



Fixed Income Research

SPECIAL REPORT

Default and Rating Transition Study: 1997 - 2005

This study reviews MARC's rating universe over a span of a 9 year period from 1997 to 2005. An attempt is made to demonstrate the procyclicality of credit quality changes over the same period and how MARC's ratings correlate with market variables such as market price volatility and interest rates. For the purpose of this study, only long-term stand alone issuer ratings are analyzed while all ABS, aborted issues, unpublished ratings and enhanced ratings (such as those with bank guarantees) have been excluded from the study. While MARC generally prescribes "a first dollar missed payment" as an event of default, a detailed description of MARC's default definition prescribed to this study is included in Appendix I. Technical defaults, such as those arising from covenant violations are not included in MARC's definition of default.

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Describes the general background of economic conditions and interest rate scenario, and their relative associations with rated issues within MARC's rating universe.

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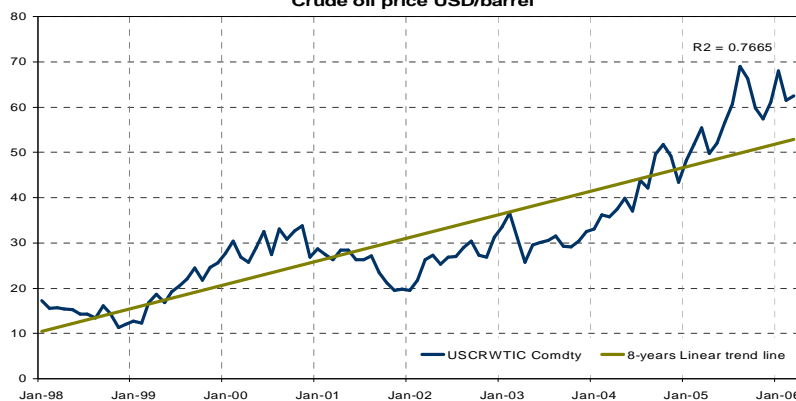
Background... Economic Cycle and the Interest Rate Scenario

A probable hike in OPR...against the backdrop of rising inflation and declining international reserves...

9th Malaysia Plan to boost supply side..

- § The year 2006 will continue to pose challenges for the bond market as interest rates continue to head north while market players position their portfolios based among others, on two major indicators; headline inflation and international reserves levels. Factoring the huge increase in oil prices recently announced by the authorities, the hike in the policy rate should be expected, intensified by the probable capital outflow given the wide interest rate disparity between Malaysia and the rest of the region. To a certain extent, expectations gravitating on rising inflation coupled with a decline in international reserves could result in a rise in the Overnight Policy Rate (OPR); the benchmark policy rate.
- § Market expectations point OPR to a level as high as 3.75% to 4.00% by end 2006. However despite impending rate hikes, there would still be demand for both Malaysian Government Securities (MGS) and Corporate bonds by local investors. The supply side will be characterized by higher issuances of MGS on the back of a bigger-than-expected allocation in the recently unveiled 9th Malaysia Plan. The initial issuance for 2006 had amounted to RM5.1 billion as at mid March and is expected to build up in the 2nd quarter onwards. We expect MGS issuance to hover in the region of RM40 billion for 2006. New issuance of PDS is expected to be similar to levels seen in 2005 as businesses continue to lock-in interest rates at the beginning of an anticipated uptrend.
- § An integral component within the composition of the Consumer Price Index (as a measure of inflation); the crude oil price, has risen from USD40 per barrel in 2004, closing in 2005 at around USD60 per barrel. Mid 2005 saw oil prices reaching its historical high of USD70 per barrel. Headline CPI is expected to edge higher leading to higher fixed investment cost for corporations.

Chart 1
Crude oil price USD/barrel



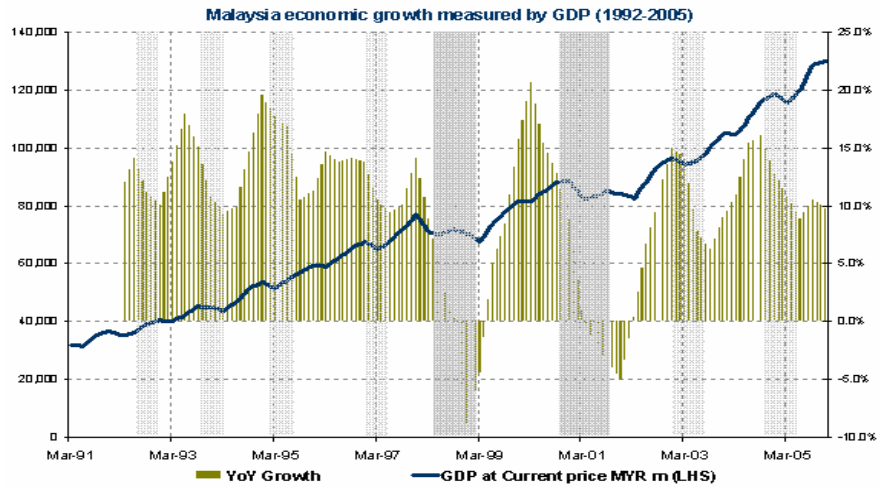
Source: Bloomberg

- § Essentially, an economic cycle is assumed to have significant impact on credit ratings, where generally companies are fundamentally strong during periods of rising economic cycle and vice versa during periods of recession. However, some companies or industries may react differently (negative Beta against the market/benchmark), nevertheless this scenario is rare. For the purpose of this study, the GDP YoY was employed as a benchmark. The chart below reflects the economic cycle in Malaysia.



Negative economic growth in 1998-1999 and 2001...

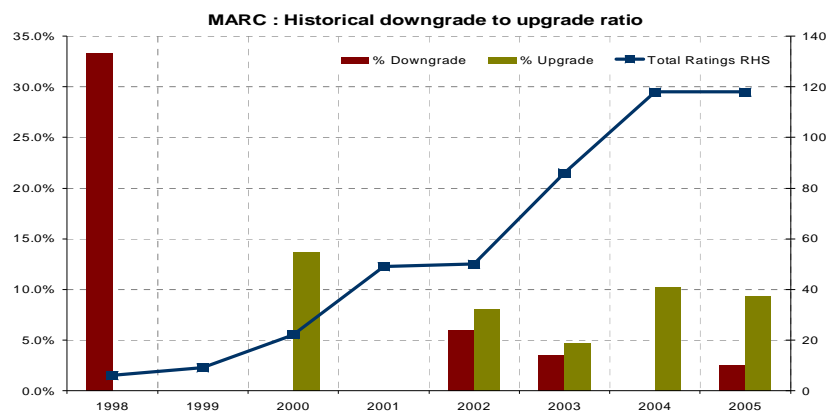
Chart 2



Source: Bank Negara Malaysia, MARC internal analysis

- § The shaded areas in the chart above represent recessionary periods from 1991 to 2005. Two major recessions (negative growth) are highlighted in the slightly darker shaded area (1999 and 2001). We had observed the following:
 - ü Downgrades, measured as percentage (%) of the total ratings were high in 1998, due to negative economic growth. However the absolute numbers were small reflecting MARC's rating universe at the time.
 - ü From that period onwards, downgraded events remained below the upgraded events, as depicted in Chart 3.

Chart 3



Source: MARC internal analysis

- § The Table 1 below depicts the correlation between the respective economic sector growths vis-à-vis GDP; the analysis endeavors to identify and rank sectors that are highly affected by the economic growth:
 - ü Mining, manufacturing and retail sectors seem to track GDP closely (correlation above 0.50).
 - ü Some sectors were not significantly correlated to each other, with Finance and Business vis-à-vis Mining portraying the lowest correlation (at -0.23).



Economic sectors with 0.50 correlations are assumed to possess a high degree of correlation with national GDP...

Table 1

Sectoral correlation matrix

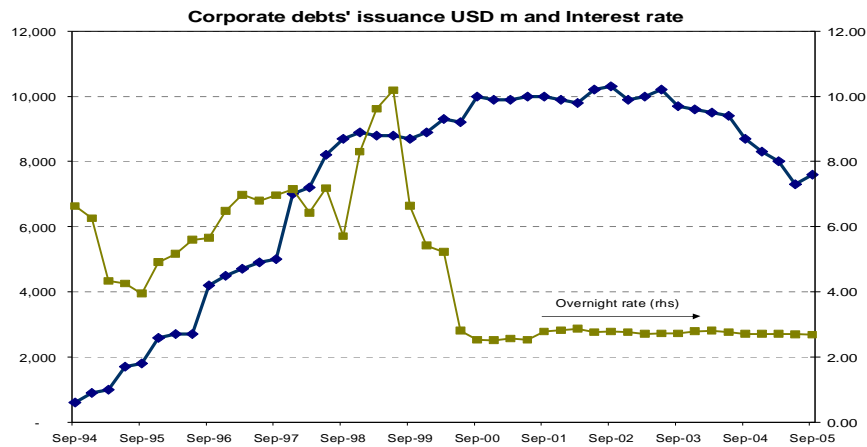
	A	B	C	D	E	F	G	H	GDP
Agriculture (A)	1.00								
Mining (B)	-0.15	1.00							
Manufacturing (C)	0.14	0.55	1.00						
Construction (D)	0.05	-0.09	0.41	1.00					
Electricity, Gas (E)	0.18	-0.22	0.23	0.45	1.00				
Transport and Comm. (F)	0.10	0.16	0.52	0.66	0.49	1.00			
Retail (G)	0.26	0.13	0.58	0.64	0.56	0.78	1.00		
Finance and Business (H)	0.02	-0.23	0.33	0.68	0.64	0.42	0.51	1.00	
National GDP	0.26	0.58	0.89	0.57	0.30	0.69	0.75	0.40	1.00

Source: MARC internal analysis

- § Essentially in a correlation matrix, a correlation of 1 would reflect a condition where variables on the x-axis are perfectly correlated with variables on the y-axis; i.e. a perfectly correlated relationship. In Table 1, variables that depict correlation numbers of 0.50 or more are deemed to possess a high degree of correlation vis-à-vis the GDP.

Chart 4

Debt increased significantly as corporations financed business expansion in the midst of a "booming period" ...

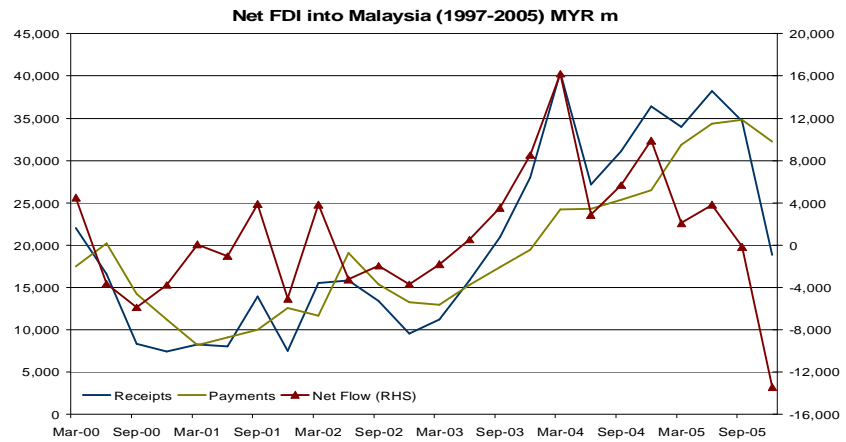


Source: Bank of International Settlement (BIS), Bank Negara Malaysia

- § Strong double digit growth; supported by high consumption and business investments contributed to strong credit expansion prior to the Asian economic crisis, and was instrumental in supporting high levels of interest rates.
- § In this period, corporations' debt soared to finance fixed investments, contributing to a scenario of higher downgrades and defaulted events. Total Corporate debt issued is represented by the blue line in Chart 4 (left-hand scale).



Chart 5



Source: Bank Negara Malaysia

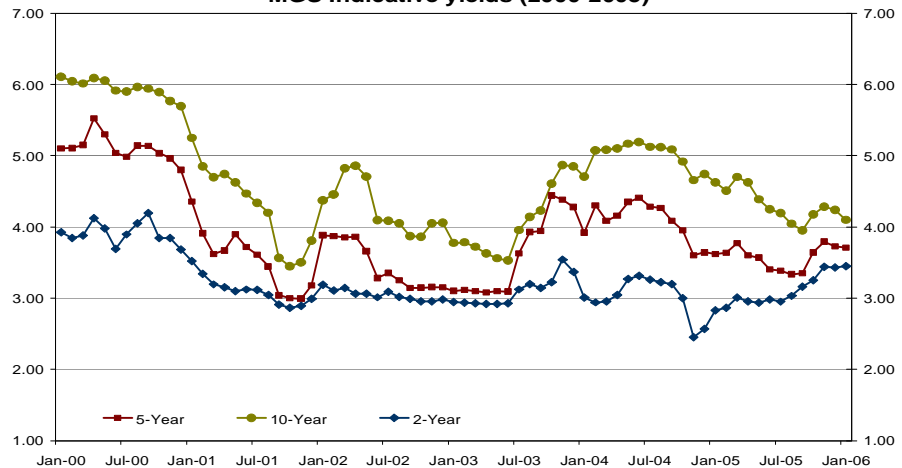
- § Subsequently, levels of interest rates moderated from the post-crisis periods while the de-facto pegging of Malaysian ringgit boosted capital flows into the country as a result of diminished currency risks. Consequently, stock markets began to improve and MGS yields slid lower across the board.
- § Debts rated by MARC increased significantly from 2 issues in 1998 to 132 issues in 2004 (July) reflecting a growth 62 times higher over a span of 6 years. The downgrades (in percentage terms) were high in 1998, coinciding with the economic downturn.



Interest Rates Scenario and Equity Price Volatility

Bond yields moved lower across the board...

Chart 6
MGS Indicative yields (2000-2005)



Source: Bank Negara Malaysia

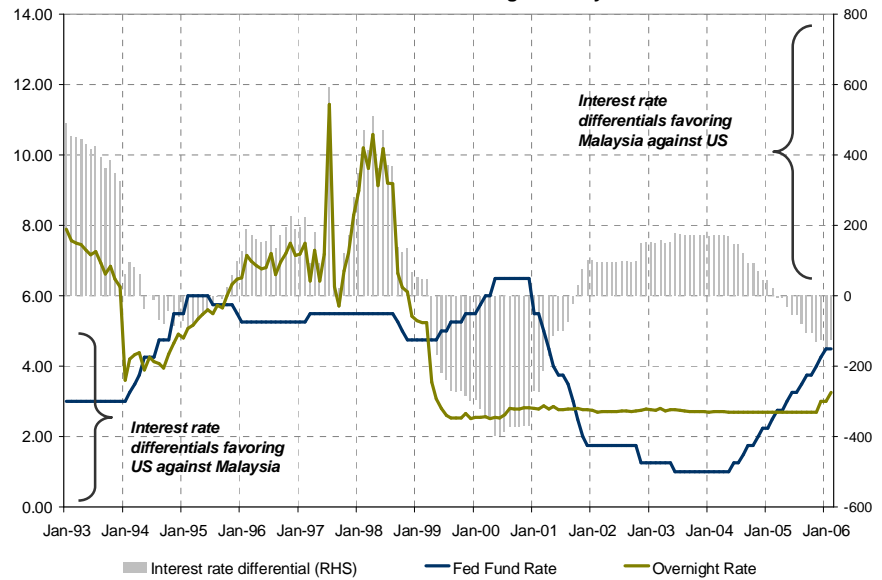
...market is expecting another 75 bps hike of OPR...

- § MGS benchmark yield curves tightened further towards the end of 2004 with similar conditions prevalent in the corporate bond market. Approaching the year 2005, markets had begun to speculate on the un-raveling of the ringgit peg regime, leading to speculative purchases of Government securities and bills, and Corporate papers that drove yields lower.
- § Moving forward, the direction of interest rates would continue to become a central focus. For the past two consecutive meetings, Bank Negara Malaysia had announced interest rate hike of 55 bps (30 bps and 25bps respectively), bringing the OPR to 3.25%.
- § It is in MARC's opinion that interest rates would inevitably rise higher, however the drivers would not rely on GDP growth alone; interest rate differentials and elevating crude oil prices would support further rate hikes. Corporate bonds will inevitably become more expensive as market participants price in the impending interest rate hikes. The latter part of this study will address observations of Corporate bond spreads against MGS.



Chart 7

Federal Fund Rate vs. Overnight Policy Rate



Source: Bank Negara Malaysia, US Federal Reserve Bank

- § Further hikes are imminent in order to preserve the capital flows as the Fed funds rate of 4.75% is already priced in, reflected in Fed futures in Q4 2006. Currently, the interest rate differential stands at 125 bps, with the possibility of widening to 150 bps.



Equity price volatility as a yardstick of default risk...

- § The analysis is further expanded into price volatility as a yardstick of default risk, where corporate volatility is measured using volatility of equity prices. The analysis assumes that any company with high amount of debts coupled with highly volatile market prices (equities) would possess a higher risk of defaulting.
- § A cursory glance of Chart 8 evidence that corporations did not experience highly volatile market prices during the pre and post-crisis periods which leads to the conclusion that market price volatility is fairly predictable.

Equity prices were not highly volatile during the pre-crisis and post-crisis periods...

Chart 8

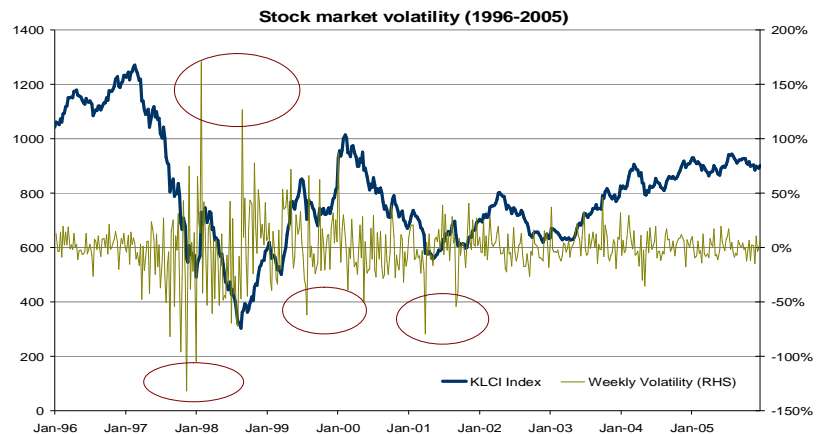
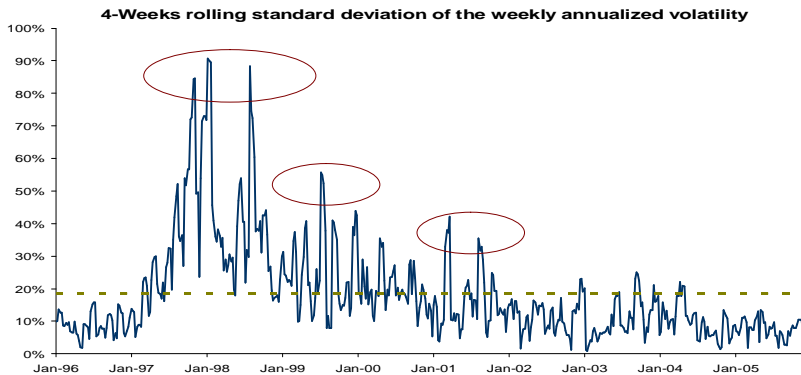


Chart 9



Source: Bloomberg, MARC analysis.

Rolling standard deviation applied to track the volatility instead of measurement from static point of time...

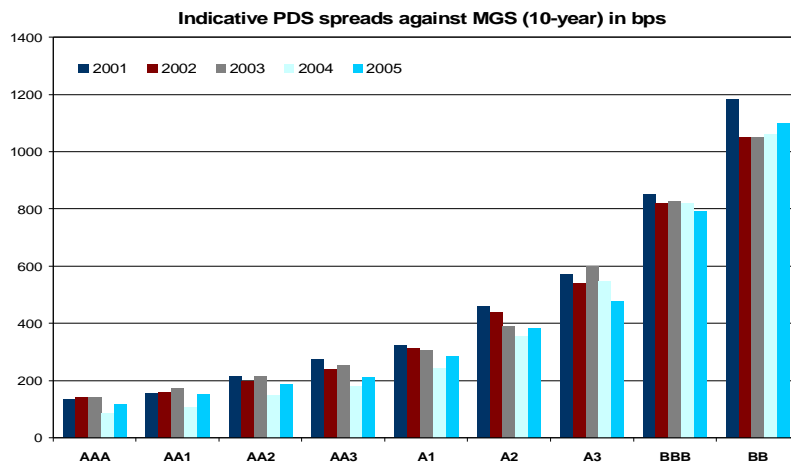
- § Companies across all industries were highly volatile during the crisis periods (between 1998 and 2001); hence higher default rates can be expected during this period. As can be seen from Chart 8, the stock market was moving in an orderly manner with an upward bias from 2001 onwards. This resulted in stable range of volatility, hovering around zero percent.
- § Chart 9 illustrates the rolling standard deviation of the companies' volatility, which remained below its 10-year average from 2002 onwards.



Corporate Debt Performance and Volatility

- § The performance of Corporate debt vis-à-vis MGS is also analyzed from a historical spread performance between 2000 and 2005.
- § Observations in the 10-year sector (Chart 10) evidenced tightening of spreads due to a sharp reduction of issuance size in 2004, coupled with sliding yields resulting from the huge magnitude of capital inflows – driven by the speculation on the unraveling of the ringgit peg.

Chart 10



Source: Bank Negara Malaysia

- § For the purpose of this analysis, the benchmark is based on the 5-year historical average spread along the credit curve (AAA to BB) against MGS. The rich/cheap valuation analysis in Table 2 portrays the average yield for the year in each rating, compared against this benchmark. The analysis suggests that downgrading events were likely to occur in 2001, 2002 and 2003, where yields were a higher (lower price) as compared to the 5-year average.

**Table 2
Rich/Cheap Valuation Analysis**

	AAA	AA1	AA2	AA3	A1
2001	Cheap	Cheap	Cheap	Cheap	Cheap
2002	Cheap	Cheap	Cheap	Cheap	Cheap
2003	Cheap	Cheap	Cheap	Cheap	Cheap
2004	Rich	Rich	Rich	Rich	Rich
2005	Rich	Cheap	Rich	Rich	Rich

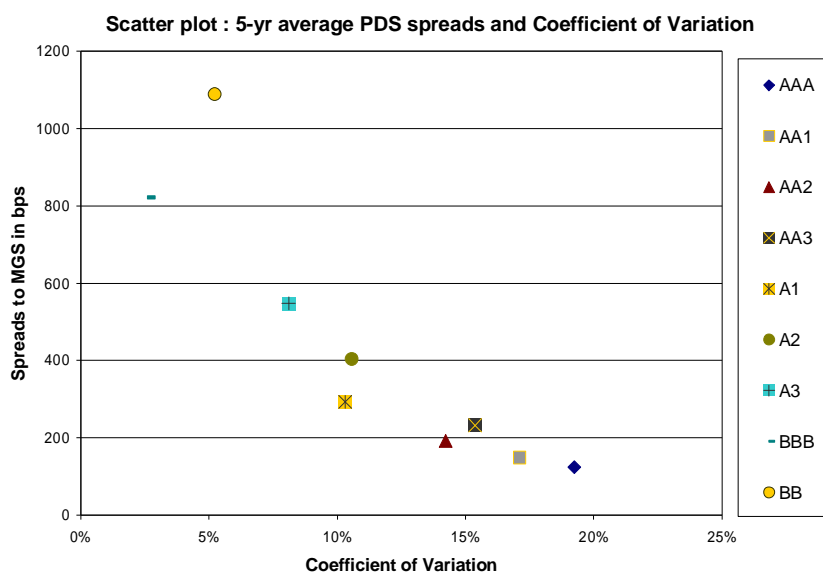
	A2	A3	BBB	BB
2001	Cheap	Cheap	Cheap	Cheap
2002	Cheap	Rich	Rich	Rich
2003	Rich	Cheap	Cheap	Rich
2004	Rich	Rich	Rich	Rich
2005	Rich	Rich	Rich	Cheap

Source: MARC internal analysis



§ Chart 11 demonstrates that spreads were relatively stable among lower rated papers, including those below investment grade vis-à-vis the benchmark – evidenced by the low standard deviation of lower rated papers relative to the benchmark; *5-year historical average spread along the credit curve (AAA to BB) against MGS.*

Chart 11



Source: Bank Negara Malaysia, MARC internal analysis



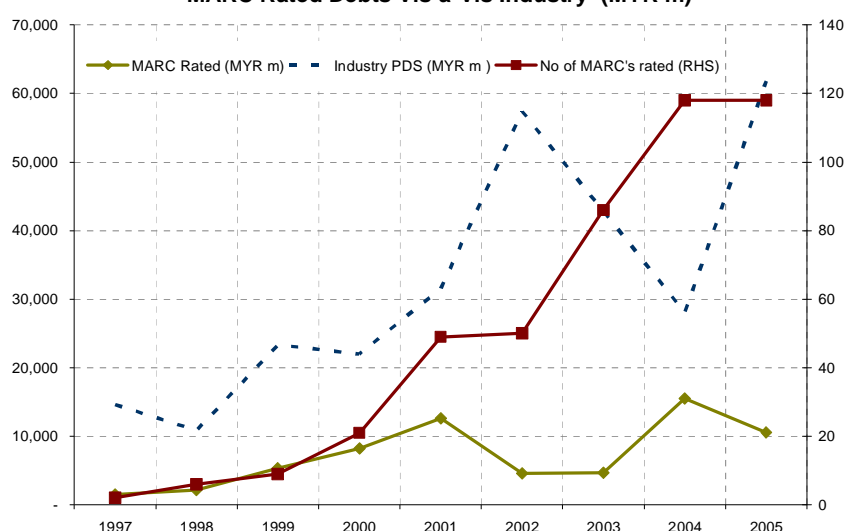
Analysis on MARC rated Debts

MARC rated issues are independent from the market issue size since 2002 ...

§ The amount of debt rated by MARC increased significantly from 1997. The correlation between the debts rated by MARC and the market's issuance for the period of 1997 to 2001 was extremely strong at 0.93. However, the positive relationship discontinued since 2002, where the amount of MARC's rated debts began to behave independently from the issuance size in the market. This finding was obvious between 2002 and 2003, characterized by several large issues not rated by MARC. However, the number of ratings by MARC continued to grow, with a total of 118 ratings in 2005 alone.

Chart 12

MARC Rated Debts Vis-a-Vis Industry (MYR m)



Skewed distribution of MARC rated debts...

Source: MARC internal analysis, Bank Negara Malaysia

§ The table below shows MARC's rating activities since 1997 to 2005, where the bulk of the ratings assigned fell under A-rating category. From the rating universe, only 13 issues were assigned non-investment grades (2.8% of total debts rated).

Table 3

Rating numbers by credit class and year (1997-2005)

	AAA	AA	A	BBB	BB	B	D	Total
1997	1	-	1	-	-	-	-	2
1998	1	2	2	1	-	-	-	6
1999	6	1	-	2	-	-	-	9
2000	3	5	10	1	1	-	1	21
2001	12	6	29	2	-	-	-	49
2002	11	11	25	2	1	-	-	50
2003	24	13	39	5	-	5	-	86
2004	26	19	66	7	-	-	-	118
2005	13	20	73	4	1	5	2	118
Total	97	77	245	24	3	10	3	459



Table 4

Distribution Statistic	
Mean	65.71
St Dev.	87.40
Kurtosis	3.21
Skewness	1.77
Minimum	3
Maximum	245
Sum	460
Count	6

Chart 13

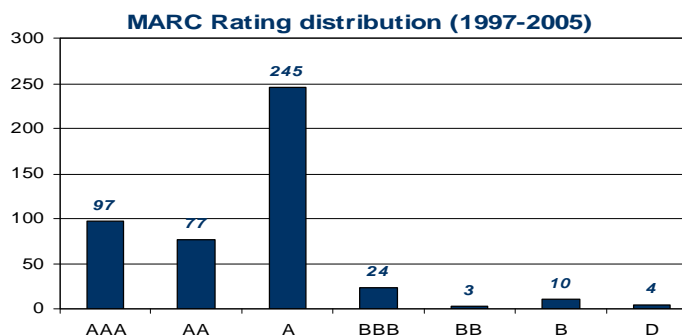


Table 5

MARC Rating distribution (1997-2005)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
AAA	50.00%	16.67%	66.67%	14.29%	24.49%	22.00%	27.91%	22.03%	11.02%
AA	-	33.33%	11.11%	23.81%	12.24%	22.00%	15.12%	16.10%	16.95%
A	50.00%	33.33%	-	47.62%	59.18%	50.00%	45.35%	55.93%	61.86%
BBB	-	16.67%	22.22%	4.76%	4.08%	4.00%	5.81%	5.93%	3.39%
BB	-	-	-	4.76%	-	2.00%	0.00%	-	0.85%
B	-	-	-	-	-	-	5.81%	-	4.24%
D	-	-	-	4.76%	-	-	-	-	1.69%
Investment Grade	100.00%	100.00%	100.00%	90.48%	100.00%	98.00%	94.19%	100.00%	93.22%
Non-Investment Grade	-	-	-	4.76%	-	2.00%	5.81%	-	5.08%
%Rating withdrawn	-	-	-	-	2.00%	1.92%	8.25%	6.77%	8.33%

Table 6

	Upgrade	Downgrade	Default	Affirmed	Reaffirmed	Withdrawn
1998	-	2	-	-	-	-
1999	-	-	-	2	-	-
2000	3	-	1	1	1	1
2001	0	-	-	13	3	1
2002	4	3	-	19	12	1
2003	4	3	-	24	34	8
2004	12	0	-	25	32	9
2005	11	3	2	30	27	11
Total	34	11	3	114	109	30

Source: MARC internal analysis

The analysis is constrained by limited sample size...

§ MARC's rating universe is currently constrained by the relatively brief period of data accumulation. As seen from Table 3, the number of ratings assigned only increased significantly from year 2000 onwards. Our findings are as follows:

- ü Between the periods of 1997 to 1999, MARC's rating universe was limited to only above-investment grade rated papers despite the Asian financial crisis. Only two downgrade events occurred during the same period, representing 33% of total ratings (six ratings in total).



Rating distribution skewed towards "A" since 2000 onwards...

- ü Post-crisis periods saw a higher proportion of rating upgrades vis-à-vis downgrades (the highest ratio was recorded in 2004; 12 upgrades to 0 downgrade).
- ü The rating distribution is skewed towards "A" since 2000 onwards while non-investment grade issuers only began to contribute to the data composition in the same year, though at a smaller proportion (composition of this group remained below 6% until 2005).
- ü The year 2000 was another significant recessionary period with negative economic growth. However, no downgrades were recorded during this period.
- ü Rating withdrawal had only begun in 2001; never exceeding 10% of total ratings.

Property, energy and construction represent approximately 45% out of total issuers ...

- § Table below illustrates MARC's rating universe by sector, where average ratings fell under A/A+. A high percentage of ratings originated from the Property sector, followed by Energy and Water. Industrial and Healthcare were the only two sectors with AAA rating.
- § Meanwhile, sectors that were below investment grade were Hotel and Tourism, consisting of just 2.4% (percentage of nominal amount) of MARC's rating universe. Only one sector fell under the BBB category; the Services sector.
- § The analysis suggests that the likelihood of defaults would be contributed by investment-grade issues as the bulk of the ratings were concentrated in this category.

Table 7

Sectors in MARC rating universe (1997-2005)

Sector	# of Issuers	Nom. (RM m)	As % of Total	Rating	Default
Property	24	21,320.10	30.3%	AA	-
Energy&Water	19	19,717.80	28.0%	AA	-
Construction	15	6,020.00	8.6%	A	-
Toll Road	5	5,030.00	7.2%	A	-
Transportation	7	3,190.00	4.5%	AA	1
Finance	7	2,772.00	3.9%	A	-
Conglomerates	2	2,500.00	3.6%	A	-
Industrial	13	2,385.00	3.4%	AAA	-
Hotel&Tourism	2	1,661.70	2.4%	BB	-
Building Materials	7	1,219.70	1.7%	AA	-
Services	3	1,083.00	1.5%	BBB	-
Plantation	6	843.00	1.2%	A	-
Healthcare	2	634.00	0.9%	AAA	-
Port	2	530.00	0.8%	AA	-
Technology	3	500.00	0.7%	A	-
Automotive	4	410.00	0.6%	A	1
Consumer&Food	3	400.00	0.6%	A	1
Textile	1	100.00	0.1%	A	-
	125	70,316.30	100.0%	A	3

Source: MARC internal analysis



MARC's Corporate Defaults (1997-2005)

Only a total of 3 defaults over a span 8 years...

§ Historically, MARC-rated corporate defaults had always remained low, constrained within a small sample size. Despite two major recessions that occurred in 1998 and 2000, there were only 3 defaults recorded by MARC from 1997 to 2005 with an average default size of RM42 million. The long-run weighted average default rate stands 2.60%, calculated from the number of defaults that occurred between years 2000 to 2005; weighted against the number of debts rated by MARC.

Mathematically, default rate is defined as percentage of default to total outstanding rating (number of defaults/ number of outstanding ratings X 100)...

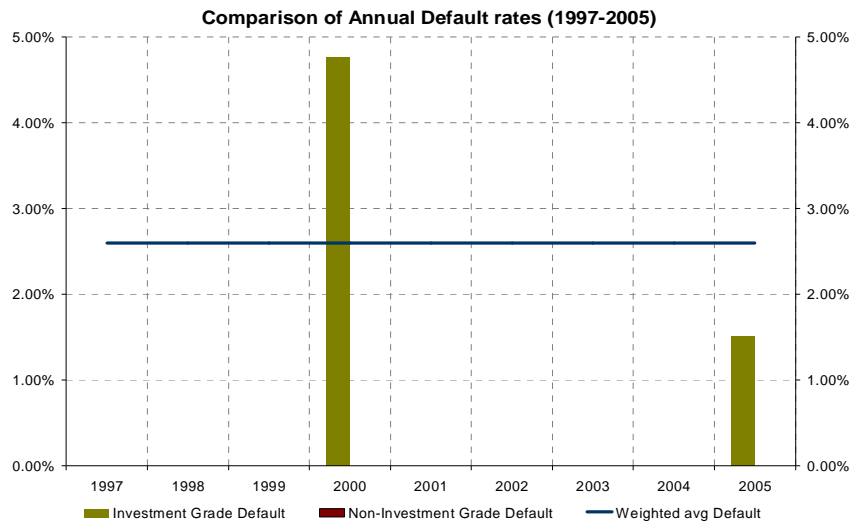
Table 8

Company	Sector	RM m	Year
Moccis Trading Sdn. Bhd.	Consumer credit	50	2000
ABI Malaysia Sdn. Bhd.	Automotive	80	2005
Pesaka Astana Sdn. Bhd.	Transportation	140	2005

Source: MARC internal analysis

§ The number of ratings outstanding has been exponentially expanding with lowering default rates, which concludes that there is a negative correlation between number of debts rated and the default rates within MARC's rating universe.

Chart 14



Source: MARC internal analysis



Table 9

Historical MARC rated corporate default (1997-2005)

	Debt rated	Default event	Default rate (%)	Investment Grade default (%)	NonInv. Grade default (%)	Total Debt Rated (RM)	Nominal Amt defaulted (RM)	Default as % of total rated
1997	2	-	-	-	-	1,500,000,000	-	-
1998	6	-	-	-	-	2,175,000,000	-	-
1999	9	-	-	-	-	5,370,000,000	-	-
2000	21	1	4.76%	4.76%	-	8,235,700,000	50,000,000	0.61%
2001	50	-	-	-	-	12,571,900,000	-	-
2002	52	-	-	-	-	4,570,000,000	-	-
2003	97	-	-	-	-	4,661,400,000	-	-
2004	133	-	-	-	-	15,504,700,000	-	-
2005	132	2	1.52%	1.52%	-	10,579,000,000	220,000,000	2.08%
Weighted Avg	-	0.57	2.60%	-	-	-	4,032,556	0.41%

Chart 16

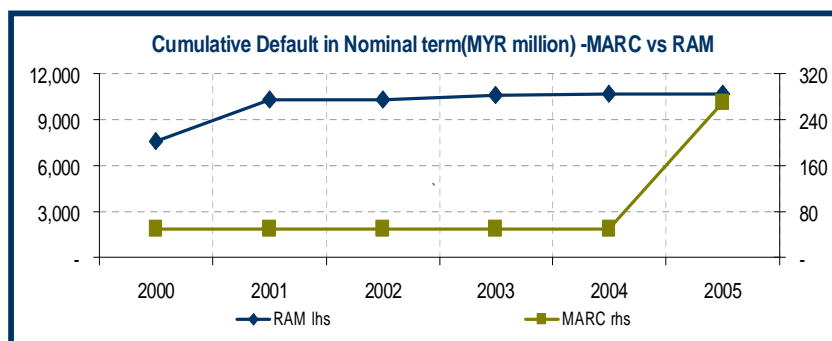
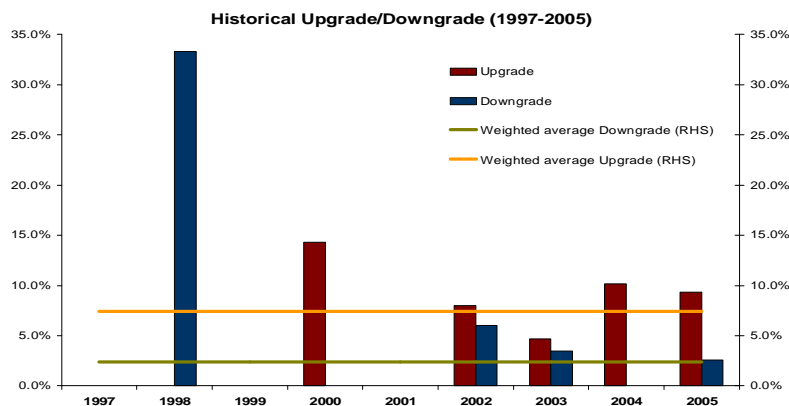


Chart 15



Source: MARC internal analysis

§ Analysis on historical upgrades/downgrades of MARC's rated debts observed that the average long-run upgrading and downgrading events were 7.41% and 2.40% respectively, out of the total rating universe. Downgrades surpassed upgrades significantly in 1998, the pinnacle of the Asian economic crisis. However, the percentage of issuers that were downgraded had reduced since then.



MARC's Rating Transitions (1997-2005)

Investment-grade are stable across the categories...

§ Interpreting rating behaviors and transition matrices over time would be of interest to market participants who may wish to hedge or arbitrage on expectations over a change in ratings. Although ratings are essentially forward-looking, exogenous risks or uncertainties beyond the control of the issuers can influence rating stability or predictability.

§ Based on MARC-rated issuers with outstanding ratings as of December 05, the migration patterns from one category to another for any cohort over the multi-year period in a given year are reviewed. Our observations are as follows:

...high volatility depicted by lower rating categories due to small rating pool...

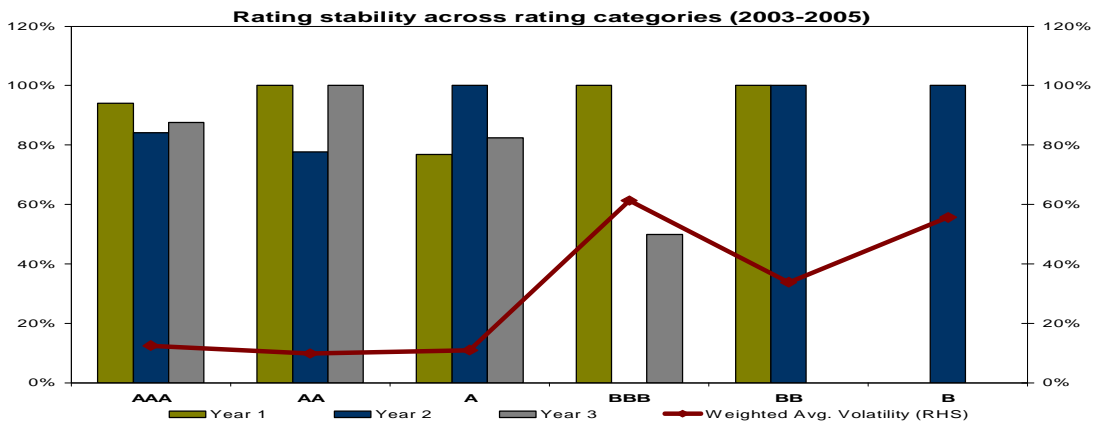
- ü AA rated issues have a 1.6% possibility to be upgraded to AAA while BBB rated issues have a 5.6% possibility to evolve to A during the period of 1997 to 2005.
- ü In the same period, a majority of BBB-grade issues remained stable, with at least 83.3% possibility of remaining within the same rating category.
- ü Lower rating categories (BB and below) exhibit greater volatility observed along the diagonal lines of the matrices and as depicted in Table 10 below.

Table 10

Cumulative 1-year ratings transitions (1997 to 2005)

1997 to 2005		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	80.1%	12.5%	-	-	-	-	-	-	7.4%
	AA	1.6%	94.4%	-	-	-	-	-	-	4.0%
	A	-	-	79.9%	15.1%	-	-	-	0.8%	3.7%
	BBB	-	-	5.6%	83.3%	-	-	-	-	11.1%
	BB	-	-	-	-	66.7%	-	-	-	33.3%
	B	-	-	-	-	-	100.0%	-	-	-
	C	-	-	-	-	-	-	-	-	-

Chart18



Source: MARC internal analysis



DEFAULT DEFINITION (specifically prescribed for MARC's Default and Rating Transition Study: 1997-2005)

- § Issuers will be rated 'D' upon default. Distressed obligations typically are rated along the continuum of 'B' to 'C' ratings categories. In situations where analysis indicates that an instrument is irrevocably impaired where it is not expected to meet payment of interest and/or principal in full in accordance with the terms of the obligation's documentation during the life of the transaction, but where no payment default in accordance with the terms of the documentation is imminent, the obligation may be rated in the 'B' or 'C' categories.

- § Default is defined as one of the following:
 - ü Failure of an issuer/obligor to make timely payment of principal and/or interest under the contractual terms of the rated financial obligation (first dollar missed payment basis);
 - ü Bankruptcy filings, administration, receivership, liquidation, winding-up or cessation of business of an issuer/obligor; or
 - ü Distressed or other coercive exchange of a rated financial obligation, where creditors were offered securities with diminished structural or economic terms compared with the existing financial obligation of the issuer/obligor.

- § MARC will assign default ratings where it has reasonably determined that payment has not been made on a material obligation in accordance with the requirements of the obligation's documentation, or where it believes that default ratings consistent with MARC's published definition of default are the most appropriate ratings to assign.



Year 1997 Static Pool

Year 0 to Year 1		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	-	100.0%	-	-	-	-	-	-	-
	AA	-	-	-	-	-	-	-	-	-
	A	-	-	-	100.0%	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 2		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	-	100.0%	-	-	-	-	-	-	-
	AA	-	-	-	-	-	-	-	-	-
	A	-	-	-	100.0%	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 3		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	-	100.0%	-	-	-	-	-	-	-
	AA	-	-	-	-	-	-	-	-	-
	A	-	-	-	100.0%	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



Year 1998 Static Pool

Year 0 to Year		End-of-Year Rating								
1	AAA	AA	A	BBB	BB	B	C	D	W	
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	
	AA	-	100.0%	-	-	-	-	-	-	
	A	-	-	100.0%	-	-	-	-	-	
	BBB	-	-	-	100.0%	-	-	-	-	
	BB	-	-	-	-	-	-	-	-	
	B	-	-	-	-	-	-	-	-	
	C	-	-	-	-	-	-	-	-	

Year 0 to Year		End-of-Year Rating								
2	AAA	AA	A	BBB	BB	B	C	D	W	
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	
	AA	-	100.0%	-	-	-	-	-	-	
	A	-	-	100.0%	-	-	-	-	-	
	BBB	-	-	-	100.0%	-	-	-	-	
	BB	-	-	-	-	-	-	-	-	
	B	-	-	-	-	-	-	-	-	
	C	-	-	-	-	-	-	-	-	

Year 0 to Year		End-of-Year Rating								
3	AAA	AA	A	BBB	BB	B	C	D	W	
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	
	AA	-	100.0%	-	-	-	-	-	-	
	A	-	-	-	-	-	-	-	100.0%	
	BBB	-	-	-	100.0%	-	-	-	-	
	BB	-	-	-	-	-	-	-	-	
	B	-	-	-	-	-	-	-	-	
	C	-	-	-	-	-	-	-	-	



Year 1999 Static Pool

Year 0 to Year		End-of-Year Rating								
1		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	-
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	-	-	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	100.0%	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year		End-of-Year Rating								
2		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	-
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	-	-	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year		End-of-Year Rating								
3		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	-
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	-	-	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



Year 2000 Static Pool

Year 0 to Year 1		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	75.0%	-	-	-	-	-	-	-	25.0%
	AA	-	83.3%	-	-	-	-	-	-	16.7%
	A	-	-	100.0%	-	-	-	-	-	-
	BBB	-	-	-	100.0%	-	-	-	-	-
	BB	-	-	-	-	100.0%	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 2		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	-
	AA	-	83.3%	-	-	-	-	-	-	16.7%
	A	-	10.0%	80.0%	10.0%	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	100.0%
	BB	-	-	-	-	100.0%	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 3		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	75.0%	-	-	-	-	-	-	-	25.0%
	AA	-	75.0%	-	-	-	-	-	-	25.0%
	A	-	10.0%	70.0%	10.0%	-	-	-	-	10.0%
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	100.0%	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



Year 2001 Static Pool

Year 0 to Year 1		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	100.0%	-	-	-	-	-	-	-	-
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	100.0%	-	-	-	-	-	-
	BBB	-	-	-	100.0%	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 2		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	91.7%	-	-	-	-	-	-	-	8.3%
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	80.8%	3.8%	-	-	-	-	15.4%
	BBB	-	-	-	100.0%	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 3		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	91.7%	-	-	-	-	-	-	-	8.3%
	AA	14.3%	85.7%	-	-	-	-	-	-	-
	A	-	-	88.5%	3.8%	-	-	-	-	7.7%
	BBB	-	-	50.0%	50.0%	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



Year 2002 Static Pool

Year 0 to Year 1		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	94.1%	-	-	-	-	-	-	-	5.9%
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	76.9%	3.8%	-	-	-	-	19.2%
	BBB	-	-	-	100.0%	-	-	-	-	-
	BB	-	-	-	-	100.0%	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 2		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	76.5%	-	-	-	-	-	-	-	23.5%
	AA	-	50.0%	-	-	-	-	-	-	50.0%
	A	-	-	65.4%	3.8%	-	-	-	-	30.8%
	BBB	-	-	-	100.0%	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	100.0%
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year 3		End-of-Year Rating								
		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	76.5%	-	-	-	-	-	-	-	23.5%
	AA	-	50.0%	-	-	-	-	-	-	50.0%
	A	-	3.8%	50.0%	3.8%	-	-	-	-	42.3%
	BBB	-	-	50.0%	50.0%	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	100.0%
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



Year 2003 Static Pool

Year 0 to Year		End-of-Year Rating								
1		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	84.2%	-	-	-	-	-	-	-	15.8%
	AA	11.1%	77.8%	-	-	-	-	-	-	11.1%
	A	-	-	100.0%	-	-	-	-	-	-
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	100.0%
	B	-	-	-	-	-	100.0%	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 0 to Year		End-of-Year Rating								
1		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	78.9%	-	-	-	-	-	-	-	21.1%
	AA	11.1%	66.7%	-	-	-	-	-	-	22.2%
	A	-	4.0%	88.0%	-	-	-	-	-	8.0%
	BBB	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	100.0%
	B	-	-	-	-	-	100.0%	-	-	-
	C	-	-	-	-	-	-	-	-	-

Year 2004 Static Pool

Year 0 to Year		End-of-Year Rating								
1		AAA	AA	A	BBB	BB	B	C	D	W
Beginning-of-Year	AAA	87.5%	-	-	-	-	-	-	-	12.5%
	AA	-	100.0%	-	-	-	-	-	-	-
	A	-	-	82.5%	1.8%	-	3.5%	-	5.3%	7.0%
	BBB	-	-	33.3%	50.0%	-	-	-	-	16.7%
	BB	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-	-	-



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