

DATA REPORT

25 September 2017

Rate this Research



TABLE OF CONTENTS

Summary	1
Introduction	2
I. Data and Methodology	4
II. Metrics by Rating Category Aggregated Across All Industries	4
III. Industry Study	6
IV. Discussion	18
Appendix A	20
Appendix B	43
Appendix C	44

Analyst Contacts

Sumair Irfan 212-553-1035
Associate Analyst/
MDG
sumair.irfan@moodys.com

Joyce Jiang 212-553-1659
Associate Analyst/
MDG
joyce.jiang@moodys.com

Satya Adusumilli +1.212.553.4380
Associate Analyst/
MDG
satya.adusumilli@moodys.com

Sharon Ou 212-553-4403
VP-Sr Credit Officer/
Mgr/MDG
sharon.ou@moodys.com

CLIENT SERVICES

Americas 1-212-553-1653
Asia Pacific 852-3551-3077
Japan 81-3-5408-4100
EMEA 44-20-7772-5454

Non-Financial Corporates

Moody's Financial Metrics™ Key Ratios by Rating and Industry for Global Non-Financial Corporates: December 2016

Summary

This paper outlines key financial ratios across industries for global non-financial, non-utility corporations. The global universe includes companies from EMEA, Asia and the Americas and the ratios are based on the most recent fiscal year-end data. In addition to presenting these ratios by each rating and industry combination, we also focus on the Baa-rated issuers across industries to deepen our analysis.

The underlying data are taken from Moody's Financial Metrics™, a data and analytics platform that provides as-reported and adjusted financial data, ratios, models and interactive rating methodologies. The adjustments are described in detail in [Moody's Approach to Global Standard Adjustments in the Analysis of Financial Statements for Non-Financial Corporations](#).

A companion spreadsheet containing the data presented in this report is available [here](#).

Introduction

The metrics presented are:

- » EBITA / Average Assets
- » EBITA / Interest Expense
- » EBITA Margin
- » Operating Margin
- » (FFO + Interest Expense) / Interest Expense
- » FFO / Debt
- » RCF / Net Debt
- » Debt / EBITDA
- » Debt / Book Capitalization
- » CAPEX / Depreciation Expense
- » Revenue Volatility

These eleven metrics provide a useful and foundational set of metrics for comparative analysis, with broad applications both across regions and, pertinent to this study, across industries. Combinations of these ratios, sometimes further modified by non-public data, are used in our rating methodologies in conjunction with industry-specific measures and subjective judgments. We emphasize, however, that this report is not intended to describe Moody's rating process. Ratio analysis is but one part of Moody's analytical process. Qualitative and forward-looking considerations are also important. Interested readers are referred to Moody's rating methodologies for detailed discussions of our analytical approach and core ratios for each industry. When Moody's does analyze financial ratios, it uses a multivariate approach. As a result, a simple monotonic relationship between ratings and any single ratio should not generally be expected at the industry level.

Section I of the report describes the data and methodology. Section II presents a brief review of the distribution of these metrics in the aggregate by rating category – that is, without regard to industry classification. Results for all Baa-rated issuers by industry are presented in Section III, with subsections devoted to each of the eleven metrics. Section IV contains some brief discussion and analysis. Each exhibit in Appendix A focuses on a single financial metric and shows how its summary statistics vary across industries and across rating categories. Definitions of the ratios are provided in Appendix B, while descriptions of the industry aggregates are presented in Appendix C.

Our analysis shows the following:

- » The median for EBITA Margin, for Operating Margin, for (FFO + Interest Expense)/Interest Expense, and for RCF/Net Debt follows a monotonic relationship with ratings, while the other metrics do not (see Exhibit 1).
- » Among Baa-rated issuers, those from the following industries generally have stronger-than-average metrics (see Exhibit 14):
 - Automotive
 - Healthcare
 - Transportation
- » Among Baa-rated issuers, those from the following industries generally have weaker-than-average metrics (see Exhibit 14):
 - Energy & Environment
 - Aerospace & Defense
 - Retail & Distribution

I. Data and Methodology

The data in this study are adjusted financial data, which are extracted from the most recently available fiscal year-end filings in Moody's Financial Metrics™ as of July 2017. The metrics that we study include measures of coverage, leverage, cash flow-to-debt, profitability and revenue stability. Please consult Appendix B and the references for a detailed discussion and definitions.

All issuers in the sample are rated by Moody's. The reported ratings refer to the corporate family ratings for speculative-grade issuers and the senior unsecured or equivalent ratings for investment-grade issuers as of the reporting date.¹ Government-Related Issuers (GRIs) are excluded from the sample. Industry classifications are based on proprietary Moody's sector assignments. For descriptions, please see Appendix C.

Exhibit 27 compares the most recent metrics against the 2015 data. Note that the 2015 numbers are calculated from the most recently available data and may not match formerly published numbers. Also, note that the table reports the change in median metrics for each industry among Baa rated issuers. As a result, we may see different compositions of issuers for each industry from year to year.²

II. Metrics by Rating Category Aggregated Across All Industries

In this section we examine some of the properties of these metrics in the aggregate, that is, without regard to industry classification. In all cases, the statistics we report are medians. We consider the distribution of these metrics by broad rating category.

Exhibit 1 summarizes our findings. We make the following observations:

- » The median for EBITA Margin, for Operating Margin, for (FFO + Interest Expense)/Interest Expense, and for RCF/Net Debt follows a monotonic relationship with ratings, while the other metrics do not.

Exhibit 1

Aggregate Metrics by Rating Category

	EBITA / Average Assets	EBITA / Interest Expense	EBITA Margin	Operating Margin	(FFO + InExp) / IntExp	FFO / Debt	Retained Cash Flow / Net Debt	Debt / EBITDA	DEBT / Book Capitalization	CAPEX / Depreciation	Revenue Volatility
Aaa	12.3%	11.5	30.6%	25.4%	17.2	41.5%	31.4%	1.9	35.1%	1.1	6.8
Aa	10.2%	13.9	19.5%	17.4%	15.2	43.4%	30.1%	1.8	31.0%	1.3	8.6
A	10.8%	10.7	15.8%	14.9%	13.1	34.1%	27.3%	2.3	40.7%	1.3	7.4
Baa	8.7%	6.3	13.9%	12.0%	8.1	27.1%	25.3%	2.9	46.4%	1.2	10.7
Ba	8.5%	3.7	13.3%	11.5%	5.1	19.9%	19.7%	3.7	55.7%	1.2	14.3
B	6.7%	1.9	11.2%	9.0%	2.9	11.7%	11.5%	5.2	65.8%	1.1	18.7
Caa-C	4.1%	0.7	7.0%	4.6%	1.6	4.6%	5.1%	8.1	89.3%	0.8	18.9

Source: Moody's Financial Metrics™

III. Industry Study

In this section, we study these financial metrics by industry. We compare ratios for Baa-rated issuers only. We do this not only to make the presentation tractable, but also because not all industries are represented in all rating categories. For instance, eight industries have none or only one issuer in the Aa category. The Baa category is the best represented investment-grade rating category.

Exhibit 2 lists the industries covered in this report and the number of Baa rated issuers in each. Readers should keep the sample sizes in mind when reviewing industry based financial metrics as several industries only have a few Baa issuers as of December 2016. For descriptions of these industry classifications, please see Appendix C.

Exhibit 2

Industry Coverage

Industry	Count of Baa issuer
Aerospace & Defense	8
Automotive	16
Chemicals	35
Consumer Products	72
Energy & Environment	58
Healthcare	20
Manufacturing	55
Media	15
Metals & Mining	16
Retail & Distribution	36
Services	19
Telecommunications	54
Transportation	25

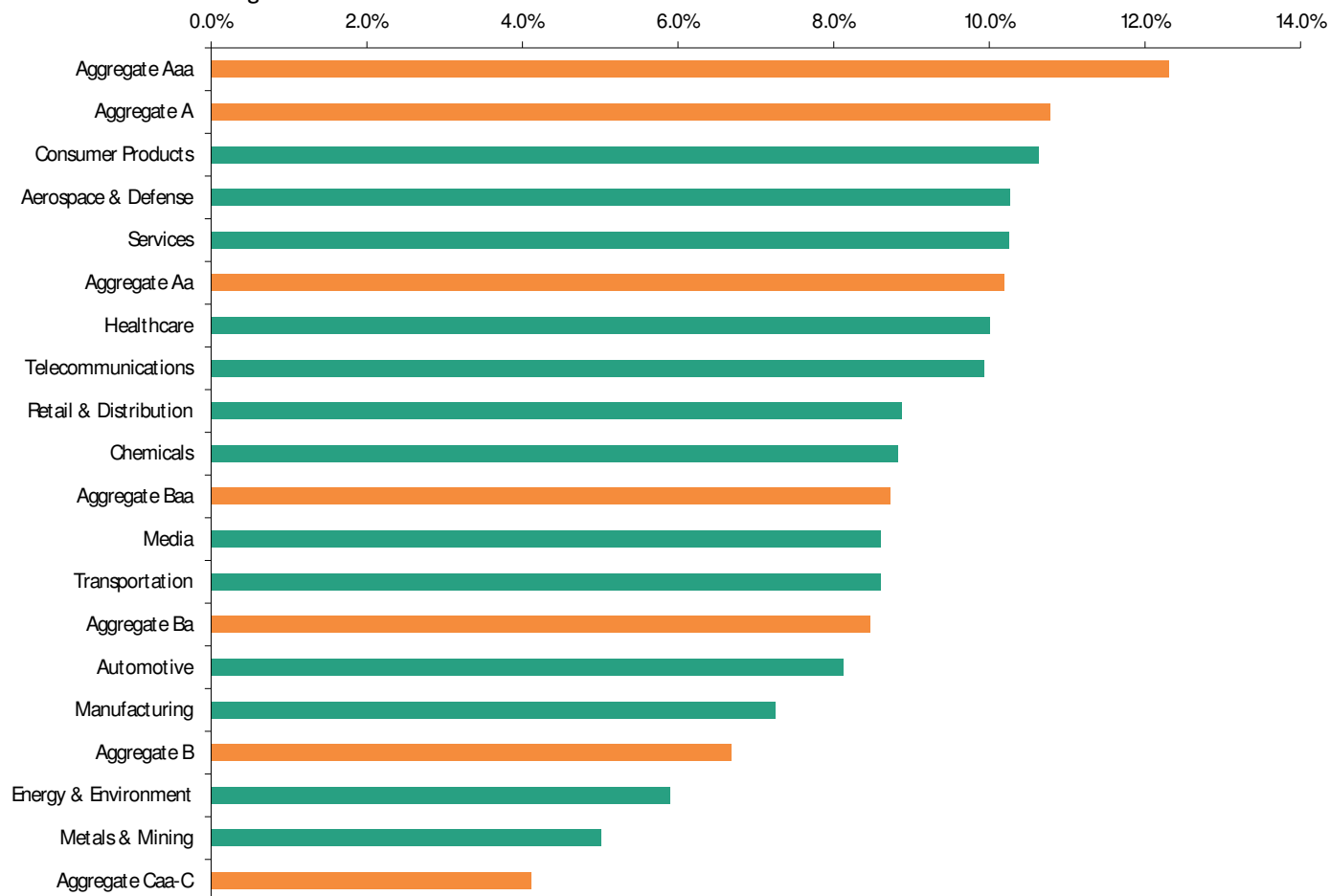
Source: Moody's Financial Metrics™

EBITA / Average Assets

Exhibit 3 sorts industries by their median Baa EBITA / Average Assets ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 3

Median Baa EBITA / Average Assets



Source: Moody's Financial Metrics™

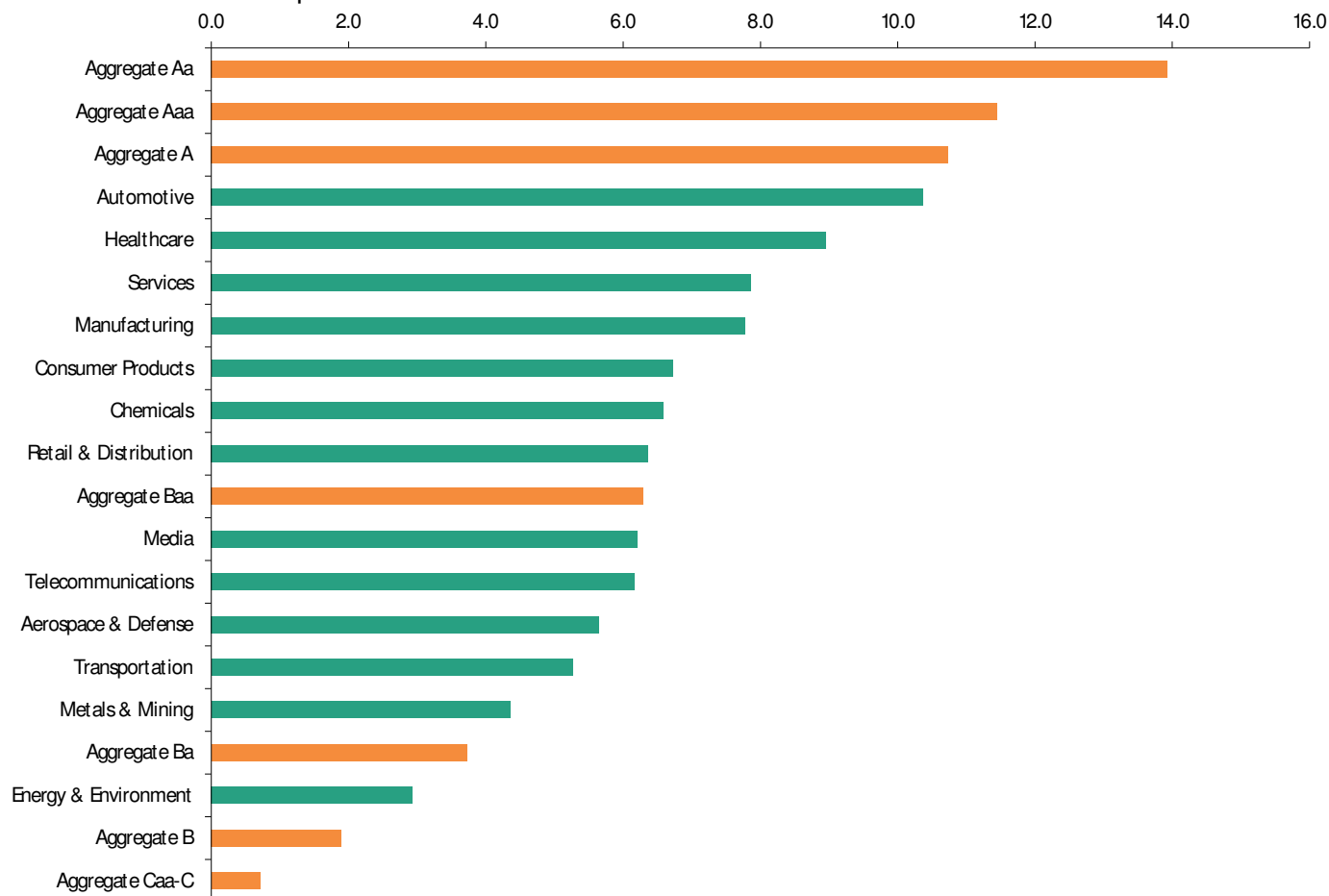
There is not a monotonic relationship between this ratio and ratings. The Consumer Products industry has the highest metric, while the Metals & Mining industry has the lowest metric.

EBITA / Interest Expense

Exhibit 4 sorts industries by their median Baa EBITA / Interest Expense ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 4

Median Baa EBITA / Interest Expense



Source: Moody's Financial Metrics™

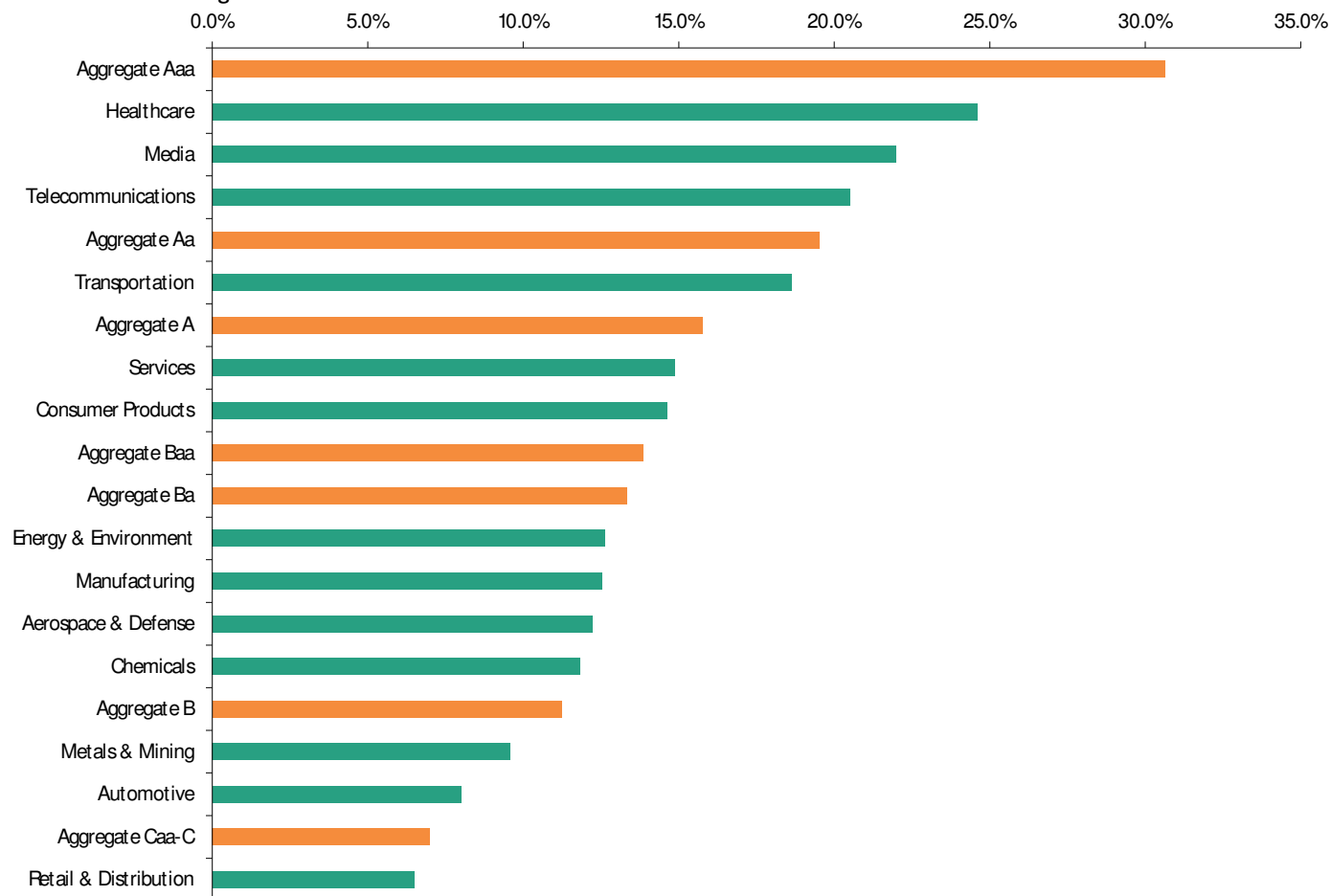
There is not a monotonic relationship between this ratio and ratings. The Automotive industry has the highest metric, while the Energy & Environment industry has the lowest metric.

EBITA Margin

Exhibit 5 sorts industries by their median Baa EBITA Margin ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 5

Median Baa EBITA Margin



Source: Moody's Financial Metrics™

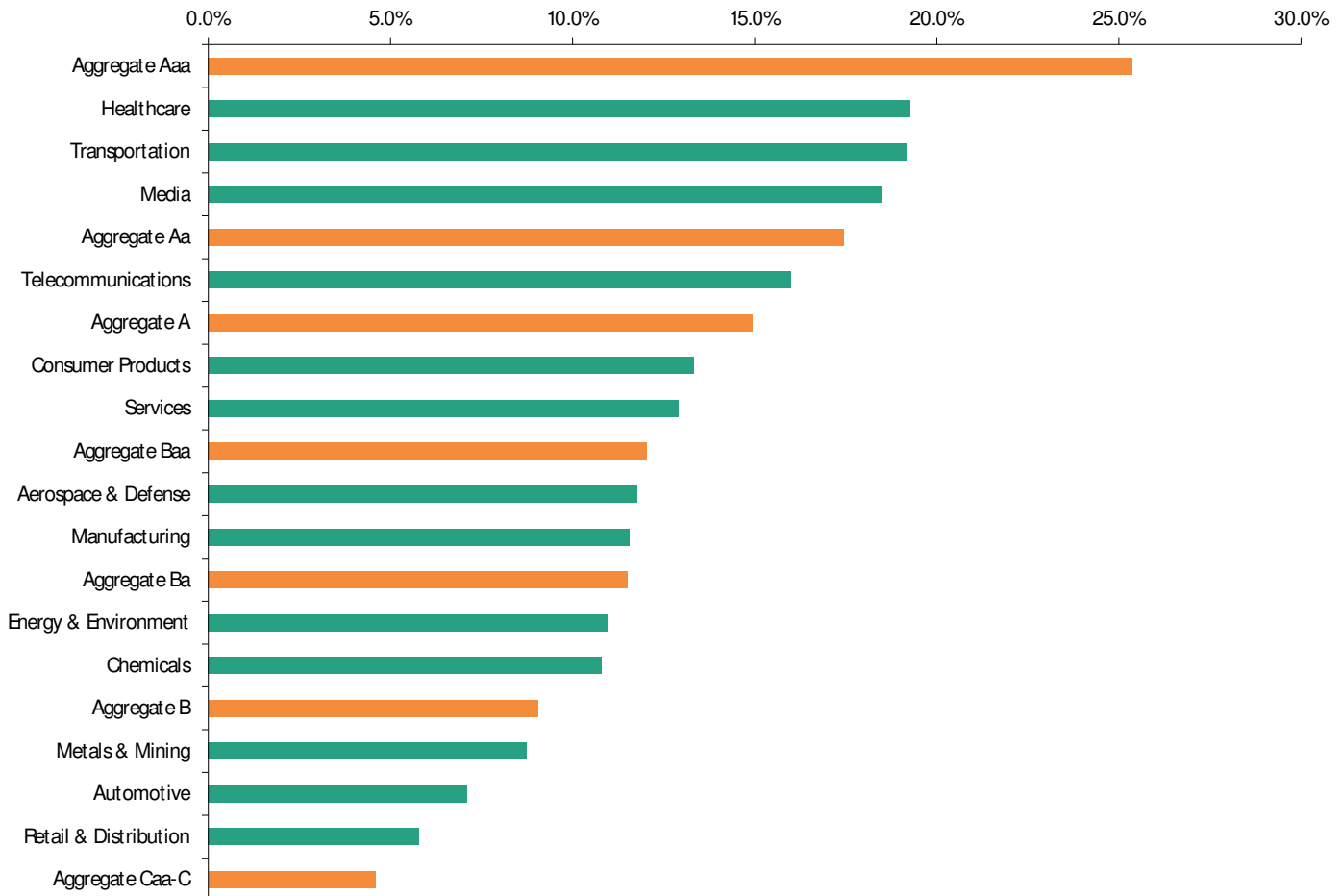
There is a monotonic relationship between this ratio and ratings. The Healthcare industry has the highest metric, while the Retail & Distribution industry has the lowest metric.

Operating Margin

Exhibit 6 sorts industries by their median Baa Operating Margin ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 6

Median Baa Operating Margin



Source: Moody's Financial Metrics™

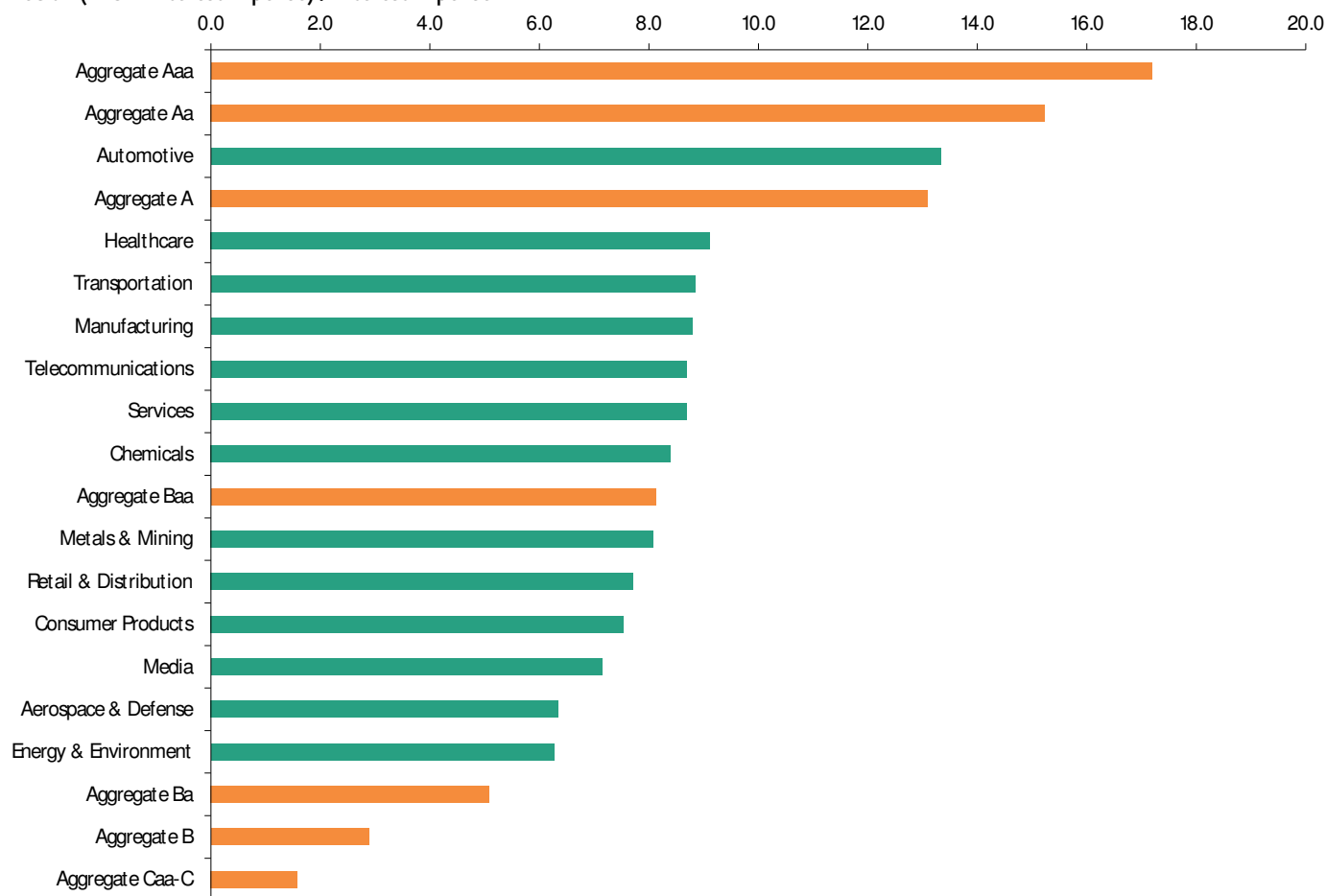
There is a monotonic relationship between this ratio and ratings. The Healthcare industry has the highest metric, while the Retail & Distribution industry has the lowest metric.

(FFO + Interest Expense) / Interest Expense

Exhibit 7 sorts industries by their median Baa (FFO + Interest Expense) / Interest Expense ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 7

Median (FFO + Interest Expense) / Interest Expense



Source: Moody's Financial Metrics™

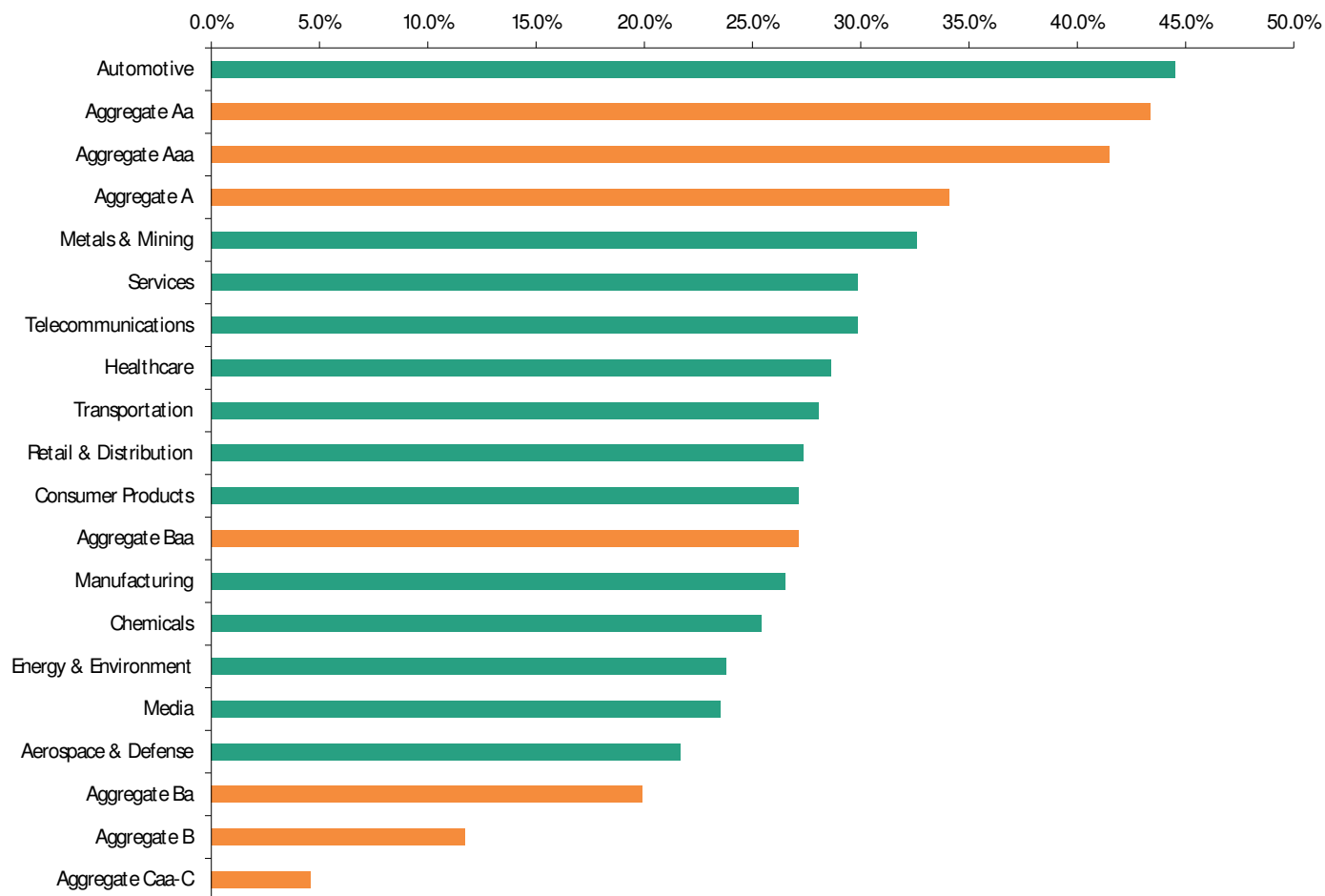
There is a monotonic relationship between this ratio and ratings. The Automotive industry has the highest metric, while the Energy & Environment industry has the lowest metric.

FFO / Debt

Exhibit 8 sorts industries by their median Baa FFO Debt ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 8

Median FFO / Debt



Source: Moody's Financial Metrics™

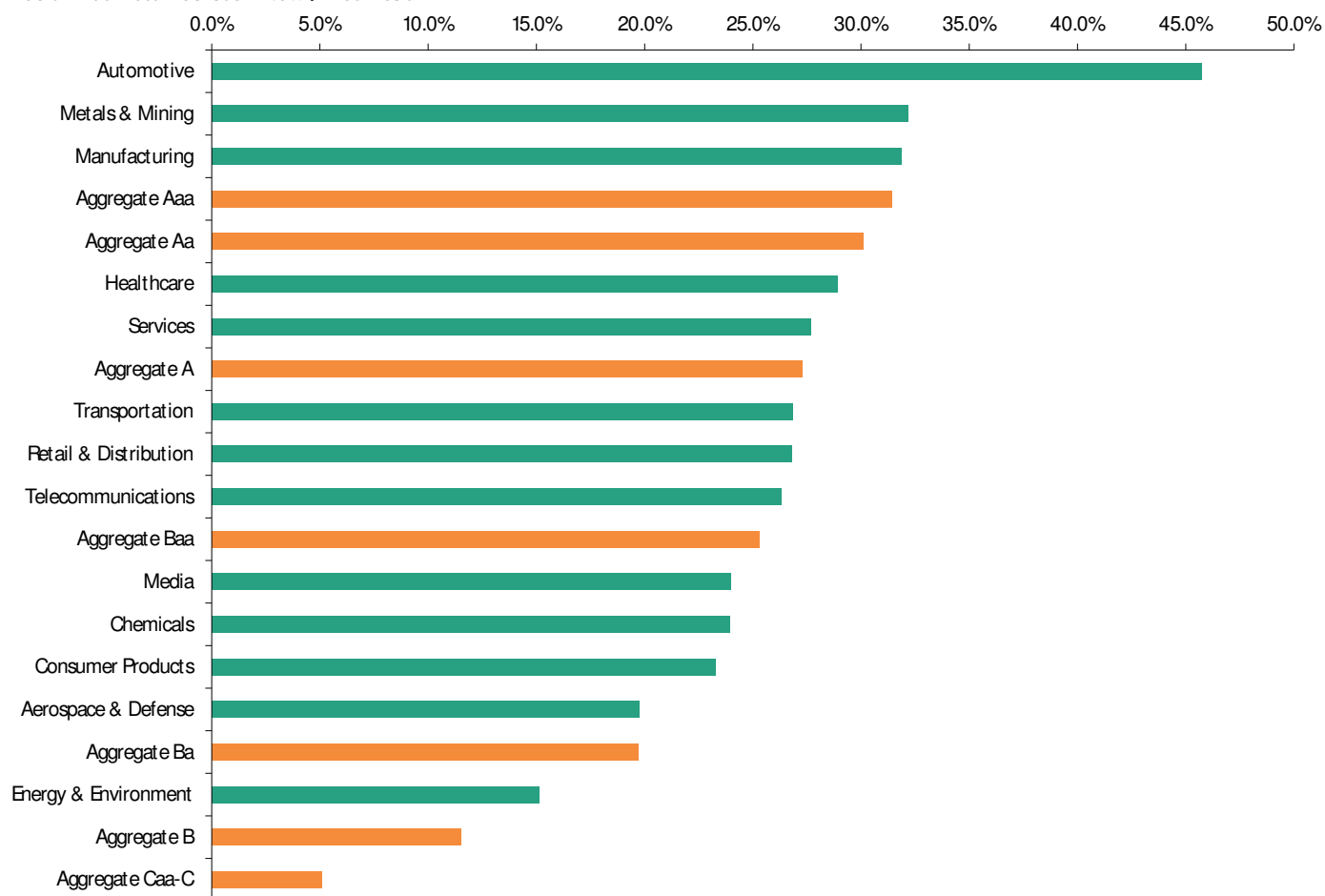
There is not a monotonic relationship between this ratio and ratings. The Automotive industry has the highest metric, while the Aerospace & Defense industry has the lowest metric.

Retained Cash Flow / Net Debt

Exhibit 9 sorts industries by their median Baa Retained Cash Flow / Net Debt ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 9

Median Baa Retained Cash Flow / Net Debt



Source: Moody's Financial Metrics™

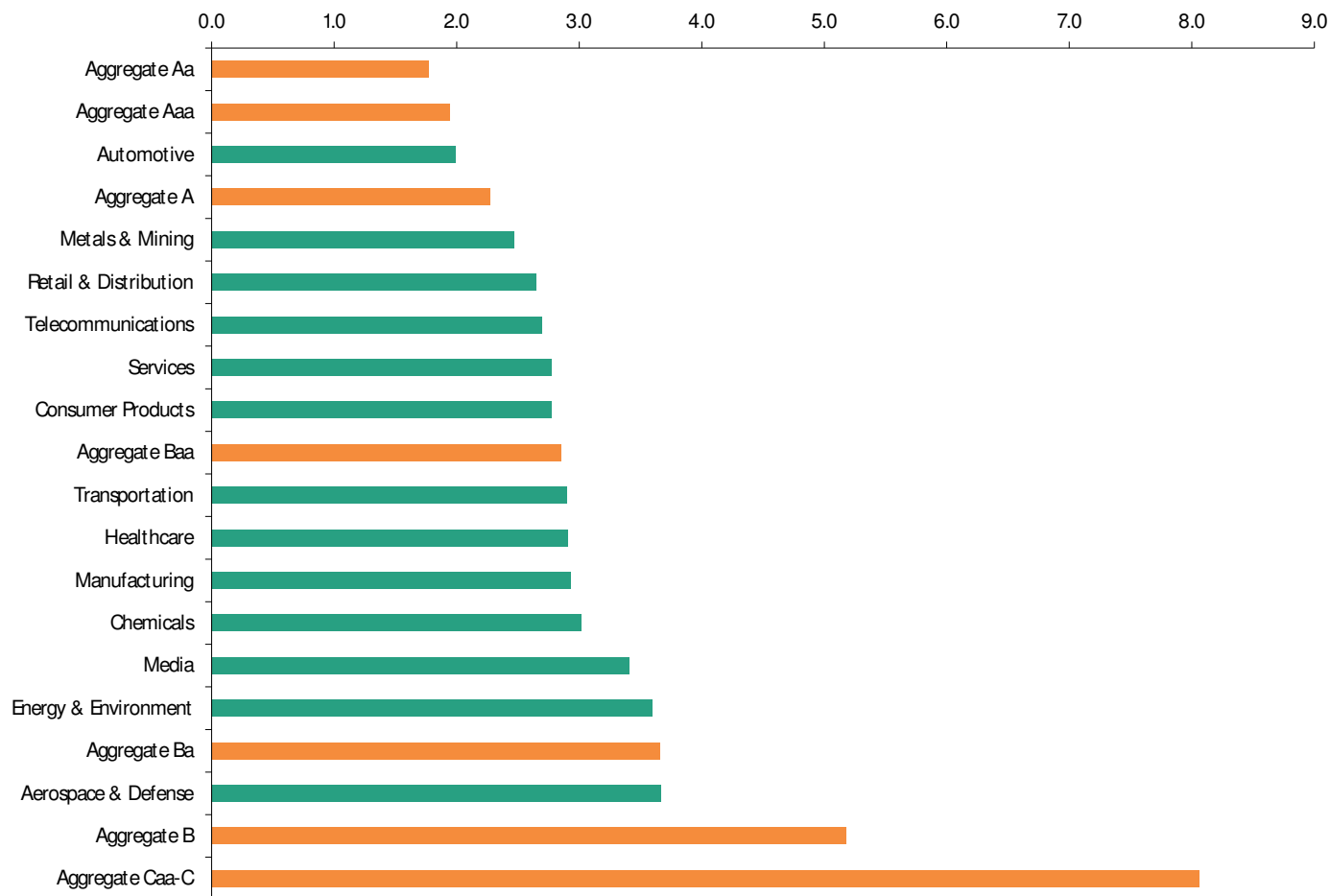
There is a monotonic relationship between this ratio and ratings. The Automotive industry has the highest metric, while the Energy & Environment industry has the lowest metric.

Debt / EBITDA

Exhibit 10 sorts industries by their median Baa Debt / EBITDA ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 10

Median Debt / EBITDA



Source: Moody's Financial Metrics™

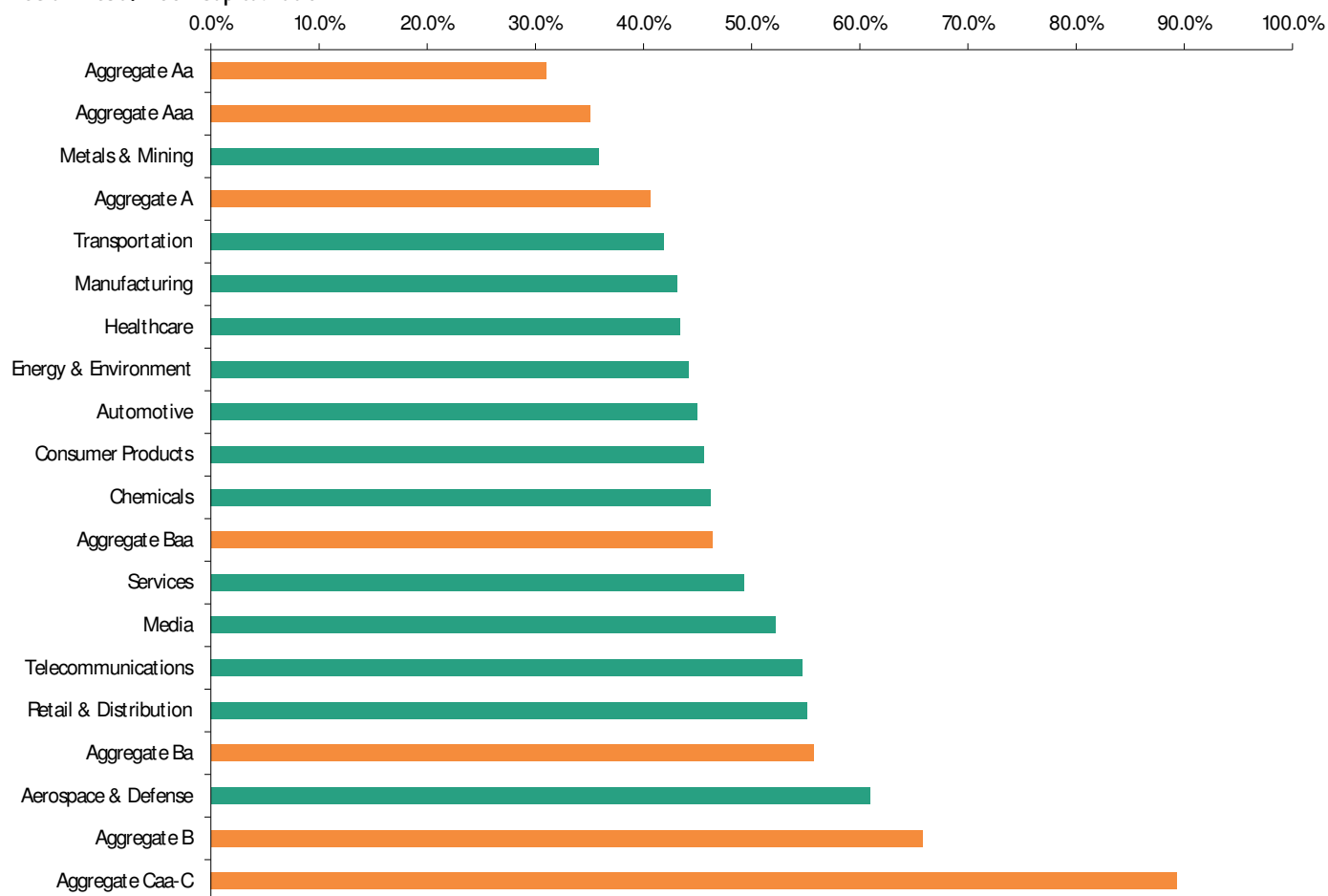
There is not a monotonic relationship between this ratio and ratings. The Aerospace & Defense industry has the highest metric, while the Automotive industry has the lowest metric.

Debt / Book Capitalization

Exhibit 11 sorts industries by their median Baa Debt / Book Capitalization ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 11

Median Debt / Book Capitalization



Source: Moody's Financial Metrics™

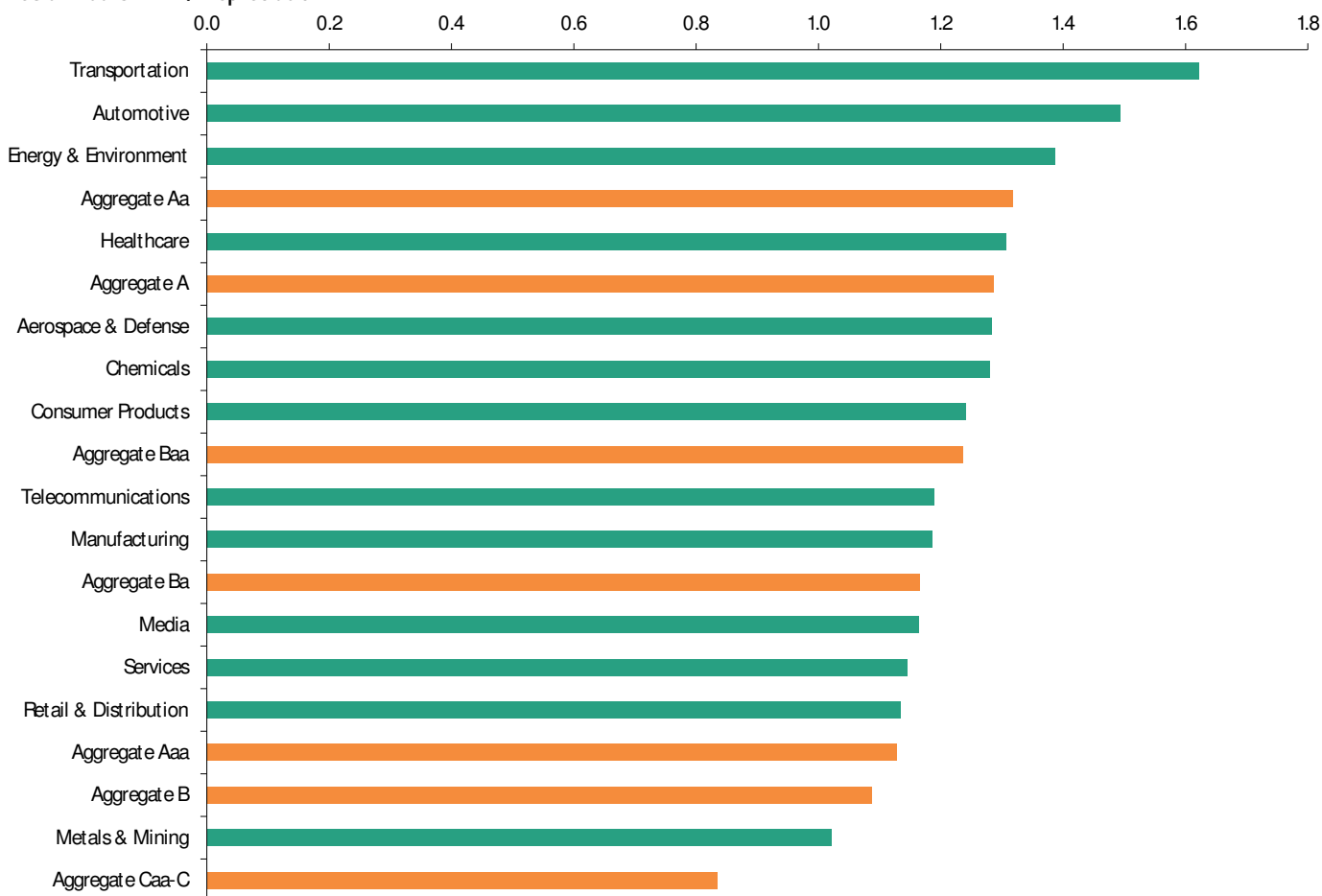
There is not a monotonic relationship between this ratio and ratings. The Aerospace & Defense industry has the highest metric, while the Metals & Mining industry has the lowest metric.

CAPEX / Depreciation

Exhibit 12 sorts industries by their median Baa CAPEX Depreciation ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 12

Median Baa CAPEX / Depreciation



Source: Moody's Financial Metrics™

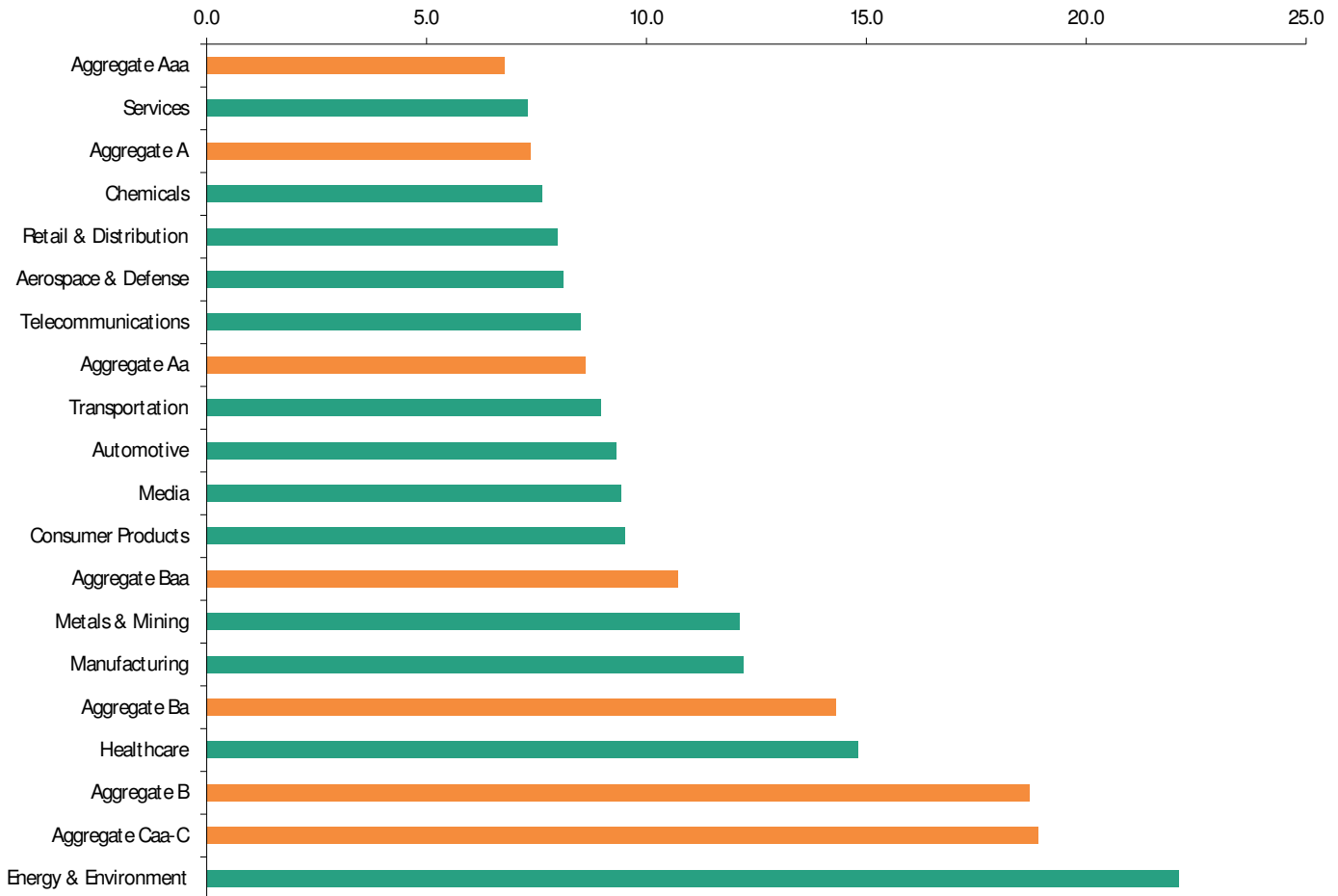
There is not a monotonic relationship between this ratio and ratings. The Transportation industry has the highest metric, while the Metals & Mining industry has the lowest metric.

Revenue Volatility

Exhibit 13 sorts industries by their median Baa Revenue Volatility ratio. The complete distribution is presented in Appendix A. The median aggregate ratios at different rating categories are highlighted for comparison.

Exhibit 13

Median Baa Revenue Volatility



Source: Moody's Financial Metrics™

There is not a monotonic relationship between this ratio and ratings. The Energy & Environment industry has the highest metric, while the Services industry has the lowest metric.

IV. Discussion

Exhibit 14 summarizes the results presented above. For each metric, we report its standardized (mean 100, standard deviation 1) value and sort the industries by their average score.³ The Automotive, Telecommunications and Transportation industries have the highest average scores, while the Metals & Mining, Aerospace & Defense and Energy & Environment have the lowest.

Exhibit 14

Median Baa Revenue Volatility

	Average score	EBITA/Average AT	EBITA/IntExp	EBITA Margin	Operating Margin	(FFO + IntExp)/IntExp	FFO/Debt	RCF/NetDebt	Debt/EBITDA	Debt/BookCap	CAPEX/Dep	Rev Vol
Automotive	101.1	99.7	102.0	98.8	98.7	102.8	102.8	102.6	102.0	100.4	101.4	100.3
Healthcare	100.5	100.8	101.3	101.8	101.5	100.4	100.0	100.2	100.0	100.6	100.3	99.0
Transportation	100.5	100.0	99.3	100.8	101.5	100.3	99.9	100.0	100.0	100.8	102.2	100.4
Services	100.2	100.9	100.7	100.1	100.0	100.2	100.3	100.1	100.3	99.7	99.2	100.8
Telecommunications	100.2	100.8	99.8	101.1	100.7	100.2	100.3	99.9	100.5	98.9	99.5	100.5
Consumer Products	100.1	101.2	100.1	100.0	100.1	99.5	99.8	99.5	100.3	100.3	99.8	100.3
Manufacturing	100.0	99.2	100.6	99.6	99.7	100.2	99.7	100.7	100.0	100.6	99.5	99.6
Chemicals	99.9	100.1	100.0	99.5	99.6	100.0	99.5	99.6	99.8	100.2	100.1	100.7
Media	99.8	100.0	99.8	101.4	101.3	99.3	99.1	99.6	98.9	99.3	99.4	100.3
Metals & Mining	99.7	97.9	98.9	99.1	99.1	99.8	100.7	100.7	101.0	101.7	98.5	99.6
Retail & Distribution	99.6	100.1	99.9	98.5	98.4	99.6	99.8	100.0	100.6	98.9	99.2	100.6
Aerospace & Defense	99.4	100.9	99.5	99.6	99.8	98.8	98.8	99.0	98.3	98.0	100.1	100.6
Energy & Environment	99.0	98.4	98.1	99.7	99.6	98.8	99.2	98.3	98.5	100.5	100.8	97.2

Source: Moody's Financial Metrics™

Exhibit 15 reports the correlation of the standardized values of each metric to revenue volatility.

Exhibit 15

Correlation of Median Baa Metrics to Revenue Volatility

Metric	Correlation
EBITA/Average AT	0.57
EBITA/IntExp	0.39
EBITA Margin	-0.09
Operating Margin	-0.03
(FFO + IntExp)/IntExp	0.24
FFO/Debt	0.15
RCF/NetDebt	0.29
Debt/EBITDA	0.33
Debt/BookCap	-0.43
CAPEX/Dep	-0.15

Source: Moody's Financial Metrics™

Appendix A: Detailed Distributions by Credit Metric

Exhibit 16

EBITA / Average Assets

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	12.3%	10.2%	10.8%	8.7%	8.5%	6.7%	4.1%
mean	11.0%	10.8%	12.1%	9.5%	9.1%	7.0%	3.2%
min	3.1%	0.2%	-12.7%	-6.2%	-5.7%	-10.0%	-56.7%
max	17.5%	32.3%	46.8%	29.9%	34.6%	48.4%	25.9%
standard deviation	7.3%	7.3%	7.9%	5.5%	5.3%	5.7%	9.4%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			12.2%	10.3%	10.2%	4.9%	0.6%
mean			10.9%	10.8%	10.5%	5.4%	0.6%
min			1.9%	7.0%	4.4%	1.7%	0.6%
max			14.5%	15.5%	15.6%	9.2%	0.6%
standard deviation			4.2%	3.3%	3.9%	2.9%	0.0%
n=			7	8	11	5	1
Automotive							
median		7.9%	10.3%	8.1%	8.3%	6.8%	
mean		7.9%	11.3%	9.6%	8.9%	5.6%	
min		7.9%	1.7%	3.9%	2.3%	-6.3%	
max		7.9%	27.5%	17.3%	17.2%	9.7%	
standard deviation		0.0%	6.9%	3.9%	4.1%	5.4%	
n=		1	11	16	18	7	
Chemicals							
median		9.3%	10.3%	8.8%	9.3%	7.7%	3.4%
mean		9.3%	11.7%	9.1%	10.6%	10.8%	2.9%
min		9.3%	6.2%	0.9%	2.6%	3.8%	-4.8%
max		9.3%	23.1%	24.4%	28.0%	22.7%	10.1%
standard deviation		0.0%	5.0%	5.4%	5.9%	7.6%	6.5%
n=		1	13	35	26	8	6
Consumer Products							
median		12.4%	13.6%	10.6%	9.1%	8.3%	7.1%
mean		17.0%	14.5%	11.1%	9.4%	8.5%	9.1%
min		10.9%	4.9%	1.3%	1.6%	-2.1%	1.1%
max		32.3%	30.6%	28.8%	22.7%	18.3%	20.8%
standard deviation		10.2%	6.8%	5.5%	4.0%	4.6%	6.1%
n=		4	30	72	78	49	8
Energy & Environment							
median	3.1%	1.4%	4.2%	5.9%	5.4%	3.9%	-0.2%
mean	3.1%	1.3%	3.3%	6.0%	6.2%	4.5%	0.5%
min	3.1%	0.2%	-1.9%	-2.7%	-5.7%	-10.0%	-12.8%
max	3.1%	2.1%	6.5%	26.1%	28.6%	19.7%	14.6%
standard deviation	0.0%	1.0%	2.5%	5.5%	5.9%	6.3%	6.9%
n=	1	3	11	58	52	56	38
Healthcare							
median	17.5%	8.9%	12.1%	10.0%	10.1%	6.6%	5.2%
mean	17.5%	8.9%	15.7%	12.8%	10.4%	8.6%	5.9%
min	17.5%	8.9%	2.3%	5.1%	5.4%	2.0%	3.0%
max	17.5%	8.9%	46.8%	29.9%	16.6%	22.1%	9.6%
standard deviation	0.0%	0.0%	12.3%	6.1%	3.0%	6.4%	3.4%
n=	1	1	16	20	12	12	3
Manufacturing							
median		5.6%	7.0%	7.2%	6.7%	5.9%	0.8%
mean		5.6%	9.3%	9.0%	8.0%	6.2%	-7.6%
min		5.6%	3.4%	2.2%	1.6%	-5.9%	-56.7%
max		5.6%	23.9%	26.8%	23.7%	23.1%	5.3%
standard deviation		0.0%	5.6%	5.4%	4.3%	4.6%	20.0%

n=	1	39	55	71	54	9
Media						
median	15.1%	13.4%	8.6%	9.8%	8.4%	9.4%
mean	15.1%	13.4%	10.2%	11.7%	10.5%	9.7%
min	15.1%	10.8%	2.3%	3.1%	5.2%	5.0%
max	15.1%	16.0%	21.1%	34.6%	32.6%	24.8%
standard deviation	0.0%	3.7%	5.3%	7.1%	6.3%	6.0%
n=	1	2	15	24	18	9
Metals & Mining						
median	8.8%		5.0%	11.2%	4.6%	3.9%
mean	8.8%		6.5%	11.4%	4.6%	5.6%
min	8.8%		1.2%	2.2%	-3.2%	-2.1%
max	8.8%		16.3%	26.0%	13.2%	25.9%
standard deviation	0.0%		4.8%	6.6%	3.9%	8.0%
n=	1		16	25	26	11
Retail & Distribution						
median	10.8%	17.6%	8.9%	7.5%	6.4%	3.9%
mean	10.8%	16.9%	9.6%	9.4%	6.5%	4.2%
min	10.8%	6.8%	1.1%	2.4%	1.6%	-0.6%
max	10.8%	28.2%	22.4%	31.4%	13.1%	8.9%
standard deviation	0.0%	7.3%	4.6%	5.8%	2.7%	3.1%
n=	1	9	36	38	25	7
Services						
median		9.6%	10.3%	8.6%	8.2%	6.2%
mean		9.4%	10.8%	10.7%	8.1%	7.5%
min		1.2%	1.7%	2.5%	-3.0%	-3.2%
max		15.7%	26.5%	25.7%	16.4%	17.2%
standard deviation		6.4%	5.4%	5.4%	5.1%	7.9%
n=		6	19	36	24	5
Telecommunications						
median	12.3%	15.6%	14.9%	9.9%	8.0%	8.3%
mean	12.3%	17.1%	16.9%	10.8%	8.6%	7.8%
min	12.3%	15.0%	5.5%	-6.2%	1.4%	-0.5%
max	12.3%	20.6%	34.4%	25.8%	29.6%	23.9%
standard deviation	0.0%	3.1%	8.1%	5.6%	4.8%	4.2%
n=	1	3	21	54	59	39
Transportation						
median	8.2%	7.9%	8.6%	8.5%	5.7%	5.3%
mean	8.2%	7.4%	9.5%	9.4%	8.7%	5.3%
min	6.2%	-12.7%	0.6%	2.0%	1.5%	1.8%
max	10.2%	18.1%	19.4%	24.2%	48.4%	8.8%
standard deviation	2.8%	10.0%	4.7%	5.3%	10.6%	4.9%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 17

EBITA / Interest Expense

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	11.5	13.9	10.7	6.3	3.7	1.9	0.7
mean	13.9	27.2	17.1	8.0	8.3	7.6	0.5
min	7.0	0.6	-11.8	-8.3	-4.1	-4.3	-4.8
max	23.3	134.1	148.2	104.7	416.5	1670.2	4.8
standard deviation	8.4	34.1	21.0	8.2	31.8	90.4	1.6
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			8.5	5.6	4.8	1.9	0.1
mean			9.9	6.6	4.7	2.3	0.1
min			3.7	3.4	1.9	0.6	0.1
max			17.0	13.0	6.6	4.7	0.1
standard deviation			4.5	3.4	1.6	1.7	0.0
n=			7	8	11	5	1
Automotive							
median		33.1	21.2	10.4	4.5	1.6	
mean		33.1	22.5	14.4	6.6	1.4	
min		33.1	8.0	3.8	1.7	-1.0	
max		33.1	39.5	56.3	33.0	2.4	
standard deviation		0.0	10.2	12.7	6.9	1.1	
n=		1	11	16	18	7	
Chemicals							
median		134.1	8.7	6.6	3.6	1.8	0.4
mean		134.1	10.3	7.5	7.1	3.7	0.2
min		134.1	5.4	0.4	1.6	0.7	-1.7
max		134.1	21.8	18.8	73.4	13.2	3.0
standard deviation		0.0	5.4	4.4	13.9	4.2	1.7
n=		1	13	35	26	8	6
Consumer Products							
median		19.4	10.7	6.7	3.8	1.8	1.2
mean		18.6	15.7	7.7	4.1	2.0	1.4
min		13.9	2.8	1.2	0.7	-0.5	0.1
max		21.6	65.0	25.8	14.5	7.0	2.9
standard deviation		3.4	14.4	5.1	2.4	1.4	0.9
n=		4	30	72	78	49	8
Energy & Environment							
median	7.0	1.6	2.4	2.9	1.8	1.2	0.0
mean	7.0	1.5	2.6	4.2	2.9	1.2	0.1
min	7.0	0.6	-2.1	-2.7	-4.1	-4.3	-3.7
max	7.0	2.3	6.5	50.3	21.6	7.2	4.8
standard deviation	0.0	0.8	2.4	7.2	4.2	1.9	1.8
n=	1	3	11	58	52	56	38
Healthcare							
median	23.3	13.3	15.6	9.0	4.6	1.7	0.9
mean	23.3	13.3	27.9	11.0	5.0	2.4	0.9
min	23.3	13.3	6.7	6.2	2.6	0.4	0.4
max	23.3	13.3	133.1	34.7	8.7	10.0	1.6
standard deviation	0.0	0.0	37.6	6.8	1.8	2.5	0.6
n=	1	1	16	20	12	12	3
Manufacturing							
median		18.7	11.2	7.8	5.7	3.6	0.3
mean		18.7	13.9	11.1	29.2	37.2	-0.9
min		18.7	2.3	2.5	0.7	-4.1	-4.8
max		18.7	53.7	104.7	416.5	1670.2	1.9
standard deviation		0.0	10.5	14.3	77.7	226.5	2.4
n=		1	39	55	71	54	9
Media							
median		72.0	13.6	6.2	3.1	2.2	1.0

mean	72.0	13.6	8.0	3.4	2.6	1.1
min	72.0	6.2	2.4	1.3	0.9	0.5
max	72.0	21.0	32.5	6.1	8.5	2.5
standard deviation	0.0	10.4	7.3	1.4	1.7	0.6
n=	1	2	15	24	18	9
Metals & Mining						
median	8.7		4.4	4.8	1.5	0.9
mean	8.7		5.5	5.5	1.6	1.0
min	8.7		1.3	1.1	-2.0	-0.6
max	8.7		17.6	19.2	4.7	4.5
standard deviation	0.0		4.5	4.2	1.5	1.4
n=	1		16	25	26	11
Retail & Distribution						
median	8.2	11.6	6.4	3.2	1.4	0.7
mean	8.2	11.5	6.1	3.7	1.9	0.7
min	8.2	6.7	1.3	0.9	0.6	-0.1
max	8.2	17.9	12.2	18.7	4.6	1.2
standard deviation	0.0	4.5	2.9	2.9	1.2	0.4
n=	1	9	36	38	25	7
Services						
median		9.1	7.9	4.5	2.0	1.0
mean		17.5	8.3	5.3	2.4	0.8
min		3.8	1.0	0.9	-0.6	-0.3
max		57.8	17.6	19.5	6.7	1.7
standard deviation		20.2	4.3	3.8	1.6	0.7
n=		6	19	36	24	5
Telecommunications						
median	11.5	40.3	21.0	6.2	3.7	2.0
mean	11.5	44.8	34.2	9.0	4.8	2.4
min	11.5	12.0	2.2	-8.3	0.4	0.3
max	11.5	82.1	148.2	42.8	43.8	7.7
standard deviation	0.0	35.3	35.8	8.4	5.9	1.7
n=	1	3	21	54	59	39
Transportation						
median	7.4	6.9	5.3	3.7	1.5	0.7
mean	7.4	4.5	7.5	4.2	2.2	0.7
min	5.3	-11.8	0.6	1.4	0.3	0.4
max	9.4	10.0	24.3	11.5	9.6	0.9
standard deviation	2.9	7.6	5.6	2.5	2.2	0.4
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 18

EBITA Margin

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	30.6%	19.5%	15.8%	13.9%	13.3%	11.2%	7.0%
mean	22.4%	18.4%	18.1%	16.8%	15.9%	14.6%	-6.6%
min	5.9%	0.6%	-128.9%	-16.4%	-38.5%	-38.7%	-1801.4%
max	30.7%	35.8%	70.4%	86.9%	86.1%	78.0%	888.9%
standard deviation	14.3%	10.4%	16.6%	13.4%	12.7%	14.7%	199.6%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			16.3%	12.2%	11.2%	9.8%	0.8%
mean			14.1%	12.2%	10.8%	8.3%	0.8%
min			3.1%	8.4%	5.9%	2.5%	0.8%
max			21.4%	18.1%	18.1%	12.7%	0.8%
standard deviation			5.9%	3.1%	3.5%	4.0%	0.0%
n=			7	8	11	5	1
Automotive							
median		8.3%	8.6%	8.0%	7.3%	5.9%	
mean		8.3%	11.5%	8.5%	7.5%	5.3%	
min		8.3%	6.0%	4.2%	1.7%	-9.3%	
max		8.3%	22.3%	12.9%	15.0%	12.9%	
standard deviation		0.0%	5.1%	2.8%	3.4%	7.1%	
n=		1	11	16	18	7	
Chemicals							
median		19.5%	15.6%	11.8%	11.9%	12.2%	3.7%
mean		19.5%	16.5%	12.9%	15.7%	12.2%	2.2%
min		19.5%	9.8%	0.9%	6.8%	2.8%	-17.0%
max		19.5%	25.6%	25.6%	46.5%	22.6%	23.4%
standard deviation		0.0%	5.6%	5.7%	9.3%	6.6%	15.0%
n=		1	13	35	26	8	6
Consumer Products							
median		25.3%	17.9%	14.6%	11.6%	9.9%	14.8%
mean		23.4%	20.5%	16.8%	13.9%	11.4%	15.3%
min		15.9%	3.7%	3.0%	2.0%	-15.8%	1.1%
max		27.3%	50.6%	60.8%	53.3%	43.9%	29.1%
standard deviation		5.4%	10.6%	11.2%	8.7%	9.1%	10.2%
n=		4	30	72	78	49	8
Energy & Environment							
median	5.9%	3.6%	10.4%	12.6%	13.3%	13.4%	-0.8%
mean	5.9%	3.6%	12.3%	16.9%	17.0%	15.2%	-5.6%
min	5.9%	0.6%	-8.1%	-16.1%	-38.5%	-29.3%	-104.4%
max	5.9%	6.5%	40.9%	86.9%	76.8%	78.0%	56.3%
standard deviation	0.0%	3.0%	13.5%	19.1%	21.2%	23.2%	33.9%
n=	1	3	11	58	52	56	38
Healthcare							
median	30.7%	24.5%	25.8%	24.6%	17.5%	12.6%	7.2%
mean	30.7%	24.5%	28.0%	28.2%	17.6%	17.4%	20.7%
min	30.7%	24.5%	5.6%	9.7%	6.7%	1.9%	1.9%
max	30.7%	24.5%	66.6%	53.3%	33.5%	41.1%	53.1%
standard deviation	0.0%	0.0%	14.1%	11.8%	7.1%	14.3%	28.2%
n=	1	1	16	20	12	12	3
Manufacturing							
median		8.1%	10.8%	12.5%	12.9%	13.6%	3.0%
mean		8.1%	13.5%	16.5%	15.6%	15.8%	-229.2%
min		8.1%	3.3%	2.2%	2.9%	-38.7%	-1801.4%
max		8.1%	40.8%	73.6%	66.4%	61.5%	30.4%
standard deviation		0.0%	8.2%	13.7%	10.5%	15.5%	594.1%
n=		1	39	55	71	54	9
Media							
median		27.5%	25.3%	22.0%	24.1%	21.3%	14.5%

mean	27.5%	25.3%	21.0%	24.4%	21.0%	16.6%
min	27.5%	23.7%	7.5%	5.6%	4.7%	5.2%
max	27.5%	26.9%	40.9%	48.9%	34.4%	29.9%
standard deviation	0.0%	2.2%	7.7%	11.2%	8.0%	9.3%
n=	1	2	15	24	18	9
Metals & Mining						
median	27.1%		9.6%	16.5%	10.4%	6.2%
mean	27.1%		13.0%	19.0%	12.5%	86.3%
min	27.1%		2.0%	3.6%	-4.0%	-7.8%
max	27.1%		34.8%	56.5%	47.8%	888.9%
standard deviation	0.0%		10.6%	12.9%	11.3%	266.4%
n=	1		16	25	26	11
Retail & Distribution						
median	4.8%	10.1%	6.5%	6.0%	5.1%	6.4%
mean	4.8%	9.7%	7.9%	9.0%	7.1%	9.0%
min	4.8%	3.2%	0.5%	2.3%	2.2%	-0.6%
max	4.8%	14.9%	21.8%	49.5%	36.4%	23.0%
standard deviation	0.0%	4.4%	5.8%	8.4%	6.6%	8.1%
n=	1	9	36	38	25	7
Services						
median		16.1%	14.9%	18.9%	13.1%	16.5%
mean		16.2%	18.4%	19.1%	16.6%	20.2%
min		10.1%	2.7%	5.2%	-11.8%	-3.9%
max		22.4%	55.5%	53.0%	53.5%	53.4%
standard deviation		4.5%	13.6%	11.0%	14.2%	21.7%
n=		6	19	36	24	5
Telecommunications						
median	30.6%	24.8%	29.5%	20.5%	15.9%	15.3%
mean	30.6%	24.0%	31.0%	19.5%	18.8%	17.9%
min	30.6%	17.3%	7.7%	-16.4%	1.4%	1.8%
max	30.6%	29.9%	70.4%	44.4%	86.1%	58.1%
standard deviation	0.0%	6.3%	15.1%	11.1%	15.4%	12.3%
n=	1	3	21	54	59	39
Transportation						
median	26.4%	34.2%	18.6%	17.3%	15.7%	13.6%
mean	26.4%	8.7%	26.4%	18.2%	20.1%	13.6%
min	16.9%	-128.9%	0.9%	3.6%	2.1%	13.3%
max	35.8%	42.7%	63.0%	39.4%	43.8%	13.8%
standard deviation	13.4%	61.4%	20.2%	11.4%	14.2%	0.4%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 19

Operating Margin

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	25.4%	17.4%	14.9%	12.0%	11.5%	9.0%	4.6%
mean	18.8%	16.6%	16.3%	14.6%	13.7%	11.4%	-17.0%
min	2.9%	-2.3%	-135.5%	-20.2%	-40.2%	-46.6%	-1850.5%
max	28.1%	35.6%	66.4%	68.7%	80.4%	62.8%	55.2%
standard deviation	13.8%	10.5%	16.4%	11.6%	11.5%	12.6%	182.7%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			13.9%	11.8%	9.4%	9.0%	-0.8%
mean			13.0%	12.4%	9.4%	7.4%	-0.8%
min			3.6%	7.9%	4.4%	1.7%	-0.8%
max			19.0%	18.1%	17.5%	11.4%	-0.8%
standard deviation			5.0%	3.5%	3.8%	4.0%	0.0%
n=			7	8	11	5	1
Automotive							
median		6.9%	7.6%	7.1%	6.3%	5.7%	
mean		6.9%	10.8%	7.7%	7.0%	5.6%	
min		6.9%	4.9%	3.1%	1.6%	-2.2%	
max		6.9%	22.3%	12.5%	14.8%	12.4%	
standard deviation		0.0%	5.6%	3.0%	3.4%	4.3%	
n=		1	11	16	18	7	
Chemicals							
median		19.4%	15.2%	10.8%	12.1%	9.5%	2.6%
mean		19.4%	15.4%	11.5%	15.0%	10.0%	0.8%
min		19.4%	8.7%	-0.9%	5.0%	2.9%	-18.2%
max		19.4%	23.0%	24.5%	43.9%	22.1%	23.0%
standard deviation		0.0%	5.4%	5.7%	8.9%	5.6%	15.7%
n=		1	13	35	26	8	6
Consumer Products							
median		23.0%	17.6%	13.3%	11.3%	8.3%	13.8%
mean		22.0%	19.2%	15.7%	12.2%	10.2%	14.7%
min		15.4%	2.9%	2.5%	1.6%	-10.6%	1.7%
max		26.7%	46.8%	60.4%	32.6%	28.2%	28.6%
standard deviation		4.7%	9.9%	10.8%	6.5%	7.2%	10.0%
n=		4	30	72	78	49	8
Energy & Environment							
median	2.9%	1.2%	8.8%	11.0%	12.0%	8.4%	-5.4%
mean	2.9%	1.4%	9.8%	14.0%	14.0%	11.2%	-7.7%
min	2.9%	-2.3%	-9.2%	-19.2%	-40.2%	-32.0%	-82.2%
max	2.9%	5.1%	32.4%	55.0%	71.6%	62.8%	51.1%
standard deviation	0.0%	3.7%	13.2%	15.6%	19.4%	20.5%	30.9%
n=	1	3	11	58	52	56	38
Healthcare							
median	28.1%	17.4%	20.8%	19.3%	14.2%	8.2%	4.2%
mean	28.1%	17.4%	23.5%	23.1%	14.5%	11.7%	12.1%
min	28.1%	17.4%	5.8%	7.5%	6.1%	2.2%	1.2%
max	28.1%	17.4%	62.0%	49.6%	22.9%	33.4%	30.7%
standard deviation	0.0%	0.0%	13.4%	11.5%	5.1%	9.1%	16.2%
n=	1	1	16	20	12	12	3
Manufacturing							
median		6.5%	9.8%	11.6%	11.4%	11.7%	0.7%
mean		6.5%	12.1%	14.6%	13.5%	12.3%	-224.8%
min		6.5%	3.3%	2.4%	2.5%	-46.6%	-1850.5%
max		6.5%	37.1%	68.7%	68.1%	45.6%	20.4%
standard deviation		0.0%	7.4%	12.5%	9.9%	13.7%	611.6%
n=		1	39	55	71	54	9
Media							
median		26.5%	23.5%	18.5%	20.2%	19.0%	9.5%

mean	26.5%	23.5%	18.7%	19.9%	17.5%	13.2%
min	26.5%	21.1%	5.1%	4.6%	4.2%	2.7%
max	26.5%	25.8%	34.7%	39.7%	28.9%	29.8%
standard deviation	0.0%	3.3%	7.4%	9.9%	6.8%	9.7%
n=	1	2	15	24	18	9
Metals & Mining						
median	26.9%		8.7%	14.7%	8.2%	3.5%
mean	26.9%		12.8%	18.5%	10.4%	1.8%
min	26.9%		1.4%	3.4%	-4.1%	-23.8%
max	26.9%		35.0%	55.1%	46.9%	32.6%
standard deviation	0.0%		11.1%	12.8%	10.4%	14.4%
n=	1		16	25	26	11
Retail & Distribution						
median	4.8%	10.0%	5.8%	5.9%	4.5%	6.8%
mean	4.8%	9.5%	7.4%	8.3%	6.0%	8.6%
min	4.8%	3.1%	-0.7%	1.9%	1.6%	-0.7%
max	4.8%	14.8%	21.8%	43.6%	32.7%	22.1%
standard deviation	0.0%	4.4%	5.9%	7.6%	6.0%	7.8%
n=	1	9	36	38	25	7
Services						
median		14.5%	12.9%	16.4%	12.2%	8.4%
mean		16.5%	13.6%	16.6%	11.2%	14.5%
min		7.1%	2.4%	3.7%	-25.5%	-6.2%
max		36.5%	40.8%	48.6%	32.4%	55.2%
standard deviation		10.4%	9.2%	10.1%	10.8%	23.6%
n=		6	19	36	24	5
Telecommunications						
median	25.4%	21.0%	25.8%	16.0%	12.8%	9.5%
mean	25.4%	20.8%	27.5%	15.9%	14.1%	12.2%
min	25.4%	13.5%	7.2%	-20.2%	-6.2%	-2.6%
max	25.4%	27.9%	66.4%	40.6%	80.4%	54.4%
standard deviation	0.0%	7.2%	14.5%	10.5%	14.2%	11.0%
n=	1	3	21	54	59	39
Transportation						
median	26.0%	34.0%	19.2%	16.6%	10.3%	7.2%
mean	26.0%	6.8%	22.5%	15.9%	16.7%	7.2%
min	16.4%	-135.5%	-0.2%	1.2%	2.2%	3.2%
max	35.6%	41.9%	50.6%	36.8%	43.2%	11.2%
standard deviation	13.6%	63.5%	15.2%	9.5%	13.2%	5.7%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 20

(FFO + Interest Expense) / Interest Expense

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	17.2	15.2	13.1	8.1	5.1	2.9	1.6
mean	18.7	33.5	19.3	9.9	8.7	5.1	1.7
min	15.9	8.8	-8.0	-2.2	-32.9	-27.4	-2.7
max	22.9	152.6	146.4	75.6	323.4	567.3	6.5
standard deviation	3.7	39.1	21.7	7.6	24.8	30.8	1.4
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			7.9	6.3	5.6	3.4	1.1
mean			10.3	7.9	5.5	2.9	1.1
min			6.7	4.0	1.9	0.3	1.1
max			17.2	16.3	7.9	5.2	1.1
standard deviation			4.2	4.1	1.6	1.9	0.0
n=			7	8	11	5	1
Automotive							
median		38.5	30.1	13.3	7.0	2.4	
mean		38.5	27.6	18.9	6.5	2.4	
min		38.5	11.2	0.8	-32.9	-0.3	
max		38.5	40.9	63.5	32.8	4.0	
standard deviation		0.0	11.4	15.8	11.7	1.3	
n=		1	11	16	18	7	
Chemicals							
median		152.6	10.1	8.4	4.8	3.4	1.0
mean		152.6	12.7	10.1	8.1	4.5	1.2
min		152.6	6.5	2.9	1.6	1.8	-0.2
max		152.6	31.3	26.1	69.5	12.4	3.7
standard deviation		0.0	6.6	5.6	13.0	3.6	1.4
n=		1	13	35	26	8	6
Consumer Products							
median		18.1	11.7	7.5	4.9	2.7	1.7
mean		17.2	15.7	9.1	5.4	2.9	1.8
min		12.2	3.2	2.7	1.1	0.5	0.2
max		20.2	52.4	27.4	16.2	12.3	3.7
standard deviation		3.6	11.8	5.1	2.8	1.8	1.1
n=		4	30	72	78	49	8
Energy & Environment							
median	15.9	12.6	6.3	6.3	4.1	2.9	1.8
mean	15.9	12.4	7.4	7.7	5.4	3.4	2.1
min	15.9	9.2	2.8	-1.9	1.8	0.4	-1.0
max	15.9	15.2	13.1	55.5	22.8	11.1	6.5
standard deviation	0.0	3.0	4.0	7.7	4.1	1.8	1.5
n=	1	3	11	58	52	56	38
Healthcare							
median	22.9	14.6	17.2	9.1	4.8	2.6	1.3
mean	22.9	14.6	29.2	10.6	5.6	3.0	1.0
min	22.9	14.6	6.2	5.2	3.5	1.6	0.4
max	22.9	14.6	138.4	28.2	9.6	8.1	1.4
standard deviation	0.0	0.0	36.0	5.4	1.7	1.7	0.6
n=	1	1	16	20	12	12	3
Manufacturing							
median		34.9	13.5	8.8	5.3	2.6	0.6
mean		34.9	16.7	10.5	23.1	14.0	-0.1
min		34.9	2.9	2.5	-2.7	-27.4	-2.7
max		34.9	75.1	75.6	323.4	567.3	1.7
standard deviation		0.0	12.5	9.8	60.4	77.2	1.5
n=		1	39	55	71	54	9
Media							
median		98.0	14.9	7.1	4.2	3.7	1.5

mean	98.0	14.9	9.1	5.0	4.0	1.5
min	98.0	8.0	4.2	3.3	1.7	1.0
max	98.0	21.7	30.4	12.1	12.7	2.3
standard deviation	0.0	9.7	6.4	2.1	2.4	0.4
n=	1	2	15	24	18	9
Metals & Mining						
median	11.3		8.1	6.1	2.6	1.8
mean	11.3		10.2	7.4	3.3	2.2
min	11.3		2.2	2.1	0.5	0.0
max	11.3		22.3	18.2	9.2	4.7
standard deviation	0.0		6.0	4.3	2.1	1.2
n=	1		16	25	26	11
Retail & Distribution						
median	10.6	10.8	7.7	4.6	2.8	1.4
mean	10.6	12.7	8.5	5.2	3.1	1.6
min	10.6	7.4	3.6	2.6	1.5	0.9
max	10.6	22.0	18.7	14.1	6.0	2.2
standard deviation	0.0	4.5	3.1	2.3	1.3	0.5
n=	1	9	36	38	25	7
Services						
median		12.7	8.7	5.2	3.6	1.3
mean		19.6	9.4	6.5	3.3	1.5
min		6.0	0.9	1.5	-8.3	0.0
max		56.0	22.0	19.2	9.3	2.9
standard deviation		18.4	4.9	3.8	3.1	1.1
n=		6	19	36	24	5
Telecommunications						
median	17.2	42.3	23.2	8.7	5.8	2.0
mean	17.2	50.6	38.1	11.3	7.1	2.8
min	17.2	15.1	5.9	-2.2	0.6	0.5
max	17.2	94.6	146.4	48.7	43.1	6.4
standard deviation	0.0	40.4	39.2	8.8	6.6	2.2
n=	1	3	21	54	59	39
Transportation						
median	9.4	7.7	8.8	6.2	3.3	1.6
mean	9.4	6.2	10.3	6.5	3.8	1.6
min	8.8	-8.0	2.6	2.2	1.1	1.5
max	10.1	12.0	32.0	12.5	8.8	1.6
standard deviation	0.9	6.7	6.4	3.2	2.0	0.1
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 21

FFO/ Debt

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	41.5%	43.4%	34.1%	27.1%	19.9%	11.7%	4.6%
mean	48.0%	86.0%	51.4%	31.5%	25.8%	22.3%	5.2%
min	39.3%	16.6%	-12.5%	-15.1%	-37.1%	-42.3%	-55.2%
max	63.2%	469.0%	505.2%	259.1%	780.8%	2594.4%	38.7%
standard deviation	13.2%	117.2%	63.5%	20.9%	39.8%	140.5%	12.1%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			26.9%	21.7%	20.0%	11.6%	0.4%
mean			28.7%	29.4%	20.1%	9.8%	0.4%
min			16.7%	12.6%	6.6%	-3.7%	0.4%
max			46.7%	55.2%	35.6%	18.3%	0.4%
standard deviation			9.6%	17.3%	7.2%	8.6%	0.0%
n=			7	8	11	5	1
Automotive							
median		83.1%	69.4%	44.5%	29.9%	12.9%	
mean		83.1%	69.8%	44.7%	37.9%	9.6%	
min		83.1%	7.1%	-0.8%	-37.1%	-9.8%	
max		83.1%	114.8%	96.4%	163.7%	17.8%	
standard deviation		0.0%	37.3%	24.2%	37.8%	9.2%	
n=		1	11	16	18	7	
Chemicals							
median		469.0%	30.8%	25.4%	17.1%	12.7%	0.1%
mean		469.0%	37.3%	29.2%	49.5%	22.8%	0.1%
min		469.0%	18.4%	8.1%	3.8%	5.9%	-12.3%
max		469.0%	87.8%	60.8%	780.8%	82.5%	16.5%
standard deviation		0.0%	17.9%	12.0%	149.6%	25.9%	9.9%
n=		1	13	35	26	8	6
Consumer Products							
median		37.1%	34.1%	27.1%	20.0%	11.6%	5.4%
mean		34.7%	41.7%	34.0%	21.7%	13.4%	9.4%
min		19.0%	8.7%	7.7%	0.4%	-7.4%	-7.0%
max		45.5%	176.7%	259.1%	66.4%	58.5%	38.5%
standard deviation		11.3%	30.2%	32.7%	12.3%	11.5%	14.4%
n=		4	30	72	78	49	8
Energy & Environment							
median	39.3%	24.5%	19.8%	23.8%	18.1%	15.2%	5.5%
mean	39.3%	30.3%	18.1%	27.4%	23.6%	16.1%	7.2%
min	39.3%	24.1%	0.7%	-15.1%	7.4%	-4.0%	-11.8%
max	39.3%	42.3%	39.4%	120.8%	78.5%	75.8%	38.4%
standard deviation	0.0%	10.4%	11.0%	20.6%	17.2%	12.7%	9.7%
n=	1	3	11	58	52	56	38
Healthcare							
median	63.2%	40.4%	37.7%	28.6%	19.7%	9.6%	2.2%
mean	63.2%	40.4%	76.8%	30.8%	21.9%	12.2%	0.0%
min	63.2%	40.4%	15.8%	11.3%	13.0%	4.1%	-5.3%
max	63.2%	40.4%	403.7%	69.7%	33.5%	37.4%	3.2%
standard deviation	0.0%	0.0%	112.6%	16.6%	6.7%	9.1%	4.7%
n=	1	1	16	20	12	12	3
Manufacturing							
median		43.4%	33.7%	26.5%	17.9%	7.3%	-2.4%
mean		43.4%	44.1%	28.9%	19.1%	56.5%	-11.0%
min		43.4%	10.3%	4.6%	-9.3%	-27.2%	-55.2%
max		43.4%	259.7%	74.7%	71.1%	2594.4%	3.1%
standard deviation		0.0%	43.9%	15.8%	14.3%	352.1%	18.3%
n=		1	39	55	71	54	9
Media							
median		310.5%	42.7%	23.5%	18.0%	16.1%	4.6%

mean	310.5%	42.7%	28.7%	21.3%	20.0%	4.1%
min	310.5%	32.7%	14.1%	8.9%	7.8%	-0.4%
max	310.5%	52.7%	74.7%	48.0%	102.4%	8.6%
standard deviation	0.0%	14.1%	15.9%	9.8%	21.1%	2.4%
n=	1	2	15	24	18	9
Metals & Mining						
median	55.4%		32.6%	33.6%	10.3%	6.9%
mean	55.4%		37.0%	42.1%	18.1%	9.9%
min	55.4%		4.8%	11.6%	-3.4%	-12.4%
max	55.4%		95.4%	215.0%	73.3%	33.5%
standard deviation	0.0%		24.4%	40.5%	19.8%	11.7%
n=	1		16	25	26	11
Retail & Distribution						
median	45.0%	39.0%	27.4%	19.1%	9.0%	3.8%
mean	45.0%	38.4%	29.3%	20.5%	12.7%	4.4%
min	45.0%	22.7%	12.1%	8.6%	4.2%	-0.4%
max	45.0%	56.3%	53.6%	50.5%	38.1%	7.7%
standard deviation	0.0%	12.5%	9.5%	8.9%	8.6%	3.3%
n=	1	9	36	38	25	7
Services						
median		34.6%	29.9%	23.1%	13.4%	2.8%
mean		36.7%	32.7%	25.9%	12.2%	3.4%
min		16.2%	-0.5%	2.7%	-42.3%	-9.5%
max		62.3%	81.8%	52.2%	31.9%	14.3%
standard deviation		16.0%	19.4%	12.9%	13.7%	8.7%
n=		6	19	36	24	5
Telecommunications						
median	41.5%	70.3%	61.4%	29.8%	21.6%	14.5%
mean	41.5%	107.2%	103.9%	33.6%	26.9%	18.0%
min	41.5%	52.9%	21.4%	-7.3%	-2.2%	3.7%
max	41.5%	198.5%	505.2%	92.5%	144.1%	94.7%
standard deviation	0.0%	79.5%	115.7%	18.3%	20.7%	14.9%
n=	1	3	21	54	59	39
Transportation						
median	17.4%	19.6%	28.0%	19.4%	15.1%	5.6%
mean	17.4%	21.6%	31.1%	27.6%	22.2%	5.6%
min	16.6%	-12.5%	8.6%	5.5%	1.6%	3.5%
max	18.2%	47.4%	83.1%	72.3%	111.4%	7.7%
standard deviation	1.1%	19.4%	16.2%	20.0%	24.7%	3.0%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 22

Retained Cash Flow / Net Debt

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	31.4%	30.1%	27.3%	25.3%	19.7%	11.5%	5.1%
mean	37.9%	-27.5%	30.2%	50.3%	26.4%	15.6%	6.1%
min	20.4%	-1549.0%	-1093.5%	-1473.7%	-830.4%	-279.8%	-55.7%
max	62.0%	278.9%	1000.1%	4667.6%	2306.3%	212.2%	75.1%
standard deviation	21.6%	376.7%	162.8%	268.5%	141.4%	33.6%	14.9%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			28.6%	19.8%	20.8%	16.8%	0.5%
mean			30.9%	35.2%	20.2%	11.5%	0.5%
min			20.6%	9.6%	-18.8%	-6.1%	0.5%
max			49.4%	108.9%	43.8%	20.0%	0.5%
standard deviation			10.0%	34.0%	14.9%	11.1%	0.0%
n=			7	8	11	5	1
Automotive							
median		257.0%	32.2%	45.8%	36.2%	14.0%	
mean		257.0%	-55.2%	43.7%	103.3%	11.7%	
min		257.0%	-1093.5%	-137.7%	-773.9%	-11.4%	
max		257.0%	357.8%	219.4%	2306.3%	25.4%	
standard deviation		0.0%	370.7%	78.8%	596.5%	11.7%	
n=		1	11	16	18	7	
Chemicals							
median		-32.2%	28.2%	24.0%	15.4%	11.1%	0.1%
mean		-32.2%	47.9%	32.9%	-10.9%	38.9%	-1.0%
min		-32.2%	14.4%	8.7%	-721.9%	-4.0%	-16.1%
max		-32.2%	244.5%	227.3%	54.3%	212.2%	12.4%
standard deviation		0.0%	60.7%	36.4%	145.6%	71.9%	9.9%
n=		1	13	35	26	8	6
Consumer Products							
median		21.9%	25.1%	23.3%	19.1%	10.7%	6.0%
mean		21.8%	31.2%	40.6%	15.9%	14.0%	10.3%
min		11.9%	-286.1%	-398.6%	-182.2%	-9.5%	-8.0%
max		31.3%	426.1%	1329.6%	134.0%	60.2%	49.2%
standard deviation		8.3%	98.1%	164.7%	32.0%	13.0%	17.4%
n=		4	30	72	78	49	8
Energy & Environment							
median	20.4%	19.0%	15.2%	15.1%	11.7%	12.2%	6.3%
mean	20.4%	22.4%	16.1%	-0.5%	0.4%	16.7%	8.0%
min	20.4%	11.6%	0.7%	-1473.7%	-830.4%	-41.1%	-13.5%
max	20.4%	36.7%	32.2%	239.9%	122.7%	102.8%	41.5%
standard deviation	0.0%	12.9%	9.4%	201.8%	120.7%	22.7%	11.2%
n=	1	3	11	58	52	56	38
Healthcare							
median	62.0%	25.0%	28.8%	28.9%	19.6%	9.4%	2.1%
mean	62.0%	25.0%	7.3%	301.9%	75.5%	14.1%	0.0%
min	62.0%	25.0%	-324.9%	7.3%	10.7%	4.3%	-5.4%
max	62.0%	25.0%	113.1%	4667.6%	655.1%	49.4%	3.2%
standard deviation	0.0%	0.0%	98.0%	1035.4%	182.8%	12.7%	4.7%
n=	1	1	16	20	12	12	3
Manufacturing							
median		64.3%	40.6%	31.8%	20.6%	8.4%	-2.8%
mean		64.3%	39.7%	53.5%	26.0%	8.7%	-11.7%
min		64.3%	-270.2%	-653.5%	-41.3%	-95.0%	-55.7%
max		64.3%	245.7%	1506.4%	192.1%	112.5%	3.8%
standard deviation		0.0%	73.9%	223.0%	31.3%	25.7%	18.9%
n=		1	39	55	71	54	9
Media							
median		-1549.0%	41.5%	24.0%	17.2%	15.2%	4.6%

mean	-1549.0%	41.5%	35.2%	22.9%	21.4%	4.2%
min	-1549.0%	29.8%	4.5%	3.7%	7.9%	-0.4%
max	-1549.0%	53.2%	154.7%	88.7%	100.1%	9.2%
standard deviation	0.0%	16.5%	35.3%	19.0%	21.5%	2.6%
n=	1	2	15	24	18	9
Metals & Mining						
median	71.1%		32.2%	38.2%	10.0%	8.9%
mean	71.1%		83.6%	36.0%	22.0%	11.8%
min	71.1%		5.2%	-544.3%	-151.0%	-13.7%
max	71.1%		638.7%	403.1%	211.8%	41.4%
standard deviation	0.0%		154.4%	146.7%	63.4%	13.8%
n=	1		16	25	26	11
Retail & Distribution						
median	38.4%	36.0%	26.8%	17.9%	10.3%	3.8%
mean	38.4%	43.0%	35.3%	21.2%	14.2%	4.5%
min	38.4%	21.1%	13.0%	4.9%	4.0%	-0.7%
max	38.4%	79.7%	147.8%	76.4%	50.2%	8.1%
standard deviation	0.0%	21.1%	26.5%	14.3%	10.5%	3.5%
n=	1	9	36	38	25	7
Services						
median		30.6%	27.7%	26.2%	10.6%	2.9%
mean		49.8%	33.3%	28.6%	-1.1%	3.6%
min		-234.9%	-98.2%	-3.4%	-279.8%	-10.3%
max		412.3%	175.0%	77.3%	113.8%	15.3%
standard deviation		207.0%	50.7%	18.4%	65.8%	9.3%
n=		6	19	36	24	5
Telecommunications						
median	31.4%	73.3%	21.6%	26.3%	22.7%	14.7%
mean	31.4%	133.4%	62.4%	54.4%	47.3%	20.5%
min	31.4%	48.0%	-363.0%	-343.8%	-7.5%	0.2%
max	31.4%	278.9%	1000.1%	1092.3%	811.4%	111.9%
standard deviation	0.0%	126.6%	326.9%	166.3%	106.5%	19.9%
n=	1	3	21	54	59	39
Transportation						
median	24.0%	11.9%	26.9%	19.5%	16.0%	5.2%
mean	24.0%	15.6%	34.3%	25.2%	28.4%	5.2%
min	17.8%	-15.1%	6.6%	2.4%	1.6%	3.6%
max	30.1%	38.2%	126.8%	68.4%	182.3%	6.9%
standard deviation	8.7%	17.2%	26.0%	19.9%	41.0%	2.4%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 23

Debt / EBITDA

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	1.9	1.8	2.3	2.9	3.7	5.2	8.1
mean	2.0	2.1	2.9	3.2	4.0	4.9	24.7
min	1.3	0.2	-8.2	-8.6	0.1	-217.8	-1213.7
max	2.6	4.6	73.1	17.9	17.7	21.1	2951.4
standard deviation	0.7	1.3	5.7	1.9	2.0	12.9	312.7
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			2.9	3.7	3.5	5.7	14.6
mean			2.9	3.6	3.8	7.2	14.6
min			1.8	1.4	2.3	4.3	14.6
max			4.7	5.8	5.5	13.6	14.6
standard deviation			0.9	1.6	0.9	3.7	0.0
n=			7	8	11	5	1
Automotive							
median		0.9	1.1	2.0	2.8	5.1	
mean		0.9	2.5	2.4	2.7	-2.6	
min		0.9	0.7	1.0	0.5	-51.0	
max		0.9	14.1	8.5	5.8	6.6	
standard deviation		0.0	3.9	1.8	1.2	21.3	
n=		1	11	16	18	7	
Chemicals							
median		0.2	2.4	3.0	3.9	5.4	10.7
mean		0.2	2.5	3.2	3.8	4.7	32.5
min		0.2	1.0	1.2	0.1	0.9	3.8
max		0.2	4.3	7.1	5.8	7.1	134.9
standard deviation		0.0	0.9	1.3	1.4	2.2	50.8
n=		1	13	35	26	8	6
Consumer Products							
median		2.0	2.2	2.8	4.0	5.1	7.1
mean		2.3	2.2	3.1	4.0	0.9	6.7
min		1.7	0.0	0.3	0.7	-217.8	1.8
max		3.6	7.3	8.8	8.8	20.1	10.9
standard deviation		0.9	1.2	1.5	1.6	32.0	3.1
n=		4	30	72	78	49	8
Energy & Environment							
median	1.9	3.1	5.0	3.6	4.3	4.7	6.5
mean	1.9	2.9	11.3	3.8	4.2	5.3	49.4
min	1.9	2.0	3.0	0.0	0.7	-10.1	-1213.7
max	1.9	3.6	73.1	11.9	7.7	17.0	2951.4
standard deviation	0.0	0.8	20.6	1.9	1.8	3.9	522.8
n=	1	3	11	58	52	56	38
Healthcare							
median	1.3	2.2	2.3	2.9	3.6	6.5	8.7
mean	1.3	2.2	2.4	3.0	3.4	6.1	10.1
min	1.3	2.2	0.2	1.0	2.2	1.8	8.5
max	1.3	2.2	4.8	5.3	4.4	10.0	12.9
standard deviation	0.0	0.0	1.4	1.2	0.8	2.1	2.5
n=	1	1	16	20	12	12	3
Manufacturing							
median		2.2	2.3	2.9	3.9	6.1	11.4
mean		2.2	2.7	3.4	4.7	7.4	7.6
min		2.2	0.4	0.9	1.1	-6.3	-18.0
max		2.2	6.9	14.8	17.7	21.1	27.9
standard deviation		0.0	1.5	2.3	3.1	5.5	14.4
n=		1	39	55	71	54	9
Media							
median		0.3	2.0	3.4	4.0	4.6	7.5

mean	0.3	2.0	3.2	4.2	4.8	8.2
min	0.3	1.6	1.1	1.7	1.0	5.7
max	0.3	2.4	4.6	9.5	7.9	11.8
standard deviation	0.0	0.6	0.9	1.6	1.6	2.1
n=	1	2	15	24	18	9
Metals & Mining						
median	1.5		2.5	2.2	4.8	6.7
mean	1.5		3.1	2.7	5.2	9.8
min	1.5		0.8	0.4	1.1	2.1
max	1.5		9.2	6.0	14.7	28.8
standard deviation	0.0		2.1	1.4	3.1	8.3
n=	1		16	25	26	11
Retail & Distribution						
median	1.7	1.8	2.6	3.7	6.4	8.3
mean	1.7	2.1	3.0	4.0	6.3	9.5
min	1.7	1.3	1.6	1.5	2.3	6.5
max	1.7	3.7	7.6	8.0	9.3	15.0
standard deviation	0.0	0.8	1.3	1.4	2.0	3.0
n=	1	9	36	38	25	7
Services						
median		2.8	2.8	3.4	5.4	8.1
mean		2.9	3.5	3.6	5.8	10.1
min		1.2	1.1	1.3	2.4	4.3
max		5.0	17.9	12.7	10.9	21.8
standard deviation		1.4	3.6	2.0	2.0	6.8
n=		6	19	36	24	5
Telecommunications						
median	2.6	1.3	1.4	2.7	3.5	5.0
mean	2.6	1.1	1.6	2.6	3.8	6.5
min	2.6	0.4	0.2	-8.6	0.6	0.9
max	2.6	1.7	4.0	10.4	12.0	9.5
standard deviation	0.0	0.6	1.0	2.0	1.9	1.7
n=	1	3	21	54	59	39
Transportation						
median	4.4	2.6	2.9	3.7	4.7	7.6
mean	4.4	1.8	3.1	4.1	4.6	7.6
min	4.3	-8.2	1.0	1.2	0.7	5.0
max	4.6	6.1	7.8	9.0	8.2	10.2
standard deviation	0.2	4.7	1.4	2.4	1.9	3.7
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 24

Debt / Book Capitalization

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	35.1%	31.0%	40.7%	46.4%	55.7%	65.8%	89.3%
mean	37.2%	36.6%	44.7%	48.7%	58.6%	64.9%	124.5%
min	20.1%	2.5%	0.0%	0.0%	3.4%	-1717.9%	28.0%
max	56.6%	96.7%	139.4%	154.7%	581.8%	252.5%	2035.6%
standard deviation	18.3%	23.7%	21.2%	18.9%	33.8%	101.6%	203.6%
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			56.7%	60.9%	62.0%	77.0%	63.5%
mean			64.4%	62.2%	65.7%	79.6%	63.5%
min			45.3%	39.1%	37.7%	36.8%	63.5%
max			98.4%	98.0%	87.4%	136.1%	63.5%
standard deviation			20.3%	20.6%	15.4%	39.3%	0.0%
n=			7	8	11	5	1
Automotive							
median		15.6%	39.2%	45.0%	55.1%	80.7%	
mean		15.6%	36.6%	45.3%	54.7%	87.0%	
min		15.6%	16.2%	10.3%	11.1%	61.0%	
max		15.6%	75.4%	81.1%	75.4%	124.7%	
standard deviation		0.0%	17.3%	19.7%	15.4%	25.0%	
n=		1	11	16	18	7	
Chemicals							
median		2.5%	49.5%	46.2%	57.5%	60.9%	70.7%
mean		2.5%	47.5%	44.5%	59.7%	60.4%	106.7%
min		2.5%	18.6%	25.1%	3.4%	26.3%	39.7%
max		2.5%	68.1%	66.4%	95.8%	79.6%	296.0%
standard deviation		0.0%	14.4%	10.7%	21.1%	17.7%	97.2%
n=		1	13	35	26	8	6
Consumer Products							
median		51.0%	44.1%	45.6%	55.0%	73.5%	81.9%
mean		57.4%	47.8%	50.4%	61.8%	76.3%	86.6%
min		31.0%	0.0%	11.8%	10.6%	24.8%	51.4%
max		96.7%	139.4%	154.7%	222.2%	226.1%	140.1%
standard deviation		29.9%	26.8%	23.1%	28.7%	30.2%	27.6%
n=		4	30	72	78	49	8
Energy & Environment							
median	20.1%	29.5%	48.5%	44.2%	45.5%	55.2%	78.2%
mean	20.1%	30.6%	54.2%	42.6%	49.6%	58.9%	98.0%
min	20.1%	24.3%	31.0%	0.0%	15.2%	8.7%	28.0%
max	20.1%	37.9%	95.5%	76.9%	86.4%	167.6%	617.2%
standard deviation	0.0%	6.9%	21.3%	15.8%	17.7%	27.9%	100.8%
n=	1	3	11	58	52	56	38
Healthcare							
median	35.1%	26.8%	39.0%	43.4%	53.9%	74.9%	98.8%
mean	35.1%	26.8%	41.9%	45.4%	54.4%	79.1%	101.2%
min	35.1%	26.8%	6.6%	17.0%	21.5%	45.9%	94.2%
max	35.1%	26.8%	82.4%	82.0%	115.3%	164.3%	110.7%
standard deviation	0.0%	0.0%	18.6%	16.3%	25.0%	30.5%	8.5%
n=	1	1	16	20	12	12	3
Manufacturing							
median		27.1%	37.5%	43.1%	47.3%	59.5%	92.0%
mean		27.1%	39.9%	43.8%	50.8%	25.8%	116.4%
min		27.1%	3.7%	20.8%	16.3%	-1717.9%	46.4%
max		27.1%	66.6%	94.1%	103.6%	97.2%	267.3%
standard deviation		0.0%	15.0%	13.7%	16.3%	242.4%	76.0%
n=		1	39	55	71	54	9
Media							
median		7.2%	38.8%	52.2%	73.5%	69.1%	132.1%

mean	7.2%	38.8%	53.4%	91.8%	74.3%	349.4%
min	7.2%	35.8%	21.7%	33.6%	32.1%	94.8%
max	7.2%	41.8%	78.0%	581.8%	123.9%	2035.6%
standard deviation	0.0%	4.2%	16.1%	107.4%	24.3%	633.9%
n=	1	2	15	24	18	9
Metals & Mining						
median	21.7%		35.9%	41.9%	51.2%	70.4%
mean	21.7%		35.3%	47.4%	51.9%	116.8%
min	21.7%		14.0%	10.0%	13.0%	34.9%
max	21.7%		64.6%	103.2%	118.4%	262.4%
standard deviation	0.0%		12.1%	24.1%	28.2%	90.1%
n=	1		16	25	26	11
Retail & Distribution						
median	40.4%	55.6%	55.1%	64.2%	74.6%	113.9%
mean	40.4%	62.0%	58.5%	69.3%	78.0%	108.3%
min	40.4%	38.0%	31.5%	33.6%	42.2%	59.7%
max	40.4%	86.5%	128.2%	154.8%	121.2%	167.0%
standard deviation	0.0%	15.1%	18.0%	20.5%	21.5%	33.3%
n=	1	9	36	38	25	7
Services						
median		38.6%	49.3%	57.5%	85.7%	146.3%
mean		38.9%	54.8%	56.0%	90.5%	140.3%
min		21.7%	22.5%	20.9%	13.6%	67.9%
max		54.9%	103.5%	90.7%	191.3%	207.7%
standard deviation		14.4%	20.9%	17.4%	38.8%	52.6%
n=		6	19	36	24	5
Telecommunications						
median	56.6%	37.9%	29.9%	54.7%	56.4%	74.0%
mean	56.6%	38.9%	33.8%	55.3%	57.4%	82.7%
min	56.6%	10.4%	5.9%	22.1%	17.0%	40.1%
max	56.6%	68.3%	81.7%	137.4%	240.7%	252.5%
standard deviation	0.0%	28.9%	18.4%	21.2%	29.0%	38.9%
n=	1	3	21	54	59	39
Transportation						
median	58.3%	37.5%	41.9%	61.6%	63.5%	103.6%
mean	58.3%	55.1%	48.5%	59.3%	68.5%	103.6%
min	57.2%	30.5%	24.2%	22.8%	39.4%	72.6%
max	59.4%	133.8%	112.9%	104.1%	186.0%	134.5%
standard deviation	1.6%	36.5%	19.3%	23.5%	31.8%	43.8%
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 25

CAPEX / Depreciation

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	1.1	1.3	1.3	1.2	1.2	1.1	0.8
mean	1.1	1.3	1.7	1.6	2.6	1.7	1.3
min	0.8	0.8	0.5	0.2	0.1	-0.1	-0.3
max	1.2	2.0	27.4	40.5	301.8	21.0	24.0
standard deviation	0.2	0.3	2.3	2.6	14.7	2.2	2.6
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			1.3	1.3	1.1	0.9	0.9
mean			1.3	1.5	1.2	1.2	0.9
min			1.0	0.8	0.5	0.8	0.9
max			1.6	3.3	2.9	2.5	0.9
standard deviation			0.2	0.7	0.6	0.7	0.0
n=			7	8	11	5	1
Automotive							
median		1.3	1.2	1.5	1.3	1.2	
mean		1.3	1.3	1.5	1.4	1.3	
min		1.3	0.9	1.2	0.8	0.8	
max		1.3	2.1	2.2	1.9	1.9	
standard deviation		0.0	0.3	0.2	0.3	0.3	
n=		1	11	16	18	7	
Chemicals							
median		1.5	1.2	1.3	1.2	0.9	1.0
mean		1.5	1.2	1.2	1.7	1.0	1.2
min		1.5	1.0	0.4	0.7	0.4	0.4
max		1.5	1.6	2.4	5.3	1.6	3.1
standard deviation		0.0	0.2	0.5	1.1	0.4	1.0
n=		1	13	35	26	8	6
Consumer Products							
median		1.3	1.3	1.2	1.2	1.1	0.6
mean		1.4	1.4	1.3	1.6	1.7	0.7
min		1.3	0.5	0.6	0.2	0.5	0.3
max		1.5	3.7	3.4	15.6	16.4	1.2
standard deviation		0.1	0.6	0.4	1.8	2.6	0.3
n=		4	30	72	78	49	8
Energy & Environment							
median	0.8	1.1	1.5	1.4	1.0	1.1	0.8
mean	0.8	1.0	1.5	1.7	1.4	1.9	0.9
min	0.8	0.8	0.6	0.2	0.1	0.1	0.0
max	0.8	1.1	2.6	8.5	9.2	13.5	4.2
standard deviation	0.0	0.2	0.6	1.6	1.4	2.3	0.9
n=	1	3	11	58	52	56	38
Healthcare							
median	1.2	1.8	1.6	1.3	1.2	1.1	1.0
mean	1.2	1.8	1.9	1.4	1.5	1.1	0.9
min	1.2	1.8	0.5	0.9	0.8	0.4	0.7
max	1.2	1.8	4.1	2.8	3.3	3.0	1.1
standard deviation	0.0	0.0	1.0	0.5	0.7	0.6	0.2
n=	1	1	16	20	12	12	3
Manufacturing							
median		1.0	1.2	1.2	1.3	1.1	1.3
mean		1.0	1.7	2.1	8.6	2.4	4.6
min		1.0	0.7	0.3	0.1	-0.1	-0.3
max		1.0	15.7	29.1	301.8	16.0	24.0
standard deviation		0.0	2.4	4.1	37.2	3.2	8.2
n=		1	39	55	71	54	9
Media							
median		1.8	1.6	1.2	1.0	1.0	0.9

mean	1.8	1.6	1.3	1.0	1.1	1.2
min	1.8	1.4	0.9	0.1	0.5	0.5
max	1.8	1.8	3.2	2.5	3.2	4.0
standard deviation	0.0	0.2	0.6	0.5	0.6	1.1
n=	1	2	15	24	18	9
Metals & Mining						
median	1.2		1.0	1.2	1.0	0.6
mean	1.2		1.1	1.3	1.3	1.0
min	1.2		0.6	0.5	0.2	0.1
max	1.2		2.2	3.6	3.6	4.8
standard deviation	0.0		0.4	0.7	0.9	1.3
n=	1		16	25	26	11
Retail & Distribution						
median	1.0	1.0	1.1	1.2	1.1	0.9
mean	1.0	1.1	1.2	2.0	1.2	1.0
min	1.0	0.7	0.5	0.7	0.6	0.7
max	1.0	2.0	1.7	20.0	3.2	1.5
standard deviation	0.0	0.4	0.3	3.2	0.6	0.3
n=	1	9	36	38	25	7
Services						
median		1.3	1.1	1.1	1.2	0.8
mean		1.4	1.3	1.4	2.2	0.8
min		1.1	0.8	0.3	0.0	0.3
max		1.9	2.9	5.0	21.0	1.4
standard deviation		0.3	0.5	1.0	4.1	0.4
n=		6	19	36	24	5
Telecommunications						
median	1.1	1.5	1.3	1.2	1.1	0.8
mean	1.1	1.6	1.6	1.4	1.5	0.9
min	1.1	1.3	0.9	0.4	0.5	0.6
max	1.1	2.0	4.2	4.3	23.0	1.1
standard deviation	0.0	0.4	0.9	0.7	2.9	0.2
n=	1	3	21	54	59	39
Transportation						
median	1.4	1.7	1.6	1.5	1.0	1.2
mean	1.4	5.3	3.8	2.1	1.4	1.2
min	1.4	0.8	1.0	0.6	0.0	1.0
max	1.4	27.4	40.5	7.4	5.2	1.3
standard deviation	0.0	9.7	8.1	1.8	1.4	0.2
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 26

Revenue Volatility

	Aaa	Aa	A	Baa	Ba	B	Caa-C
Aggregate							
median	6.8	8.6	7.4	10.7	14.3	18.7	18.9
mean	13.7	11.8	10.5	14.4	18.4	24.5	25.7
min	3.7	1.5	1.0	1.2	0.7	2.2	0.5
max	30.6	30.7	57.1	83.8	92.5	185.4	138.3
standard deviation	14.7	10.0	9.9	12.1	14.5	22.2	23.0
n=	3	19	172	429	466	341	105
Aerospace & Defense							
median			4.3	8.1	6.6	21.2	18.7
mean			4.4	8.6	12.3	27.1	18.7
min			1.0	2.7	2.1	8.7	18.7
max			7.1	18.6	38.9	57.2	18.7
standard deviation			2.5	4.9	12.0	21.7	0.0
n=			7	8	11	5	1
Automotive							
median		9.1	9.4	9.3	13.4	10.4	
mean		9.1	8.7	8.7	17.5	14.0	
min		9.1	3.2	4.1	2.4	3.8	
max		9.1	13.9	15.4	45.1	36.8	
standard deviation		0.0	3.9	3.6	13.2	11.5	
n=		1	11	16	18	7	
Chemicals							
median		8.6	6.8	7.6	12.0	18.0	24.7
mean		8.6	7.6	10.3	14.5	26.3	24.2
min		8.6	3.4	2.4	2.3	6.9	5.2
max		8.6	17.7	25.8	46.0	77.4	42.4
standard deviation		0.0	3.6	6.9	9.5	25.6	13.5
n=		1	13	35	26	8	6
Consumer Products							
median		5.5	5.8	9.5	11.2	12.9	14.4
mean		6.0	8.2	14.4	14.0	23.5	18.3
min		1.6	1.5	2.0	0.7	2.5	4.5
max		11.4	24.1	57.3	48.5	185.4	55.4
standard deviation		4.0	5.8	12.4	10.6	33.5	17.1
n=		4	30	72	78	49	8
Energy & Environment							
median	30.6	29.9	17.9	22.1	22.9	28.4	28.4
mean	30.6	29.5	16.5	24.6	27.2	34.4	34.0
min	30.6	27.8	3.2	2.3	1.8	9.3	6.8
max	30.6	30.7	33.7	83.8	76.3	112.8	138.3
standard deviation	0.0	1.5	12.7	16.6	17.8	20.9	23.6
n=	1	3	11	58	52	56	38
Healthcare							
median	3.7	6.1	7.7	14.8	17.0	22.2	13.1
mean	3.7	6.1	11.5	15.4	15.6	29.8	13.1
min	3.7	6.1	3.3	2.5	3.2	2.7	10.5
max	3.7	6.1	49.2	28.8	26.0	85.1	15.7
standard deviation	0.0	0.0	11.8	8.7	7.6	23.3	3.7
n=	1	1	16	20	12	12	3
Manufacturing							
median		4.8	7.8	12.2	23.2	22.2	25.2
mean		4.8	10.8	15.7	24.1	27.6	35.0
min		4.8	2.0	2.1	3.6	2.4	7.6
max		4.8	55.1	66.7	92.5	79.0	65.4
standard deviation		0.0	9.6	12.8	15.3	17.5	21.1
n=		1	39	55	71	54	9
Media							
median		23.7	10.7	9.4	9.3	7.9	9.6

mean	23.7	10.7	12.5	17.9	15.0	7.7
min	23.7	10.4	2.8	4.6	2.8	0.5
max	23.7	11.1	51.9	72.0	56.1	15.1
standard deviation	0.0	0.5	12.7	16.5	15.5	4.8
n=	1	2	15	24	18	9
Metals & Mining						
median	20.6		12.1	16.0	18.2	22.8
mean	20.6		13.7	16.0	19.6	36.2
min	20.6		6.2	2.6	6.2	3.6
max	20.6		22.5	37.1	42.5	133.2
standard deviation	0.0		5.7	9.1	9.4	35.3
n=	1		16	25	26	11
Retail & Distribution						
median	1.5	7.6	8.0	10.6	9.3	6.8
mean	1.5	7.7	11.4	15.5	16.1	11.5
min	1.5	2.4	1.2	1.2	2.2	3.6
max	1.5	11.4	66.3	60.2	78.2	29.3
standard deviation	0.0	2.8	12.1	15.0	18.0	10.5
n=	1	9	36	38	25	7
Services						
median		8.6	7.3	13.0	14.7	8.3
mean		16.1	9.0	18.7	18.2	22.5
min		2.8	2.0	0.7	4.7	6.9
max		40.5	26.0	68.8	46.3	50.9
standard deviation		15.7	5.9	15.5	12.6	20.9
n=		6	19	36	24	5
Telecommunications						
median	6.8	11.6	11.9	8.5	12.1	15.3
mean	6.8	10.0	15.0	12.4	17.0	24.8
min	6.8	1.7	1.5	1.7	0.9	3.5
max	6.8	16.7	57.1	40.2	77.2	96.4
standard deviation	0.0	7.6	15.8	9.3	15.4	21.5
n=	1	3	21	54	59	39
Transportation						
median	3.8	5.3	9.0	11.6	11.9	10.9
mean	3.8	6.0	11.5	13.7	22.1	10.9
min	3.4	4.2	2.3	2.4	2.5	8.7
max	4.1	10.0	37.6	28.5	118.5	13.1
standard deviation	0.5	2.2	9.1	9.1	28.1	3.1
n=	2	7	25	16	18	2

Source: Moody's Financial Metrics™

Exhibit 27

Percentage Change in Medians of Baa-rated Issuers, 2015 - 2016⁴

	EBITA / Average Assets	EBITA / Interest Expense	EBITA Margin	Operating Margin	(FFO + Interest Expense) / Interest Expense	FFO / Debt	Retained Cash Flow / Net Debt	Debt / EBITDA	DEBT / Book Capitalization	CAPEX / Depreciation
Aerospace & Defense	21.2%	-2.8%	9.6%	10.9%	-6.6%	2.7%	-18.4%	-3.1%	0.9%	-1.0%
Automotive	-2.4%	-18.7%	-1.1%	-1.2%	-10.3%	-0.9%	-2.3%	-5.7%	5.7%	-10.9%
Chemicals	-9.7%	4.3%	-11.6%	-10.7%	3.0%	-11.6%	-6.4%	12.7%	-6.5%	-2.2%
Consumer Products	13.1%	3.6%	6.2%	1.9%	-5.1%	-0.3%	-0.3%	-2.4%	-9.4%	0.2%
Energy & Environment	-2.0%	-13.1%	-6.8%	-14.5%	0.7%	-7.8%	-34.1%	11.2%	7.1%	-8.5%
Healthcare	-9.6%	7.7%	-7.0%	-9.3%	-3.8%	13.6%	19.3%	-5.8%	-6.4%	7.5%
Manufacturing	-9.5%	1.9%	1.4%	4.5%	12.0%	10.9%	25.0%	-2.2%	-2.2%	0.0%
Media	-17.8%	-4.2%	3.8%	-1.3%	4.8%	-7.4%	14.1%	4.8%	0.2%	4.8%
Metals & Mining	21.1%	66.4%	-0.3%	12.4%	31.4%	79.2%	62.6%	-30.5%	-20.0%	-9.3%
Retail & Distribution	-7.4%	10.2%	6.3%	18.9%	4.0%	-3.1%	2.2%	3.1%	0.5%	-2.2%
Services	2.3%	32.4%	7.9%	2.0%	27.0%	4.3%	9.2%	0.2%	-14.1%	-5.0%
Telecommunications	7.2%	-2.4%	3.2%	-10.3%	-5.3%	-16.5%	-6.4%	10.2%	15.6%	-0.3%
Transportation	-3.0%	-7.8%	-14.7%	-14.7%	1.5%	1.0%	1.9%	4.0%	-3.2%	8.8%
Aggregate Aaa	0.5%	-34.1%	12.7%	1.1%	-35.2%	-31.6%	-33.7%	40.5%	23.4%	-19.3%
Aggregate Aa	-5.5%	-13.6%	-3.9%	-1.1%	-21.3%	-12.1%	-5.8%	1.2%	-10.3%	-3.3%
Aggregate A	-4.8%	-7.5%	2.0%	2.9%	1.5%	-8.0%	-3.5%	7.6%	3.0%	-0.9%
Aggregate Baa	0.1%	4.9%	1.5%	-3.7%	5.8%	-2.0%	1.2%	1.8%	-1.6%	-1.9%
Aggregate Ba	5.4%	5.0%	6.5%	3.0%	1.6%	-3.0%	-2.9%	2.2%	0.2%	-2.4%
Aggregate B	1.5%	15.0%	4.5%	3.9%	2.9%	-1.8%	7.9%	1.0%	-4.9%	1.5%
Aggregate Caa-C	186.1%	101.0%	142.0%	114.6%	8.1%	27.6%	28.4%	13.5%	-0.4%	7.9%

Source: Moody's Financial Metrics™

Appendix B: Definition of Credit Ratios

Below we define the ratios presented in this study. Please note that these definitions are applied to adjusted financial numbers. For a detailed discussion of Moody's global adjustments, please consult the references.

EBITA / Average Assets

EBITA / Average of Current and Previous Year Assets

EBITA / Interest Expense

EBITA / Interest Expense

EBITA Margin

EBITA / Net Revenue

(FFO + Interest Expense) / Interest Expense

(Funds From Operations + Interest Expense) / Interest Expense

FFO / Debt

Funds From Operations / (Short-Term Debt + Long-Term Debt)

RCF / Net Debt

(FFO – Preferred Dividends – Common Dividends – Minority Dividends) / (Short-Term Debt + Long-Term Debt, gross – Cash and Cash Equivalents)

Debt / EBITDA

(Short-Term Debt + Long-Term Debt) / EBITDA

Debt / Book Capitalization

(Short-Term Debt + Long-Term Debt) / (Short-Term Debt + Long-Term Debt + Deferred Taxes + Minority Interest + Book Equity)

Operating Margin

Operating Profit / Net Revenue

CAPEX / Depreciation Expense

CAPEX / Depreciation Expense

Revenue Volatility

Standard Deviation of Trailing Five Years of Net Revenue Growth

Appendix C: Definition of Industry Aggregates

In this report we study the distribution of financial ratios across 13 industry aggregates. These aggregates are based on proprietary Moody's coding of broad and specific industry categories. They may generally be described as follows:

Automotive

Commercial and passenger automotive and parts manufacturers.

Chemicals

Agricultural, commodity and specialty chemicals producers.

Consumer Products

Packaged food and beverage, household and personal care products, apparel and shoes, textiles and durable consumer products. Casinos, lodging, restaurants and general amusements. Pulp and (non-packaging) paper, wood products, agriculture, protein and tobacco processors. Paper, glass, metal and plastic packaging.

Energy & Environment

Oil & gas exploration and production, refining and marketing, and integrated oil companies. (Non-utility) electricity production, merchant energy, oil service and pipeline operators, environmental services and waste management.

Healthcare

Hospitals, long-term care facilities, outpatient facilities, medical device manufacturers and medical service providers. General and specialty pharmaceuticals.

Manufacturing

Heavy machinery, building materials, (low technology) component equipment, (non-consumer) finished products, and transportation equipment manufacturers. Commercial and residential construction, homebuilding.

Media

Book and newspaper publishing, broadcast and subscription radio and television, and diversified media.

Metals & Mining

Coal and metal mining, aluminum and steel production and recycling.

Retail & Distribution

Grocery stores, drug stores, department stores, general and specialty merchandise retailers, and various wholesale distributors.

Services

Business services, consumer services, technology services, and defense services.

Telecommunications

Computer hardware, software, component equipment, consumer electronics, semiconductor and contract manufacturers. Wireless, wireline, towers, satellite equipment and services, equipment manufacturers and integrated telecommunications companies.

Transportation

Equipment leasing, airlines, air freight, railroad and maritime shipping, commuter transportation.

Moody's Related Research

- » [Moody's Financial Metrics™ Key Ratios by Rating and Industry for Global Non-Financial Corporates: December 2015](#)
- » [Moody's Financial Metrics™ Key Ratios by Rating and Industry for North America Non-Financial Corporates: December 2015](#)
- » [Moody's Financial Metrics™ Key Ratios by Rating and Industry for EMEA Non-Financial Corporates: December 2015](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

- [1](#) Please see "[Moody's Senior Ratings Algorithm & Estimated Senior Ratings](#)," Feb 2009 for a discussion of estimated senior unsecured ratings.
- [2](#) For an analysis of changes on a matched sample of issuers, please see "[Trends in Moody's Financial Metrics Key Ratios During the Economic Downturn](#)," Jan 2011.
- [3](#) The average is taken with respect to all metrics except revenue volatility. Adjustments are made for those metrics (e.g., Debt / EBITDA) for which greater values are less desirable.
- [4](#) It should be noted that the metrics reported for 2015fy may not agree with our prior published research since we are now computing those metrics on a somewhat expanded universe of issuers.

© 2017 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MOODY'S PUBLICATIONS MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody.com for the most updated credit rating action information and rating history.

REPORT NUMBER

1092023

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454