

Fixed Income Research

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2018 Annual Corporate Default and Rating Transitions Study



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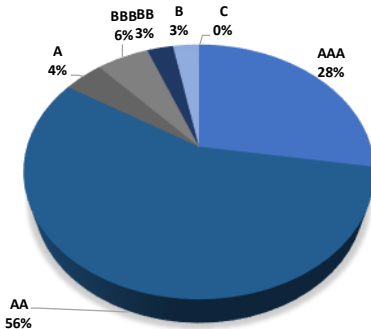
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Executive Summary

This report presents default statistics in MARC’s rating universe and the rating transition experience of corporate bond issuers in 2018. Briefly:

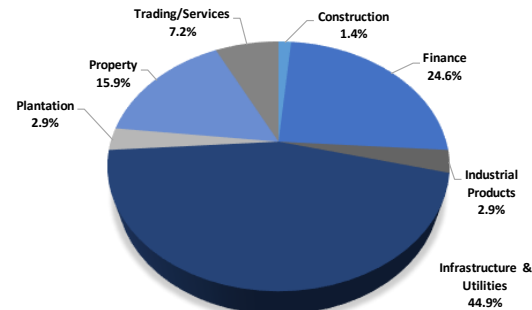
- **Ratings accuracy continued to improve.** The absence of severe negative rating actions or rating cliffs underscores the continuing timely rating action by MARC. For the period of 1998-2018, MARC’s one-year ratings accuracy ratio edged up to 68.6%, compared to 68.3% for the period between 1998-2017. The increase in the accuracy ratio indicates MARC’s continuing effectiveness in measuring relative default risk.
- **Ratings stability rose to the highest level since 2000.** MARC’s long-term average rating stability rate increased to 86.3% in 2018 from 85.6% in 2017, the highest in 18 years. After adjusting for withdrawn issuers, the stability rates for “AAA”, “AA” and “A” rated issuers were 98.8%, 95.5% and 88.5%, demonstrating a strong positive relationship between the ratings of high-grade credits and ratings stability.
- **Only one rating action recorded.** In 2018, MARC recorded only one rating migration which was a downgrade – the least rating action observed since 2002. The downgrade rate decreased slightly to 1.4% in 2018 (2017: 1.5%). However, the number of downgrades continued to outpace upgrades with no issuers being upgraded by MARC for the sixth consecutive year.
- **Zero defaults in 2018.** There were no defaulted issuers during the year under review. This brought the long-term annual corporate default rate for the period of 2000-2018 marginally lower to 2.0% (2017: 2.1%). High-grade and high-yield long-term default rates stood at 0.8% and 8.5%.

Figure 1: Distribution of issuers in the MARC universe by rating bands, 2018



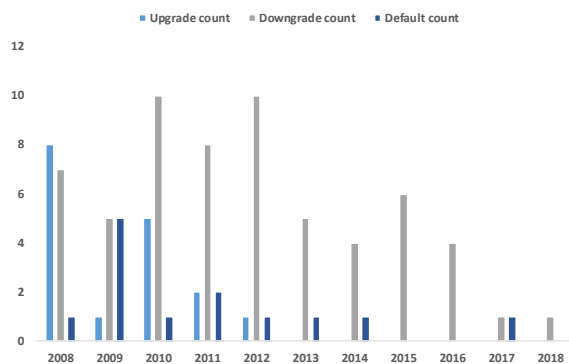
Source: MARC Fixed Income Research

Figure 2: Distribution of issuers in the MARC universe by sector, 2018



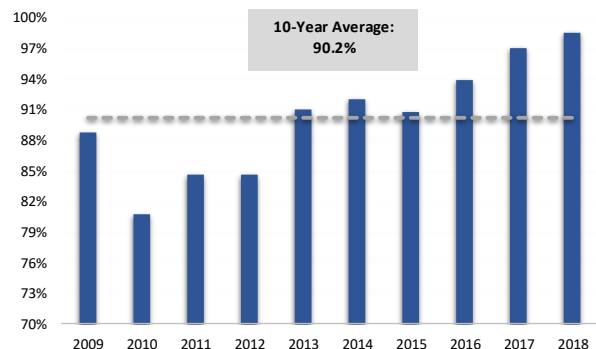
Source: MARC Fixed Income Research

Figure 3: Historical rating migration trend since 2008



Source: MARC Fixed Income Research

Figure 4: Historical ratings stability rate



Source: MARC Fixed Income Research

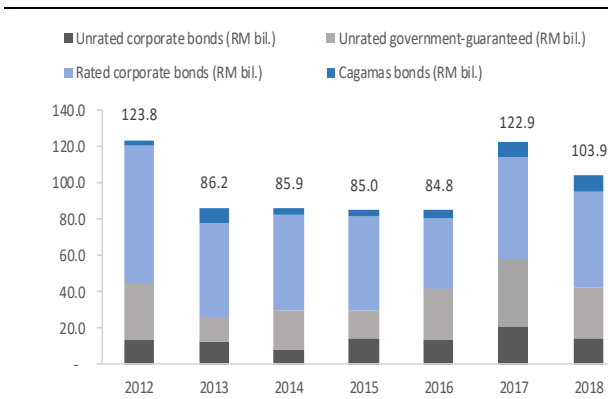
Ringgit Corporate Bond Market

In 2018, total corporate bond issuance in the primary market fell to RM103.9 billion, down by 15.4% from the previous year (2017: RM122.9 billion). The decline in financing activities was mainly attributed to a significant drop in the unrated segment. Issuances of both unrated corporate and unrated government-guaranteed (GG) bonds fell to RM13.9 billion (2017: RM20.7 billion) and RM28.7 billion (2017: RM37.6 billion). Prospects of higher financing costs and cancellations of selected mega infrastructure projects dampened issuance activities within these segments. Meanwhile, issuances of rated corporate bonds fell to RM52.4 billion (2017: RM55.8 billion). In contrast, issuances of Cagamas bonds rose to RM9.0 billion (2017: RM8.7 billion).

Notable issuances were from the financial services sector, which contributed 48.2% of total gross issuance. This was followed by the infrastructure & utilities (17.0%) and property & real estate (11.8%) sectors. The top five corporate bond issuers were DanaInfra Nasional Bhd (RM11.1 billion), Cagamas Bhd (RM9.0 billion), Lembaga Pembiayaan Perumahan Sektor Awam (LPPSA) (RM6.0 billion), Edra Energy Sdn Bhd (RM5.1 billion) and Danga Capital Bhd (RM3.5 billion).

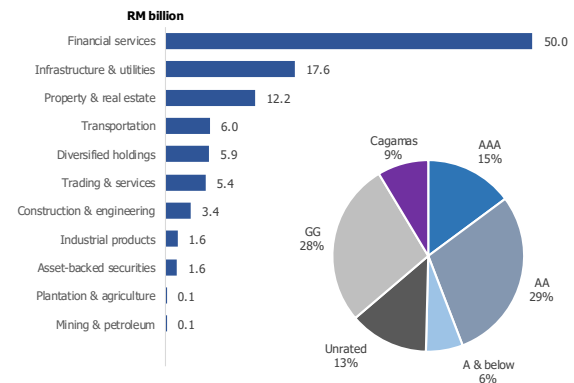
Similar to 2017, AAA and AA rated corporate bonds (including Cagamas) continued to dominate issuances in the rated segment. They (AAA: 39.7%, AA: 49.7%) accounted for nearly 89.4% of total rated bonds (2017: 92.5%). Meanwhile, the share of A rated corporate bonds was only 10.6%. There were no issues coming from the high-yield segment. Rated corporate bonds accounted for 59.0% of total gross issuance in 2018, up from 52.5% in 2017.

Figure 5: Corporate bond issuance trends (RM billion)



Sources: BPAM, MARC Fixed Income Research

Figure 6: Rated corporate bond issuances in 2018: by industry and rating distribution



Sources: BPAM, MARC Fixed Income Research

Yield surges were also seen in the corporate bond space, especially those rated AAA and AA. On average, yields on AAA and AA rated corporate bonds rose by two bps to seven bps with most of the selling pressure concentrated on the back-end till the belly of the curve. However, credit spreads were lower in 2018 compared with 2017 as yield surges were more prominent in local govies. The 5y blended credit spread (AAA, AA & A rated) narrowed to 166 bps in 2018, compared with 183 bps in 2017.

Introduction to MARC's Corporate Default Study

This report presents updates on default statistics and the rating transition experience of corporate bond issuers in 2018. As in the past studies, in order to address the problem of a shrinking sample size which became more apparent post-Global Financial Crisis due to the concentration of issuances in a smaller number of individual issues and issuers, we have included in our rating universe implied senior unsecured debt ratings or public information ratings of corporates and financial institutions acting in the capacity of a credit enhancement provider, and standalone ratings of MARC-rated issuers with a Danajamin Nasional Berhad (Danajamin) credit wrap. MARC maintains full rating surveillance on all these confidentially rated issuers. The structured finance universe and short-term ratings, on the other hand, remained excluded.

An entity's credit rating captures its corporate credit risk and relative default probability. Higher credit ratings stability is expected at higher rating bands and default rates are expected to be lower among them. Theoretically, default rates should increase as we move down the credit rating scale.

An element of statistical bias may occur due to sample size limitations owing to the small number of issuers studied in our corporate bond ratings universe. As a result, some of the reported statistics may be inconclusive. Furthermore, data enhancement efforts which are being continuously carried out to ensure increased transparency and integrity may limit comparability with earlier default and rating transitions studies. As such, this study is self-contained and supersedes previous studies.

At the beginning of 2018, there were 69 issuers in MARC's corporate rating universe (excluding structured finance and short-term paper issuers). Most issuers are concentrated in the high-grade rating category, with 61 rated band "A" or above while the remaining eight were categorised as high-yield issuers or rated band "BBB" or below. There were no issuers in the C-rated category. Based on the distribution of issuers by sector, the infrastructure and utilities sector remained the largest contributor to MARC's rating universe (2018: 44.9%; 2017: 38.8%), followed by the finance sector (2018: 24.6%; 2017: 25.4%) and property sector (2017: 15.9%; 2016: 16.4%).

Figure 7: Distribution of outstanding issuers by rating band - majority of outstanding issuers are in the high-grade rating category in MARC's corporate rating universe

Year	AAA	AA	A	BBB	BB	B	C	High Grade	High Yield
1998	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
1999	33.3%	16.7%	16.7%	33.3%	0.0%	0.0%	0.0%	66.7%	33.3%
2000	30.0%	30.0%	10.0%	30.0%	0.0%	0.0%	0.0%	70.0%	30.0%
2001	18.2%	18.2%	50.0%	9.1%	4.5%	0.0%	0.0%	86.4%	13.6%
2002	12.2%	14.6%	63.4%	7.3%	2.4%	0.0%	0.0%	90.2%	9.8%
2003	12.2%	16.3%	63.3%	6.1%	2.0%	0.0%	0.0%	91.8%	8.2%
2004	8.9%	16.1%	60.7%	10.7%	1.8%	1.8%	0.0%	85.7%	14.3%
2005	9.1%	18.2%	64.9%	6.5%	0.0%	1.3%	0.0%	92.2%	7.8%
2006	10.1%	18.0%	66.3%	3.4%	1.1%	1.1%	0.0%	94.4%	5.6%
2007	10.3%	20.6%	62.9%	3.1%	1.0%	2.1%	0.0%	93.8%	6.2%
2008	12.4%	20.6%	58.8%	4.1%	3.1%	1.0%	0.0%	91.8%	8.2%
2009	15.3%	27.6%	48.0%	3.1%	4.1%	2.0%	0.0%	90.8%	9.2%
2010	19.3%	28.9%	41.0%	3.6%	3.6%	3.6%	0.0%	89.2%	10.8%
2011	23.1%	29.5%	37.2%	5.1%	1.3%	3.8%	0.0%	89.7%	10.3%
2012	28.2%	26.9%	26.9%	11.5%	3.8%	2.6%	0.0%	82.1%	17.9%
2013	32.8%	31.3%	22.4%	6.0%	3.0%	4.5%	0.0%	86.6%	13.4%
2014	30.2%	41.3%	14.3%	6.3%	4.8%	1.6%	1.6%	85.7%	14.3%
2015	30.8%	40.0%	13.8%	9.2%	4.6%	1.5%	0.0%	84.6%	15.4%
2016	28.8%	48.5%	7.6%	9.1%	4.5%	1.5%	0.0%	84.8%	15.2%
2017	29.9%	47.8%	6.0%	10.4%	3.0%	3.0%	0.0%	83.6%	16.4%
2018	27.5%	56.5%	4.3%	5.8%	2.9%	2.9%	0.0%	88.4%	11.6%

Source: MARC Fixed Income Research

Summary of 2018 Experience

Ratings stability strengthens

MARC's overall ratings stability continued to improve in 2018, with 98.6% of issuers holding on to the same ratings they had at the beginning of the year. MARC's high ratings stability can be attributed to a large concentration of issuers in the high-grade category, where the incidence of rating changes is lower. Over the long-term, MARC's average ratings stability rate edged higher to 86.3% from 85.6% previously.

The results show that after adjusting for withdrawn ratings, 93.3% of issuers in the high-grade category had maintained their ratings in 2018. A detailed breakdown shows that rating stability rates for "AAA", "AA" and "A" came in at 98.8%, 95.5% and 88.5%, demonstrating a strong positive relationship between rating bands and ratings stability (a higher rating band is associated with higher stability). However, due to the small sample size in MARC's high-yield group, no specific correlation appears between rating stability and credit rating in the group. The long-term ratings stability rates for "BBB", "BB" and "B" came in at 78.5%, 84.4% and 77.3%.

Figure 8: Summary of annual rating actions

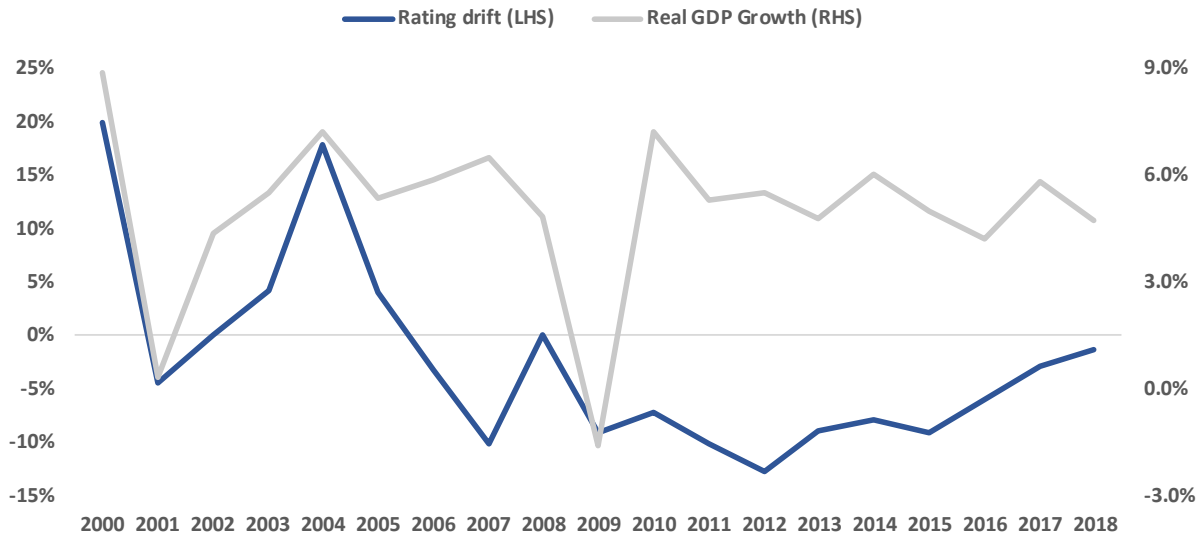
Year	Upgrades	Downgrades	Default	Withdrawn	Migrating	Stable	Margin of Downgrade to Upgrade
2000	30.0%	0.0%	10.0%	0.0%	40.0%	60.0%	0 : 3
2001	0.0%	0.0%	4.5%	4.5%	4.5%	95.5%	0 : 0
2002	7.3%	7.3%	0.0%	0.0%	14.6%	85.4%	3 : 3
2003	8.2%	4.1%	0.0%	10.2%	12.2%	87.8%	2 : 4
2004	17.9%	0.0%	0.0%	8.9%	17.9%	82.1%	0 : 11
2005	9.1%	2.6%	2.6%	6.5%	14.3%	85.7%	2 : 7
2006	9.0%	11.2%	1.1%	9.0%	21.3%	78.7%	10 : 8
2007	5.2%	11.3%	4.1%	9.3%	20.6%	79.4%	11 : 5
2008	8.2%	7.2%	1.0%	5.2%	16.5%	83.5%	7 : 8
2009	1.0%	5.1%	5.1%	18.4%	11.2%	88.8%	5 : 1
2010	6.0%	12.0%	1.2%	22.9%	19.3%	80.7%	10 : 5
2011	2.6%	10.3%	2.6%	14.1%	15.4%	84.6%	8 : 2
2012	1.3%	12.8%	1.3%	20.5%	15.4%	84.6%	10 : 1
2013	0.0%	7.5%	1.5%	13.4%	9.0%	91.0%	5 : 0
2014	0.0%	6.3%	1.6%	4.8%	7.9%	92.1%	4 : 0
2015	0.0%	9.2%	0.0%	6.2%	9.2%	90.8%	6 : 0
2016	0.0%	6.1%	0.0%	6.1%	6.1%	93.9%	4 : 0
2017	0.0%	1.5%	1.5%	9.0%	3.0%	97.0%	1 : 0
2018	0.0%	1.4%	0.0%	7.2%	1.4%	98.6%	1 : 0
Arithmetic Mean	5.6%	6.1%	2.0%	9.3%	13.7%	86.3%	n.a.

Source: MARC Fixed Income Research

Only one rating action in 2018

In 2018, MARC recorded only one rating migration which was a downgrade – the lowest number of rating changes observed in a year since 2002. Although the downgrade rate decreased slightly to 1.4% in 2018 (2017: 1.5%), it continued to outpace the rate of upgrades with no issuers being upgraded by MARC for the sixth consecutive year. While the moderated pace of downgrades was supported by improved earnings performance among corporates, corporate leverage remained high. This can partly be explained by the prolonged low-yield environment as well as improved access to credit.

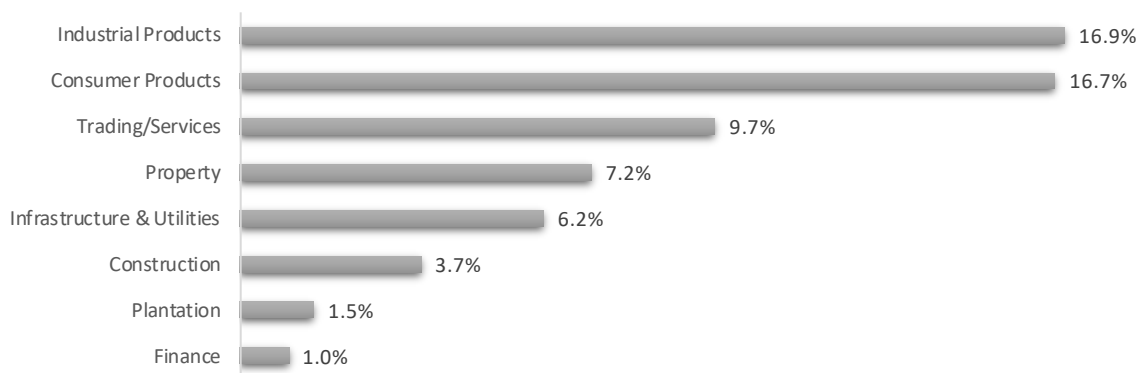
Figure 9: Rating drift versus real GDP growth in Malaysia



Source: MARC Fixed Income Research

The sole downgrade in 2018 from “B-“ to “C” was a publicly announced rated credit for an issuer from the construction sector. In 2017, there was also only one downgrade which was of a non-publicly disclosed standalone rated credit from the infrastructure and utilities sector.

Figure 10: Corporate downgrade rates by industry: long-term average



Source: MARC Fixed Income Research

Figure 11: Annual corporate downgrade rates by rating band

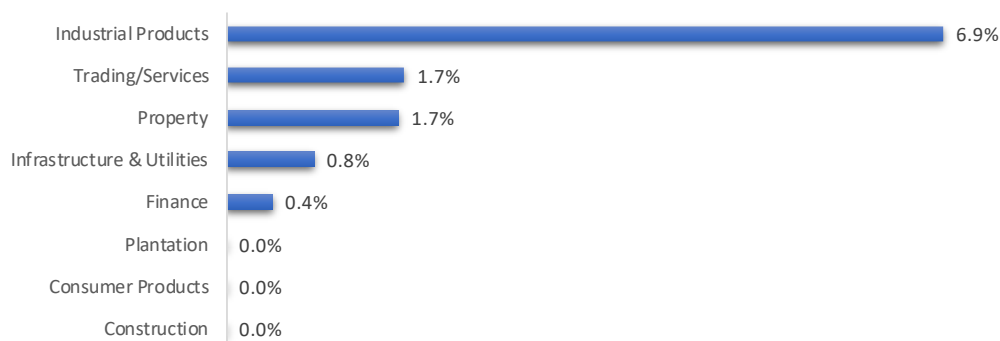
Year	AAA	AA	A	BBB	BB	B	High Grade	High Yield	All Corporate
2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2001	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2002	0.0%	16.7%	3.8%	0.0%	100.0%	0.0%	5.4%	25.0%	7.3%
2003	0.0%	0.0%	6.5%	0.0%	0.0%	0.0%	4.4%	0.0%	4.1%
2004	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2005	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	2.8%	0.0%	2.6%
2006	0.0%	6.3%	11.9%	33.3%	100.0%	0.0%	9.5%	40.0%	11.2%
2007	0.0%	10.0%	13.1%	33.3%	0.0%	0.0%	11.0%	16.7%	11.3%
2008	0.0%	0.0%	5.3%	100.0%	0.0%	0.0%	3.4%	50.0%	7.2%
2009	0.0%	3.7%	4.3%	33.3%	25.0%	0.0%	3.4%	22.2%	5.1%
2010	0.0%	12.5%	14.7%	0.0%	33.3%	33.3%	10.8%	22.2%	12.0%
2011	0.0%	13.0%	17.2%	0.0%	0.0%	0.0%	11.4%	0.0%	10.3%
2012	0.0%	9.5%	19.0%	22.2%	33.3%	50.0%	9.4%	28.6%	12.8%
2013	4.5%	4.8%	20.0%	0.0%	0.0%	0.0%	8.6%	0.0%	7.5%
2014	0.0%	3.8%	22.2%	25.0%	0.0%	0.0%	5.6%	11.1%	6.3%
2015	5.0%	0.0%	33.3%	16.7%	33.3%	0.0%	7.3%	20.0%	9.2%
2016	0.0%	3.1%	20.0%	16.7%	33.3%	0.0%	3.6%	20.0%	6.1%
2017	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	1.8%	0.0%	1.5%
2018	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	12.5%	1.4%
Arithmetic Mean	0.5%	4.4%	11.6%	14.8%	18.9%	7.0%	5.2%	14.1%	6.1%
Standard Deviation	1.5%	5.4%	9.9%	24.6%	31.9%	17.0%	4.0%	15.1%	4.3%
Coefficient of Variation	299.9%	123.4%	85.8%	166.4%	169.1%	241.6%	77.9%	106.9%	70.9%

Source: MARC Fixed Income Research

Zero defaults in 2018

There were no defaulted issuers in 2018, given that most issuers are concentrated in the investment grade category. As a result, the long-term annual corporate default rate fell marginally to 2.0% from 2.1% in the preceding period. Meanwhile, high-grade and high-yield long-term default rates stood at 0.8% and 8.5%. Across sectors, the industrial products sector has the highest long-term weighted average default rate of 6.9%.

Figure 12: Corporate default rates by industry: long-term average



Source: MARC Fixed Income Research

Figure 13: Annual corporate default rates by rating band

Year	AAA	AA	A	BBB	BB	B	C	High Grade	High Yield	All Corporate
2000	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	33.3%	10.0%
2001	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	33.3%	4.3%
2002	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2003	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2004	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2005	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%	2.6%
2006	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	1.1%
2007	0.0%	0.0%	3.3%	33.3%	0.0%	50.0%	0.0%	1.1%	33.3%	4.1%
2008	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	1.0%
2009	0.0%	0.0%	6.4%	33.3%	0.0%	50.0%	0.0%	3.4%	22.2%	5.0%
2010	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.2%
2011	0.0%	0.0%	3.4%	0.0%	0.0%	33.3%	0.0%	1.4%	12.5%	2.5%
2012	0.0%	0.0%	0.0%	11.1%	0.0%	0.0%	0.0%	0.0%	7.1%	1.3%
2013	0.0%	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	1.5%
2014	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	11.1%	1.6%
2015	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2016	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2017	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	9.1%	1.5%
2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arithmetic Mean	0.0%	0.0%	1.6%	9.2%	0.0%	7.0%	5.3%	0.9%	9.6%	2.0%
Standard Deviation	0.0%	0.0%	2.2%	15.9%	0.0%	17.0%	22.9%	1.1%	12.6%	2.5%
Coefficient of Variation	0.0%	0.0%	141.2%	172.1%	0.0%	241.6%	435.9%	115.4%	131.8%	125.3%

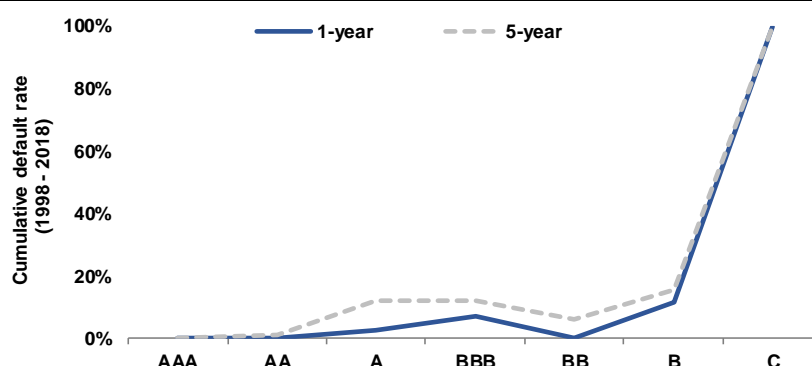
Source: MARC Fixed Income Research

Figure 14: Cumulative default rates by rating band: 1998 – 2018

Rating band	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	0.0%	0.0%	0.0%	0.3%	0.8%	1.3%	1.9%	2.2%	2.4%	2.7%
A	2.4%	5.3%	8.3%	10.2%	11.8%	12.6%	13.0%	13.2%	13.2%	13.2%
BBB	7.1%	9.5%	9.5%	10.7%	11.9%	14.3%	15.5%	15.5%	15.5%	15.5%
BB	0.0%	2.9%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
B & Lower	14.8%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%
High Grade	1.1%	2.4%	3.7%	4.7%	5.5%	6.1%	6.4%	6.6%	6.7%	6.8%
High Yield	6.8%	9.6%	10.3%	11.0%	11.6%	13.0%	13.7%	13.7%	13.7%	13.7%
All Corporate	1.7%	3.2%	4.4%	5.4%	6.2%	6.9%	7.3%	7.4%	7.5%	7.6%

Source: MARC Fixed Income Research

Figure 15: Effectiveness of MARC's corporate ratings as default predictor: 1998 – 2018



Source: MARC Fixed Income Research

Figure 16: List of defaulted issuers since inception in 1998

Year Announced	Issuers	First Rating	Rating 1-year Prior to Default	Last Rating Prior to Default
2000	MOCCIS Trading Sdn Bhd	BBB	BBB	BBB
2001	Johor City Development Sdn Bhd*	AA-	AA-	AA-
2005	ABI Malaysia Sdn Bhd	A	A	A-
2005	Pesaka Astana (M) Sdn Bhd	A+	A+	A+
2006	Maxisegar Sdn Bhd	A	A	BB
2007	Paradym Resources Industries Sdn Bhd	A-	A	BB
2007	Sistem-Lingkar Lebuhraya Kajang Sdn Bhd	A	B-	B-
2007	ACE Polymers (M) Sdn Bhd	A	A-	BBB-
2007	Peremba Jaya Holdings Sdn Bhd	A	BBB-	C
2008	Evermaster Group Bhd	A	A-	BB-
2009	Tracoma Holdings Bhd	A	B	C
2009	Englotechs Holdings Bhd	A	BBB-	BB
2009	Ingress Sukuk Bhd	A+	A	C
2009	Oilcorp Bhd	A	A-	C
2009	Malaysia International Tuna Port Sdn Bhd	A+	A	C
2010	Malaysia Merchant Marine Bhd	A+	A+	BB+
2011	Dawama Sdn Bhd	A	A-	C
2011	Mithril Bhd	BBB	B+	B
2012	Maxtral Industry Bhd	A	BBB-	BB
2013	Perwaja Steel Sdn Bhd	A	A-	C
2014	Kinsteel Bhd	A	A-	C
2017	Alam Maritim Resources Bhd	AA-	BBB+	BB+

*The list above excludes confidentially rated defaults

Source: MARC Fixed Income Research

Rating Transition

MARC assigns ratings based on its assessments of the relative likelihood of default which reflects a combination of both qualitative and quantitative considerations. In other words, the rating summarises the relative ability of issuers to meet the obligations fully and on a timely basis, both in terms of interest payments and principal repayments. Thus, the rating should be seen as ordinal measures of credit risk, rather than predictive indicators of actual, cardinal default rates. In assessing credit ratings of an issuer, relevant industry risks are taken into account from both short- and long-term perspectives. Nevertheless, rating movement may also be impacted by other structural developments, which most of the time are due to idiosyncratic developments affecting a specific issuer.

Similar to the methodology used to calculate annual default rates, the calculation of rating transition rates also compares the ratings of issuers at the beginning of the time period (January 1) with ratings at the end of the time period (December 31); as such, multiple rating migrations within the period are not taken into consideration. Multiple counts of an issuer, however, are possible. That is, an issuer that stays in the rating universe for more than one year will continue to be captured year-in, year-out as long as it has not been withdrawn from the rating universe. For example, if MARC began rating one issuer in 1997 and if its issue had not been withdrawn from the universe until 2018, then this issuer would appear in 21 consecutive 1-year transition tables from 1998 to 2018.

An examination of the rating transitions as depicted in Figures 17 – 22 were done at the broad rating category, i.e. from “AAA” to “AA”, as opposed to the transitions at the modifier level i.e. “AAA” to “AA+”. Nevertheless, for transparency purposes, MARC has also computed the transition matrices at the modifier level which are attached in Appendix III.

Rating transitions rates are comparable to cumulative default rates. However, given the significant sample constraints in MARC’s universe, in particular the high-yield segment, caution should be exercised when interpreting the following statistics:

- Over the long term (1998 – 2018), 94.5% of MARC’s AAA-rated credits maintained their ratings at the end of one year, whereas the comparable share for BBB-rated credits was only 60.7% (see Figure 17). This is not surprising due to the fact that the incidence of rating changes tends to be lower in higher ratings than in lower ratings.
- The same relationship holds even after adjusting for withdrawn issuers (see Figure 18). Rating stability rates for the “AAA”, “AA” and “A” bands stood at 98.8%, 95.5% and 88.5%, a reflection of the strong positive relationship between the ratings of high-grade credits and long-run ratings stability. In the case of the high-yield group, the small sample size has contributed to counter-intuitive ratings stability measures, with no specific correlation between ratings stability and credit rating. The long-term ratings stability rates for the “BBB”, “BB” and “B” bands came in at 78.5%, 84.4% and 81.0%.

Figure 17: One-year cumulative rating transition matrix: 1998-2018

From / To	AAA	AA	A	BBB	BB	B	C	NR	Default
AAA	94.5%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%
AA	1.1%	90.3%	3.2%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%
A	0.0%	2.6%	76.8%	4.3%	0.6%	0.0%	0.2%	13.2%	2.4%
BBB	0.0%	0.0%	4.8%	60.7%	3.6%	1.2%	0.0%	22.6%	7.1%
BB	0.0%	0.0%	0.0%	0.0%	77.1%	14.3%	0.0%	8.6%	0.0%
B	0.0%	0.0%	0.0%	0.0%	0.0%	65.4%	3.8%	19.2%	11.5%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

*the abbreviation ‘NR’ indicates withdrawn ratings

Source: MARC Fixed Income Research

Figure 18: One-year cumulative rating transition matrix: 1998–2018 (NR adjusted)

From / To	AAA	AA	A	BBB	BB	B	C	Default
AAA	98.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	1.1%	95.5%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
A	0.0%	2.9%	88.5%	5.0%	0.7%	0.0%	0.2%	2.7%
BBB	0.0%	0.0%	6.2%	78.5%	4.6%	1.5%	0.0%	9.2%
BB	0.0%	0.0%	0.0%	0.0%	84.4%	15.6%	0.0%	0.0%
B	0.0%	0.0%	0.0%	0.0%	0.0%	81.0%	4.8%	14.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: MARC Fixed Income Research

Figure 19: Two-year cumulative rating transition matrix: 1998–2018 (NR adjusted)

From / To	AAA	AA	A	BBB	BB	B	C	Default
AAA	97.6%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	2.2%	91.2%	6.3%	0.2%	0.0%	0.0%	0.0%	0.1%
A	0.0%	5.4%	78.7%	8.3%	1.4%	0.2%	0.2%	5.8%
BBB	0.0%	0.2%	10.3%	61.9%	7.6%	3.2%	0.1%	16.9%
BB	0.0%	0.0%	0.0%	0.0%	71.2%	25.8%	0.7%	2.2%
B	0.0%	0.0%	0.0%	0.0%	0.0%	65.5%	3.9%	30.6%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: MARC Fixed Income Research

Figure 20: Three-year cumulative rating transition matrix: 1998–2018 (NR adjusted)

From / To	AAA	AA	A	BBB	BB	B	C	Default
AAA	96.4%	3.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	3.2%	87.3%	8.7%	0.4%	0.1%	0.0%	0.0%	0.3%
A	0.1%	7.5%	70.3%	10.4%	2.1%	0.5%	0.2%	8.9%
BBB	0.0%	0.5%	12.9%	49.1%	9.3%	4.7%	0.2%	23.4%
BB	0.0%	0.0%	0.0%	0.0%	60.1%	32.0%	1.2%	6.7%
B	0.0%	0.0%	0.0%	0.0%	0.0%	53.1%	3.1%	43.8%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: MARC Fixed Income Research

Figure 21: Four-year cumulative rating transition matrix: 1998–2018 (NR adjusted)

From / To	AAA	AA	A	BBB	BB	B	C	Default
AAA	95.3%	4.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	4.2%	83.6%	10.7%	0.8%	0.1%	0.0%	0.0%	0.6%
A	0.2%	9.2%	63.1%	11.7%	2.7%	0.9%	0.2%	12.1%
BBB	0.0%	0.8%	14.4%	39.1%	10.2%	6.0%	0.3%	29.1%
BB	0.0%	0.0%	0.0%	0.0%	50.7%	35.3%	1.5%	12.5%
B	0.0%	0.0%	0.0%	0.0%	0.0%	42.9%	2.5%	54.5%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: MARC Fixed Income Research

Figure 22: Five-year cumulative rating transition matrix: 1998–2018 (NR adjusted)

From / To	AAA	AA	A	BBB	BB	B	C	Default
AAA	94.1%	5.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
AA	5.1%	80.2%	12.3%	1.1%	0.2%	0.1%	0.0%	1.0%
A	0.3%	10.6%	56.8%	12.3%	3.3%	1.3%	0.2%	15.2%
BBB	0.0%	1.2%	15.2%	31.4%	10.5%	7.1%	0.3%	34.2%
BB	0.0%	0.0%	0.0%	0.0%	42.8%	36.5%	1.7%	19.0%
B	0.0%	0.0%	0.0%	0.0%	0.0%	34.8%	2.0%	63.2%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

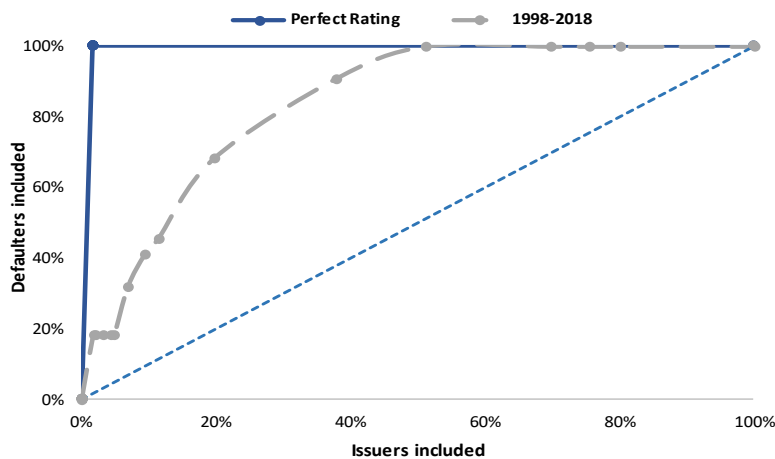
Source: MARC Fixed Income Research

Cumulative Accuracy Profile (CAP) and Accuracy Ratio

MARC uses CAP to measure rating performances. To construct the CAP graph, rating and default data are arranged from the lowest rating category (rated “B” & below here because of sample size constraints) to the highest category (rated “AAA”). The cumulative share of defaulters is then plotted against the cumulative share of issuers by rating until all issuers and defaulters are included (See Appendix I for details of the methodology). Rating accuracy ratios reported in this study measure MARC’s ability to predict defaults one year ahead.

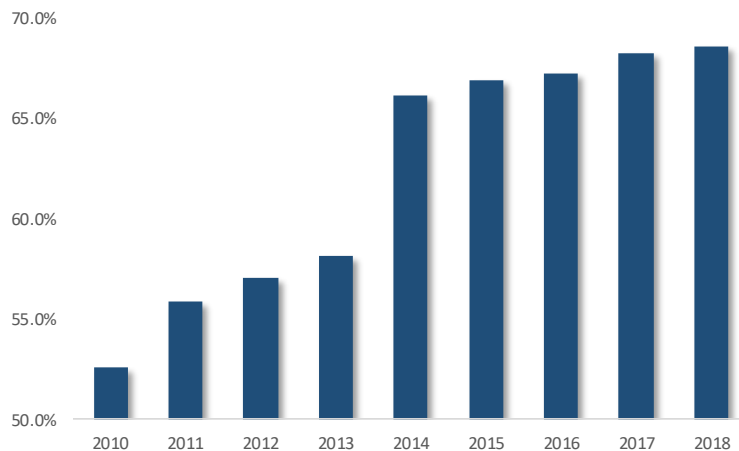
MARC’s one-year ratings accuracy ratio has improved over the years with the absence of severe negative rating actions or rating cliffs. For the period 1998-2018, the one-year accuracy ratio edged up to 68.6% from 68.3% for the period 1998-2017. At the same time, the one-year accuracy ratio over the period of three and five years stood at 72.6% (2017: 70.1%) and 85.4% (2017: 79.0%). These indicate that MARC’s ratings have demonstrated an improvement in the effectiveness of its ratings as a measure of relative default risk.

Figure 23: One-year CAP curve: 1998-2018



Source: MARC Fixed Income Research

Figure 24: Long-term one-year accuracy ratio



Source: MARC Fixed Income Research

Path to Default from Original Rating and Last Rating

For all issuers that defaulted since 2000, the average time to default from the original rating was 4.4 years, with a median of 3.8 years. For defaulters in the high-grade category, it took an average of 4.6 years to default from their initial rating, with a median of 4.1 years. As expected, high-yield issuers took a shorter time to default, with an average and median of 3.3 years and 1.5 years.

When examining the average time to default from prior rating bands, MARC's ratings have again proven to be effective in predicting defaults. This can be seen when comparing the time to default between high-grade issuers and high-yield issuers. In the former, it took an average of 1.8 years while for the latter, it took an average of 0.4 years. This also implies that most defaulters had been downgraded by MARC to the high-yield category before the default event.

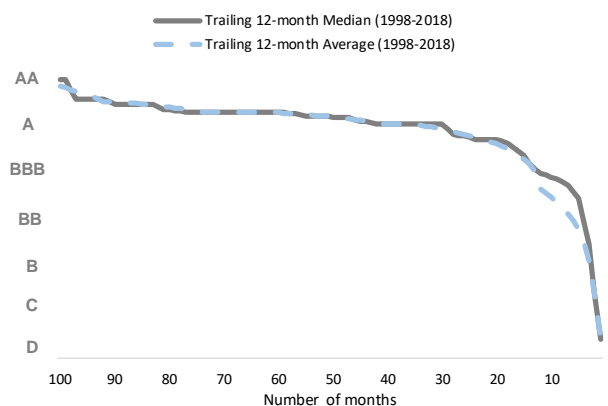
Figure 25: Average time to default and default rating path (number of months)

Original Band	Defaulted Issuers	Average Months from Original Rating	Median Months from Original Rating
AAA	0	n.a.	n.a.
AA	2	100	100
A	17	50	43
BBB	3	40	18
BB	0	n.a.	n.a.
B	0	n.a.	n.a.
C	0	n.a.	n.a.
High Grade	19	55	49
High Yield	3	40	18
All Corporate	22	53	45

Band Prior to Default	Defaulted Issuers	Average Months from Last Rating	Median Months from Last Rating
AAA	0	n.a.	n.a.
AA	0	n.a.	n.a.
A	2	22	22
BBB	4	10	10
BB	6	1	1
B	2	16	16
C	8	2	1
High Grade	2	22	22
High Yield	20	5	4
All Corporate	22	6	6

Source: MARC Fixed Income Research

Figure 26: Number of months prior to default



Source: MARC Fixed Income Research

Predominantly Stable Ratings Trajectories in 2019

Malaysian non-financial corporates are likely to face challenges in sustaining their performances in line with the weaker prospects for the Malaysian economy as well as the externally challenging environment in 2019. The weaker performance is likely to exert pressure on the rating trajectories of MARC-rated non-financial corporates. In particular, corporates in the property, construction and palm oil sectors are expected to be more vulnerable to headwinds. On balance, however, there is generally enough headroom within the rating bands to allow performance stress to be absorbed without necessitating severe rating changes. As such, MARC expects its ratings trajectories to be predominantly stable in 2019.

Appendix I: Data and Methodologies

This long-term corporate default and rating transitions study uses MARC's database of national scale issuer credit ratings which reflect MARC's independent opinion of an issuer's ability to meet its debt obligations. The relative likelihood of default is indicated by the rating level assigned to the affected issuers, the rating outlook attached as well as the watchlist assigned. To truly reflect an issuer's standalone credit rating, issuing subsidiaries and affiliates were removed where their ratings have a direct relation to their parent company ratings and are being rated on par with the parent's. Credit enhancements such as bank guarantees, corporate guarantees and financial guarantees have been disregarded when assessing the issuer's standalone credit rating. Only issuers with implicit long-term ratings are included in this study, whereas issuers with only short-term ratings are removed for this study. Issuers that only issued structured finance instruments are also excluded. Furthermore, issuers domiciled in foreign countries are also eliminated in this study due to constraints of using a local rating scale.

This study analyses the rating histories of 227 corporate issuers that were rated by MARC between 1996 and 2018. MARC conducts its analysis of rating transitions and defaults at the issuer level in line with international practice. Each study captures the history of corporate ratings from December 1997 onwards through December 31 of the year indicated for the default study, thus ensuring consistency in the statistical reporting. Data enhancement efforts which are being continuously carried out to ensure a certain degree of transparency and integrity may lead to different outcomes from one report to another. This study is self-contained and should supersede previous ones. A major challenge to this study is the extremely small sample size, particularly in high-yield ratings; as a result, some of the statistics could not be divided for investment grade and high-yield analysis as the small number of observations would be statistically insignificant.

MARC's long-term rating scale has a single "C" rating level between "B-" and "D", compared to global rating agencies which typically have three intermediate categories i.e. "CCC", "CC" and "C". Also, within the three categories, the practice is to append modifiers (+/-) or 1, 2, and 3 to each generic rating.

Default Definition

(Specifically prescribed for MARC's Default and Rating Transitions Study: 1998-2018)

- Issuers will be rated 'D' upon default. Distressed obligations are typically rated along the continuum of 'B' to 'C' rating categories. In situations where analysis indicates that an instrument is irrevocably impaired where the issuer is not expected to meet payments 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.
- 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 a default rating consistent with MARC's published definition of default is the most appropriate rating to assign.
- Default is defined as one of the following:
 - ✓ 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);
 - ✓ Bankruptcy filings, administration, receivership, liquidation, winding-up or cessation of business of an issuer/obligor; or
 - ✓ 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.

Default Rate Calculation

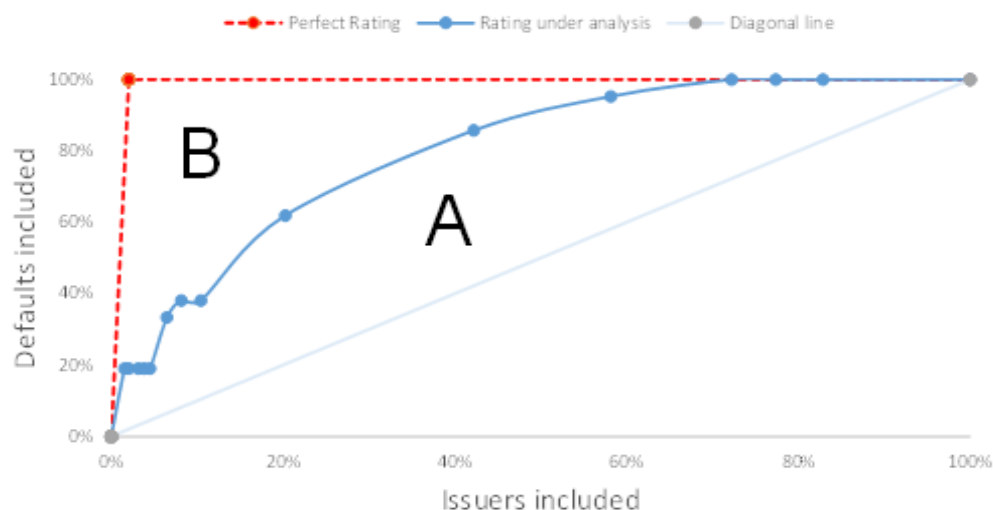
- The default rate used in MARC's Corporate Default Study is defined as the number of defaulted among rated corporates during a specified period, expressed as a percentage of the total number of outstanding ratings after adjusting for rating withdrawals.
- Rating withdrawals are removed from the default rate calculation as corporates who have their ratings withdrawn are no longer at risk of default over the measurement period. Hence, there are three possible scenarios that need to be modelled to predict the default rate under the scope of MARC's Corporate Default Study: survival to the next time period, rating withdrawal and defaulted issuer.

CAP and Accuracy Ratio

To construct the CAP graph, the rating and default data are arranged from the lower rating category (B & below) to the highest category (AAA). Subsequently, the fraction of all defaulters that occurred among borrowers rated B & below are plotted against the fraction of all issuers that are rated B & below. This gives us the first point of the curve. Similarly, the second point of the curve is obtained by plotting the fraction of all defaulters that occurred among borrowers rated B+ & below against the fraction of all issuers that are rated B+ & below. Then, the cumulative share of defaulters is plotted again against the cumulative share of issuers by rating until all issuers and defaulters are included (AAA & below).

If MARC's rating methodology does not differentiate credit risk profile at all, then the CAP curve would lie along the diagonal line (45-degree straight line). In this case, its accuracy ratio, which summarises the statistical information in the CAP curve, would be 0%. In contrast, if MARC's rating methodology perfectly ranks issuers according to default risk, all default cases would only occur in the worst rating category. In this case, the CAP would capture all areas above the diagonal line and the accuracy ratio would be equal to 100%. We compute the accuracy ratios by dividing area A (MARC's rating under analysis) over area A + B (perfect rating model).

Figure 27: CAP curve



Source: MARC Fixed Income Research

Appendix II: Details on 2018 Rating Migrations

Main Sector	Issuer Name	Date Announced	Rating Action	Rating (Before)	Rating (After)
Construction	Talam Corporation Bhd	28-Sep-18	DOWNGRADED	B-	C

*The list above excludes rating migrations of confidentially rated issuers

Source: MARC Fixed Income Research

Appendix III: One-year Rating Migrations at Modifier Level

From / To	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	C	NR	Default
AAA	94.5%	0.8%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%
AA+	6.6%	88.5%	16%	16%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16%	0.0%
AA	0.0%	4.1%	82.2%	2.7%	14%	14%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.2%	0.0%
AA-	0.0%	0.0%	2.5%	87.8%	3.4%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.5%	0.0%
A+	0.0%	0.0%	0.6%	6.5%	68.0%	5.9%	2.4%	0.6%	12%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	13.0%	12%
A	0.0%	0.0%	0.0%	0.4%	6.0%	71.4%	4.7%	17%	0.0%	17%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	11.5%	2.1%
A-	0.0%	0.0%	0.0%	0.0%	0.0%	7.5%	58.5%	6.6%	19%	19%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	17.0%	4.7%
BBB+	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	34.6%	15.4%	3.8%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	23.1%	3.8%
BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	53.1%	9.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.1%	6.3%
BBB-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	3.8%	53.8%	7.7%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	11.5%
BB+	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	62.5%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%
BB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	86.7%	6.7%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%
BB-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	58.3%	8.3%	16.7%	8.3%	0.0%	8.3%	0.0%
B+	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	20.0%	20.0%	0.0%	20.0%	0.0%
B	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	44.4%	22.2%
B-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	75.0%	8.3%	0.0%	8.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: MARC Fixed Income Research

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