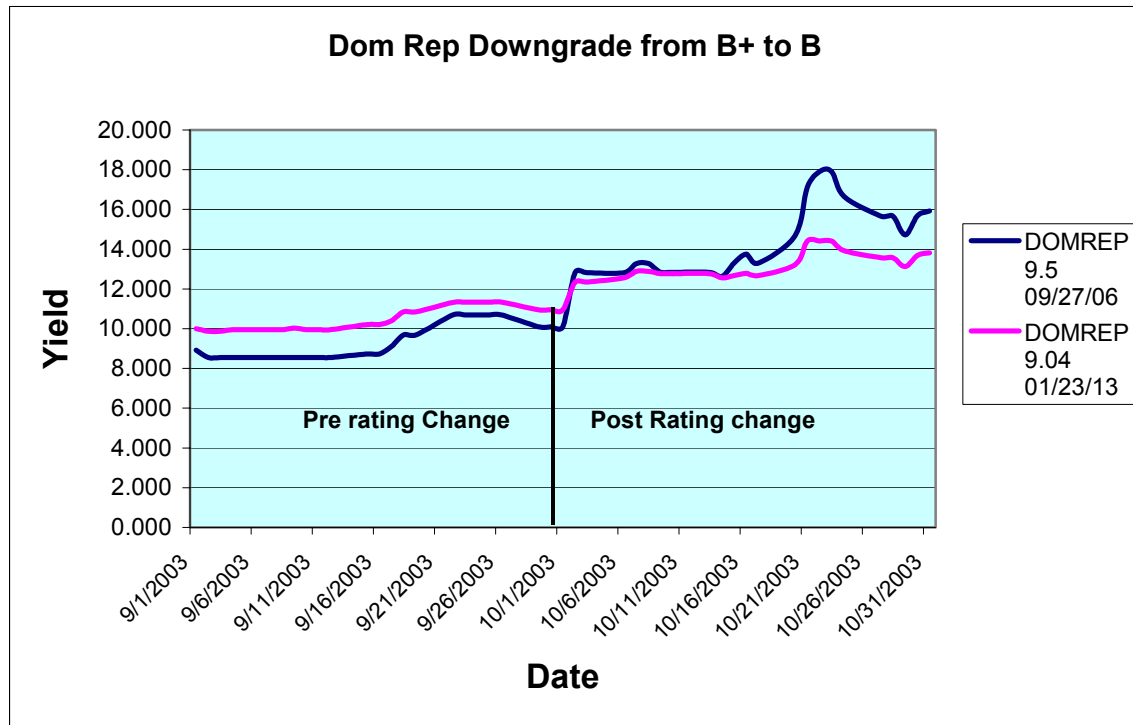
The graph above shows the upward trend in yields as a result of the rating downgrade on the 1st October 2003.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

H0: Post rating change mean <= pre rating change mean
H1: Post rating change mean > pre rating change mean

Dominican Republic 2006
Test of difference<=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	4.961
Pooled standard deviation	1.533
Std error of difference	0.452
Degrees of freedom	44
t-test statistic	10.978
p-value	0.000

Dominican Republic 2013
Test of difference<=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	2.633
Pooled standard deviation	0.706
Std error of difference	0.208
Degrees of freedom	44
t-test statistic	12.649
p-value	0.000

The results of the tests for both bonds show that we reject the null hypothesis and conclude that there is a rise in rates after the rating downgrade.

Belize
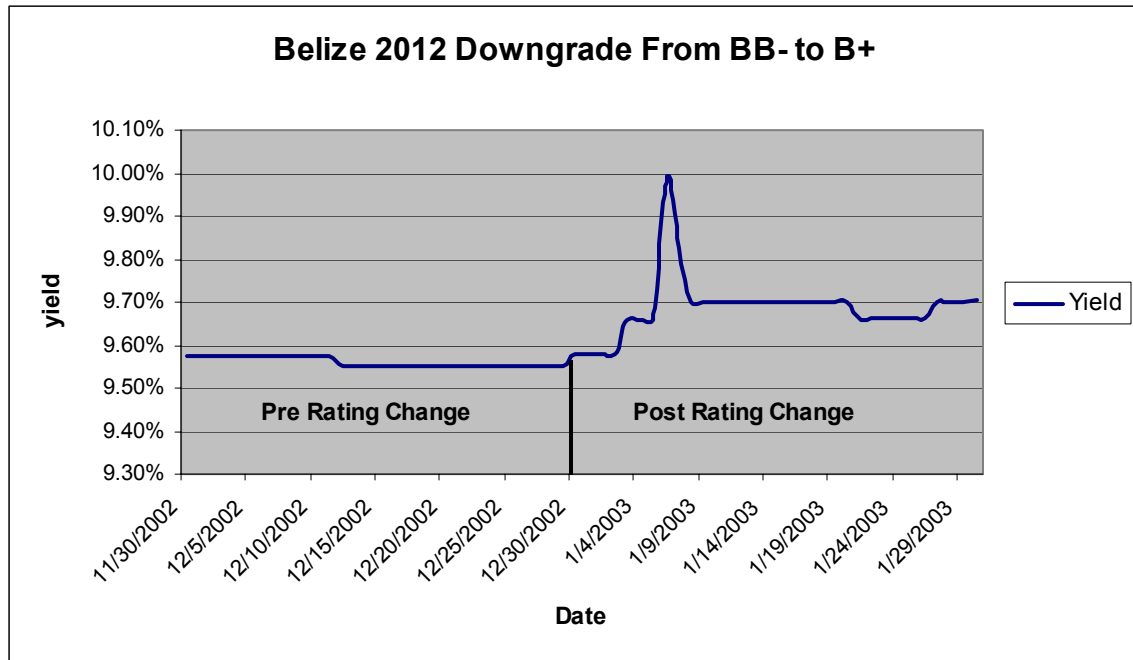
The graph above shows the upward trend in yields as a result of the rating downgrade on the 30th December 2002.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

H0: Post rating change mean <= pre rating change mean
H1: Post rating change mean > pre rating change mean

Belize 2012
Test of difference<=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	0.001
Pooled standard deviation	0.001
Std error of difference	0.000
Degrees of freedom	60
t-test statistic	9.755
p-value	0.000

The result of the tests for the bond shows that we reject the null hypothesis and conclude that there is a rise in rates after the rating downgrade.

Brazil

The graph above shows the upward trend in yields as a result of the rating downgrade on the 2nd July 2002.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

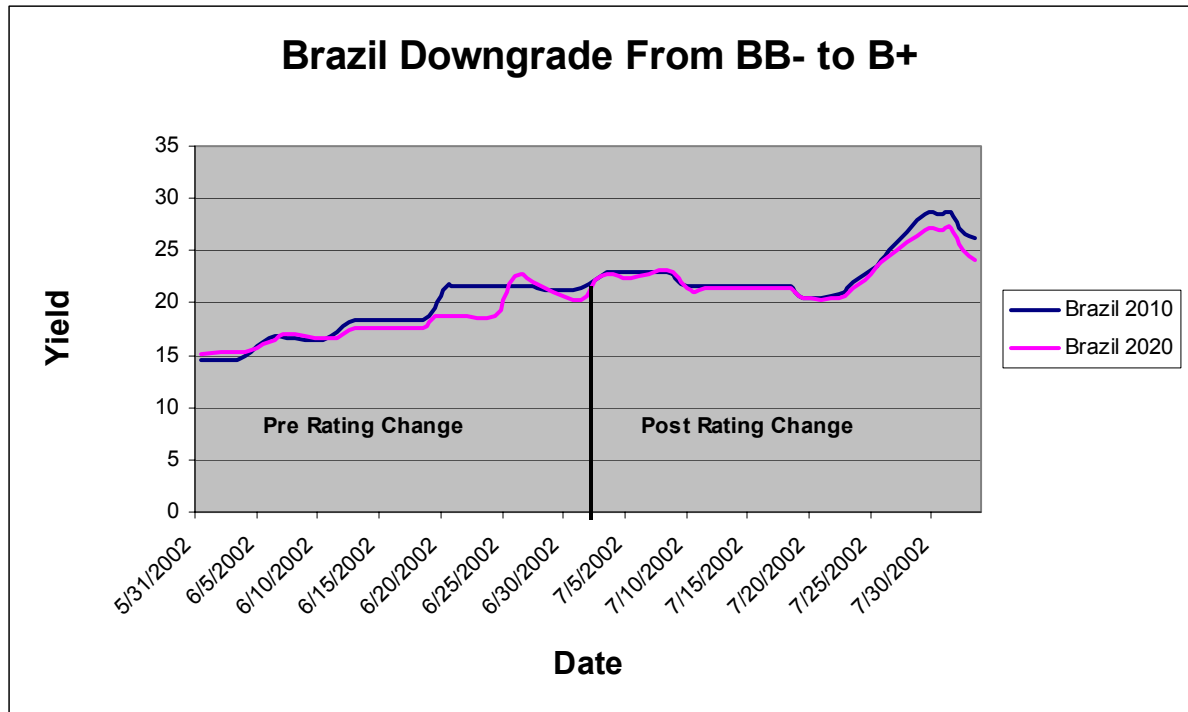H0: Post rating change mean <= pre rating change mean
H1: Post rating change mean > pre rating change mean

Brazil 2010
Test of difference<=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	4.598
Pooled standard deviation	2.561
Std error of difference	0.755
Degrees of freedom	44
t-test statistic	6.088
p-value	0.000

Brazil 2020

Test of difference<=0 versus one-tailed alternative

Hypothesized mean difference	0.000
Sample mean difference	4.536
Pooled standard deviation	2.204
Std error of difference	0.650
Degrees of freedom	44
t-test statistic	6.978
p-value	0.000

The results of the tests for the both bonds shows that we reject the null hypothesis and conclude that there is a rise in rates after the rating downgrade.

Peru
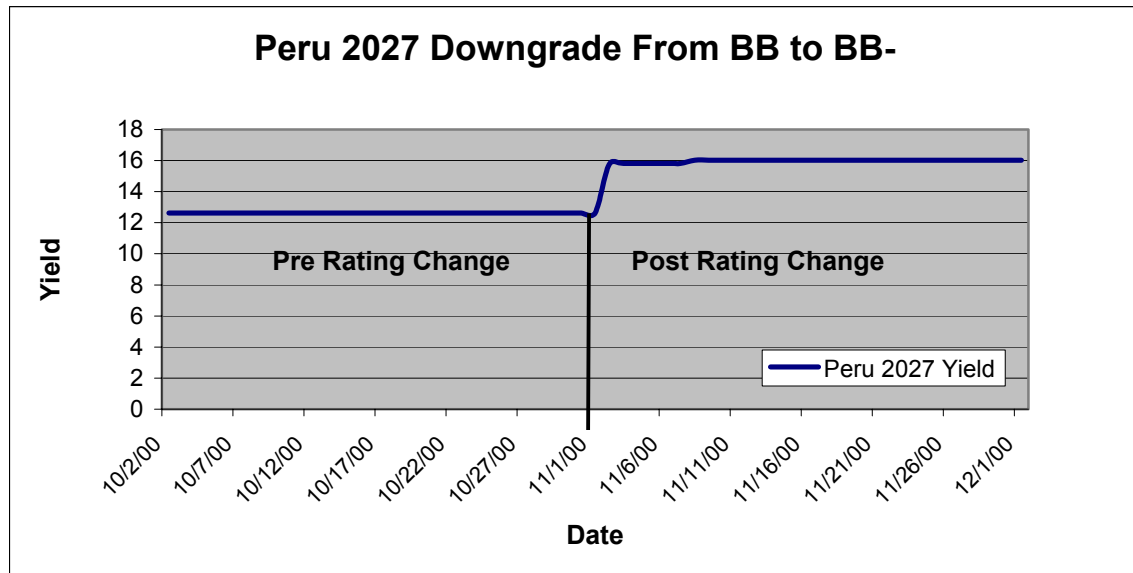
The graph above shows the upward trend in yields as a result of the rating downgrade on the 1st November 2000.

A hypothesis test was conducted using the time series before and after the rating change and testing for the samples for equality.

H0: Post rating change mean <= pre rating change mean
H1: Post rating change mean > pre rating change mean

Test of difference<=0 versus one-tailed alternative

|	
Hypothesized mean difference	0.000
Sample mean difference	3.358
Pooled standard deviation	0.061
Std error of difference	0.018
Degrees of freedom	42
t-test statistic	181.692
p-value	0.000

The result of the tests for the bond shows that we reject the null hypothesis and conclude that there is a rise in rates after the rating downgrade.

The above graphs and tests demonstrate the effect that credit ratings have on Sovereign debt.

Data on Corporate Debt From the Indian Market

The following shows data received by CRISIL from the Indian secondary market.

Rating Yield Curve as of 7th October 2003

Yield curves as of 8th October 2003
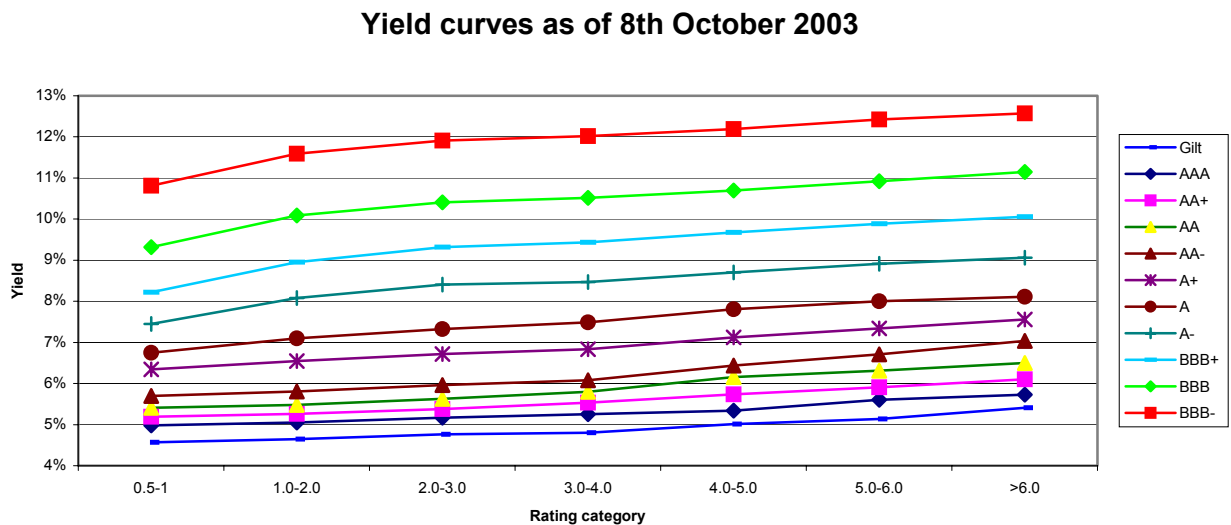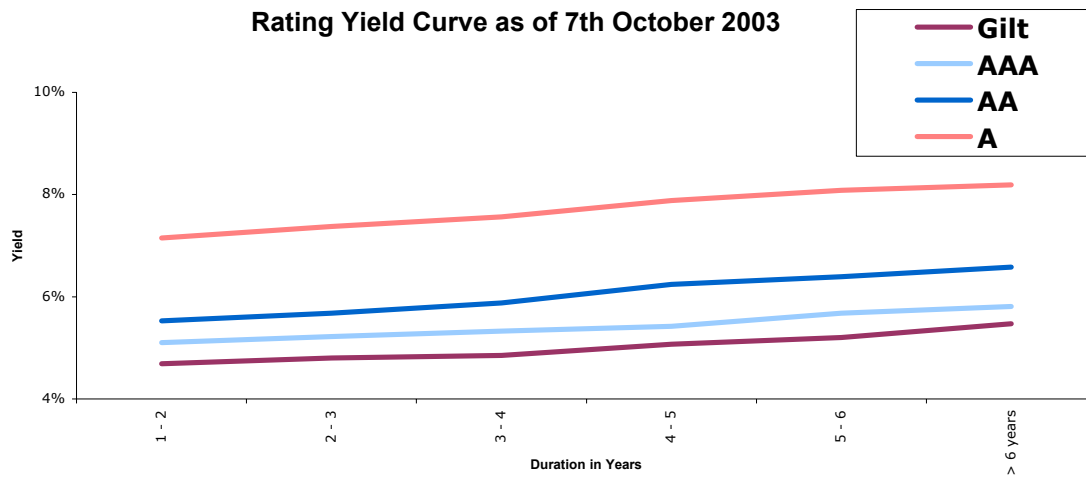
The first - based on data from the Indian secondary debt markets - demonstrates the increase in cost of funds as the rating reduces from AAA through the A range. It can be seen that this relationship holds across tenor buckets.

The second takes a much wider range of ratings, giving spreads across investment grades. The same relationships hold across a much wider scale of ratings.

From these graphs we can clearly see the implications of credit rating on the cost of funds for Corporations.