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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
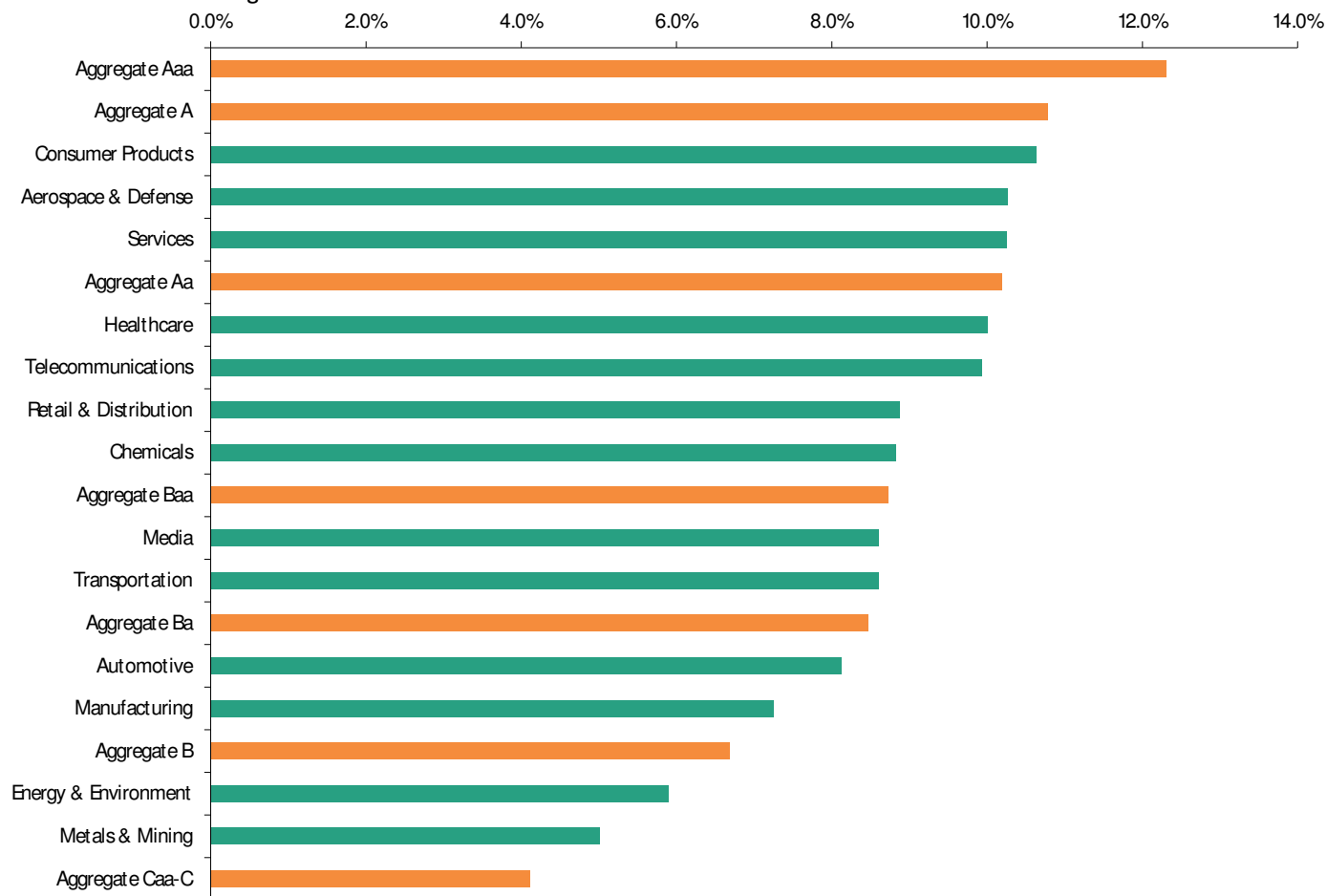
Source: Moody's Financial Metrics™

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
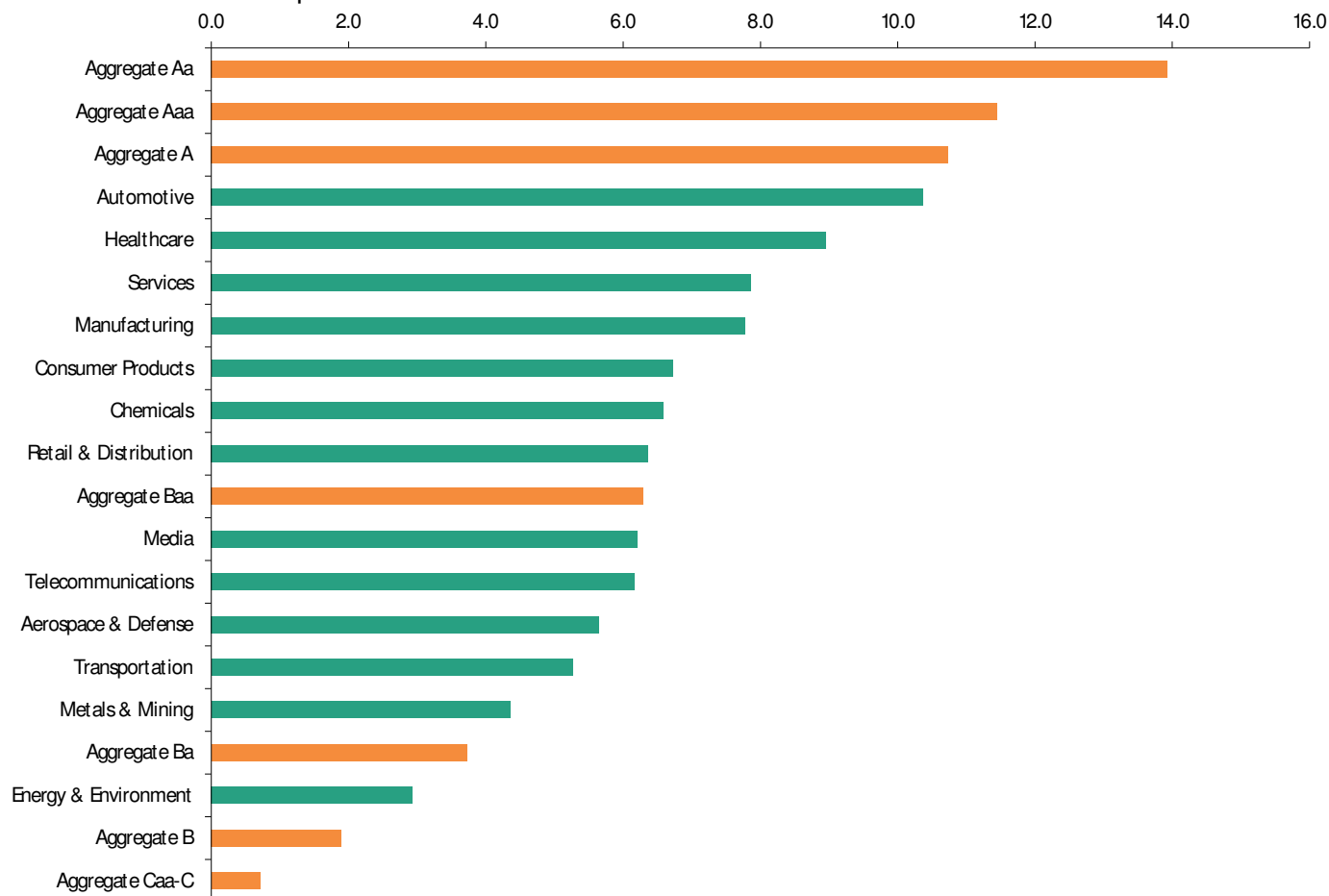**Median Baa Operating Margin**

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
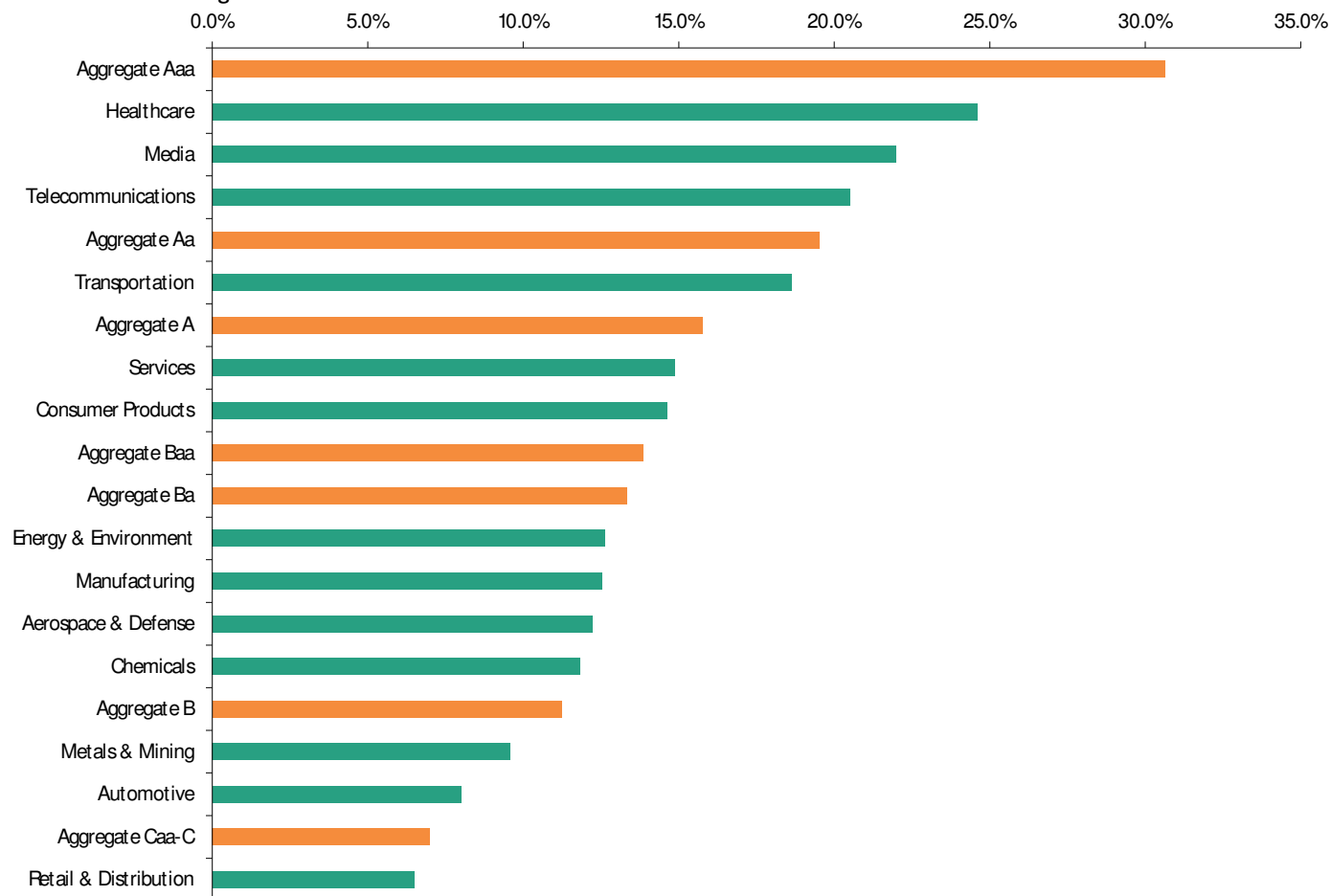

Source: Moody's Financial Metrics™

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
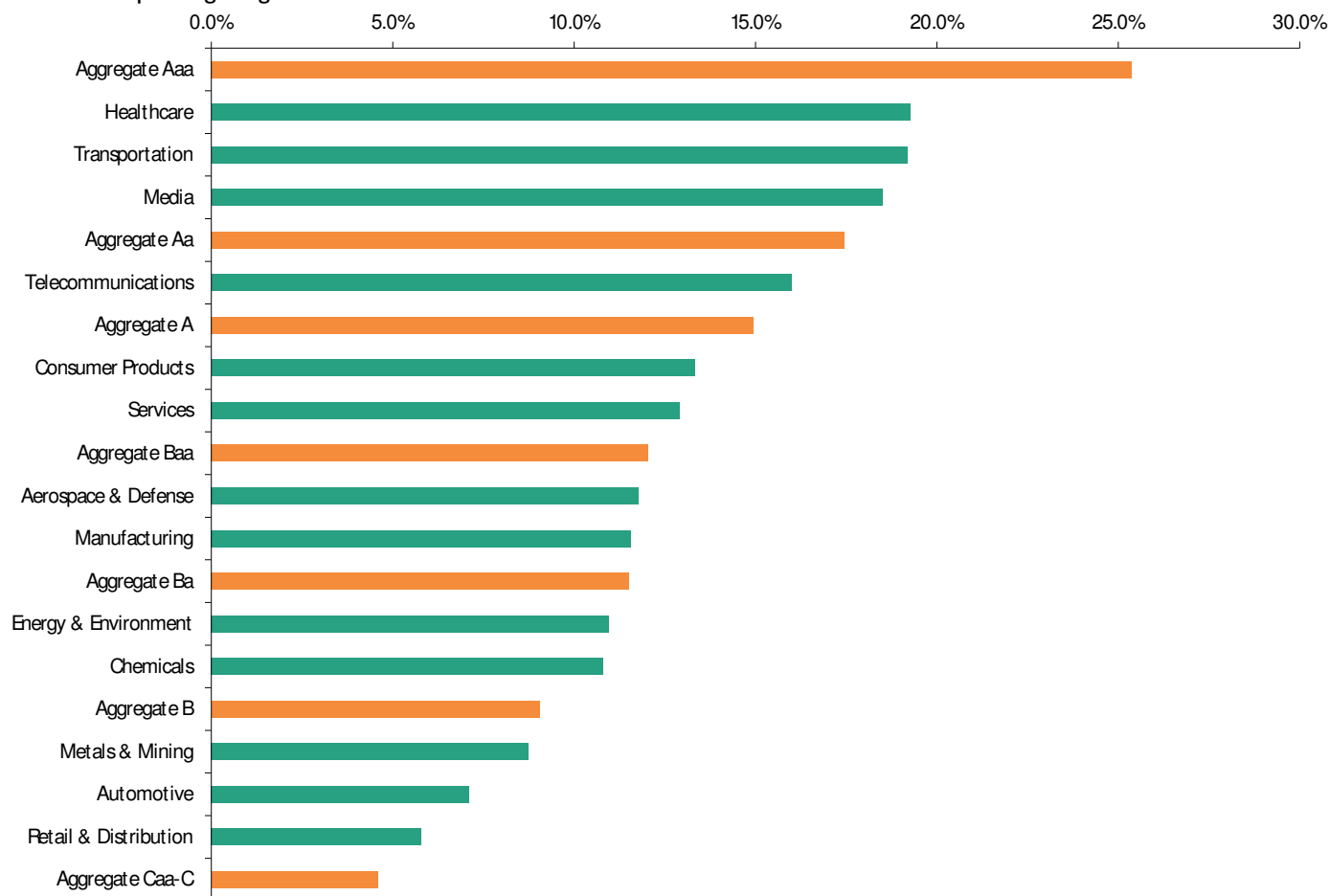**Median FFO / Debt**

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
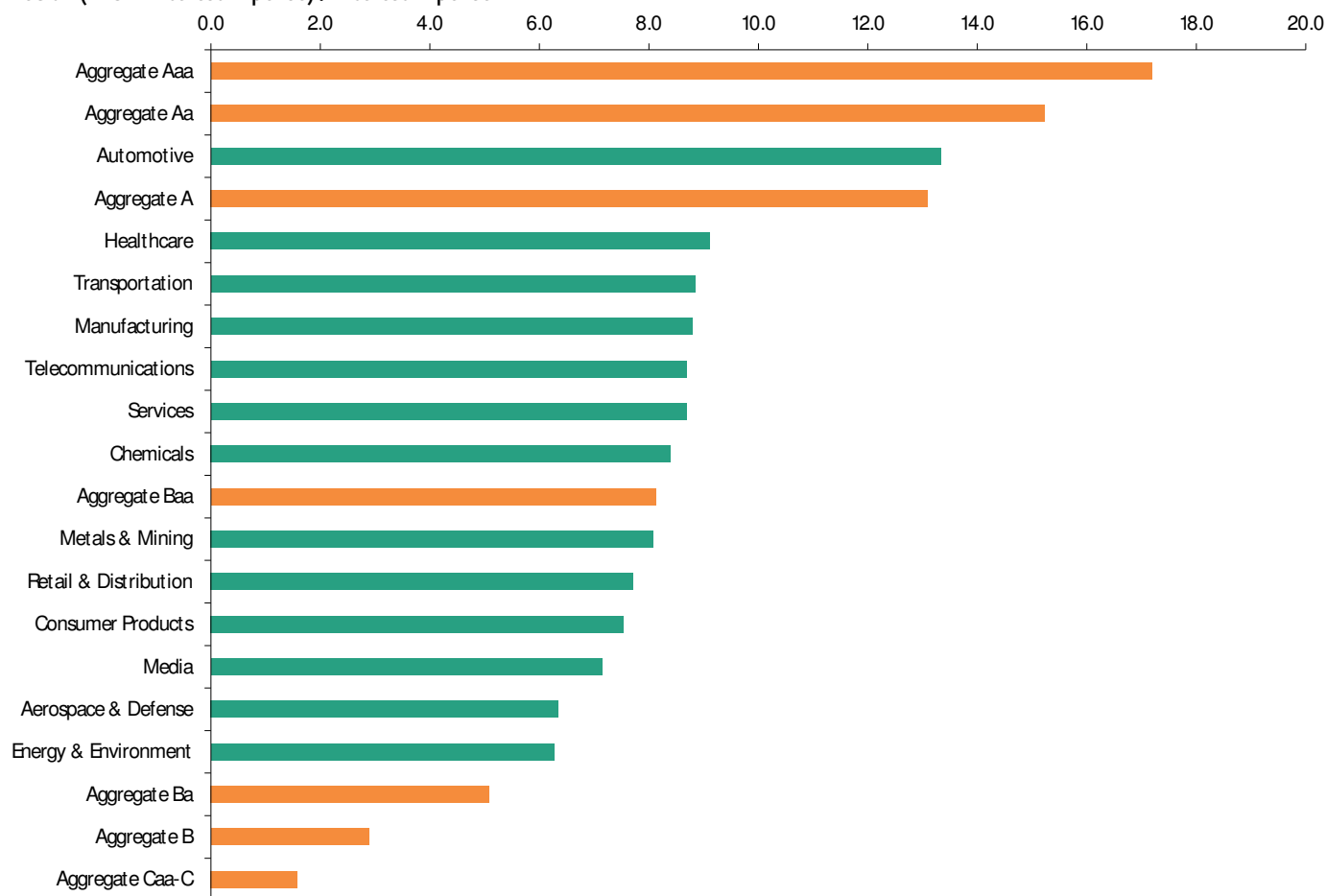**Median Debt / EBITDA**

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
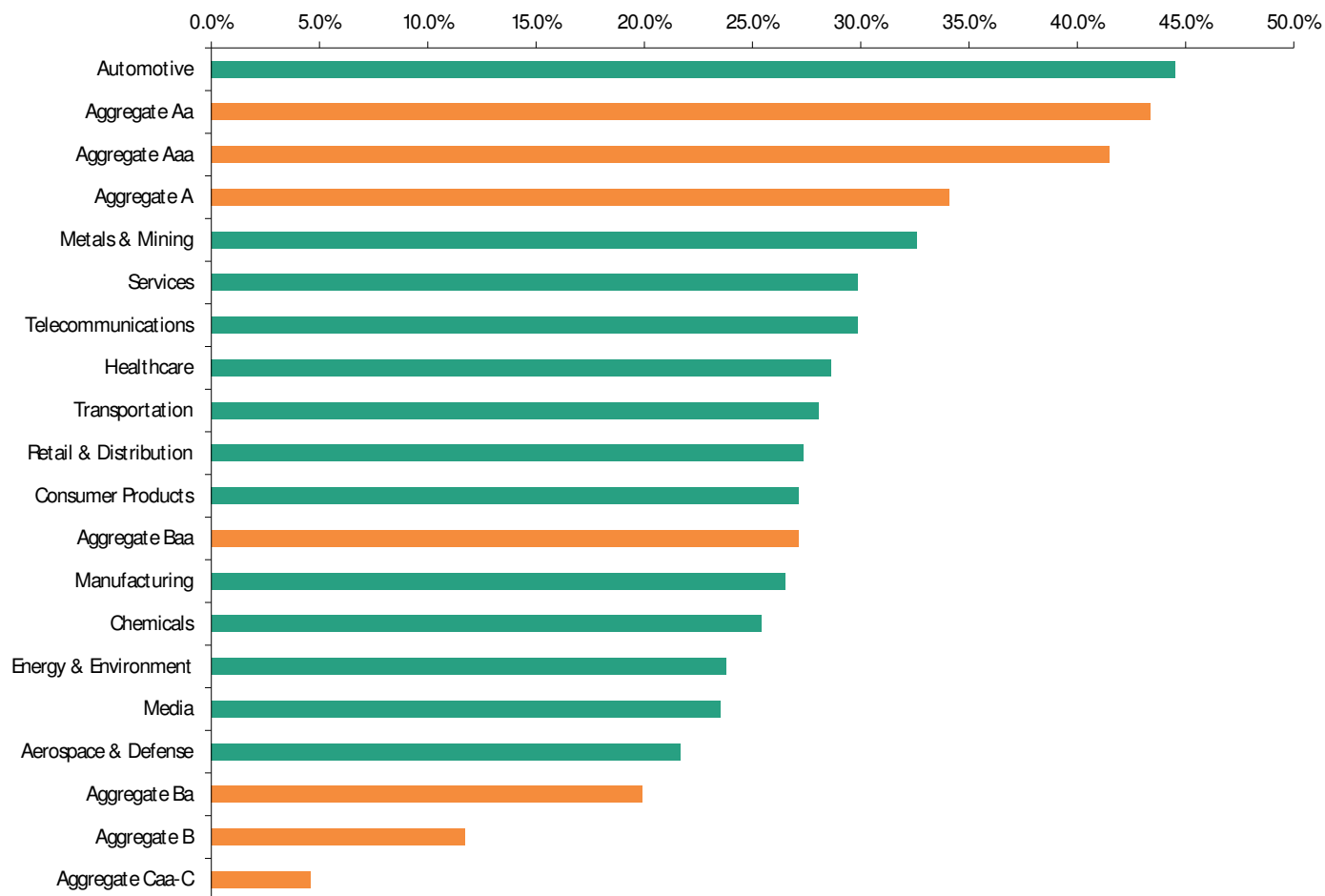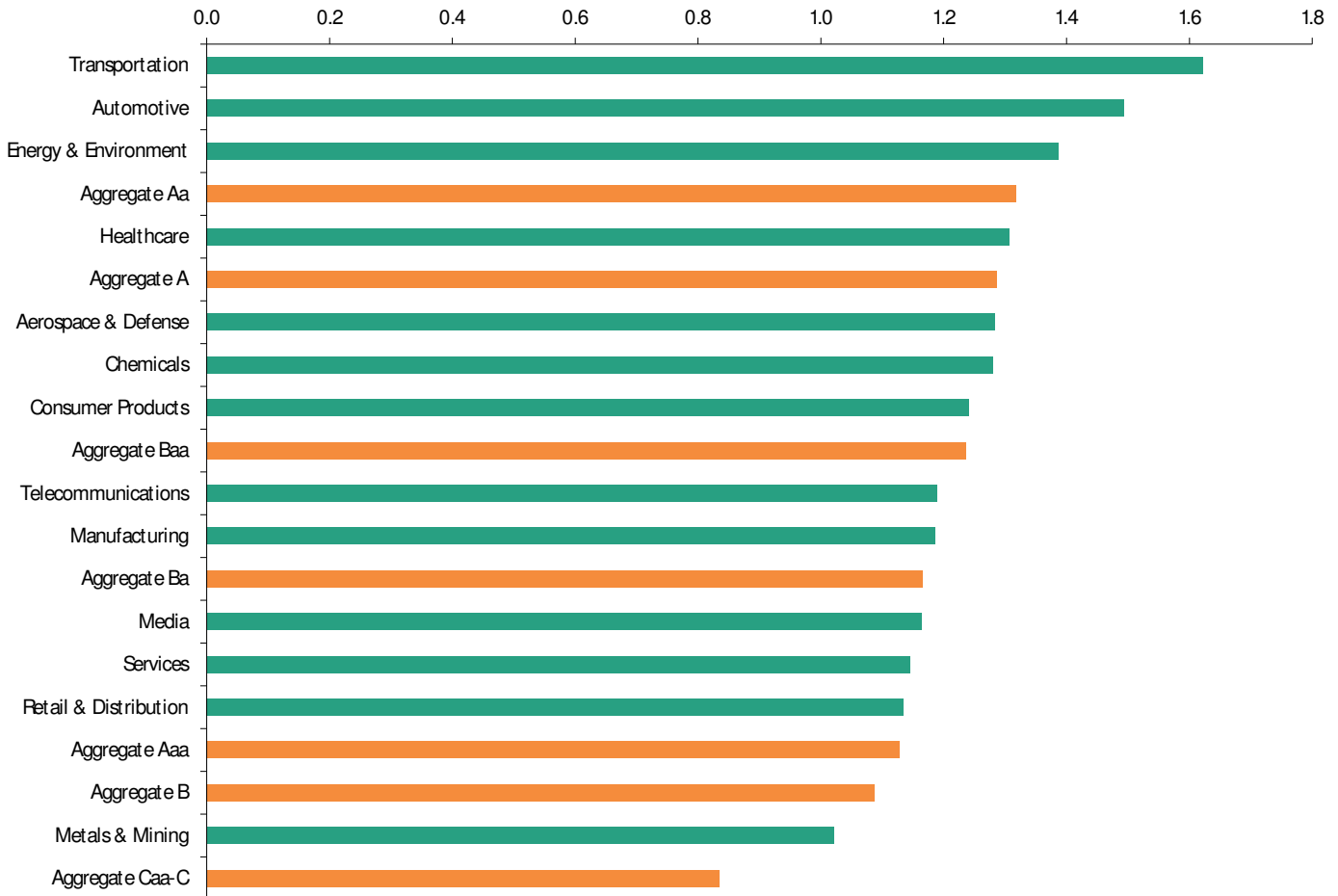

Source: Moody's Financial Metrics™

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
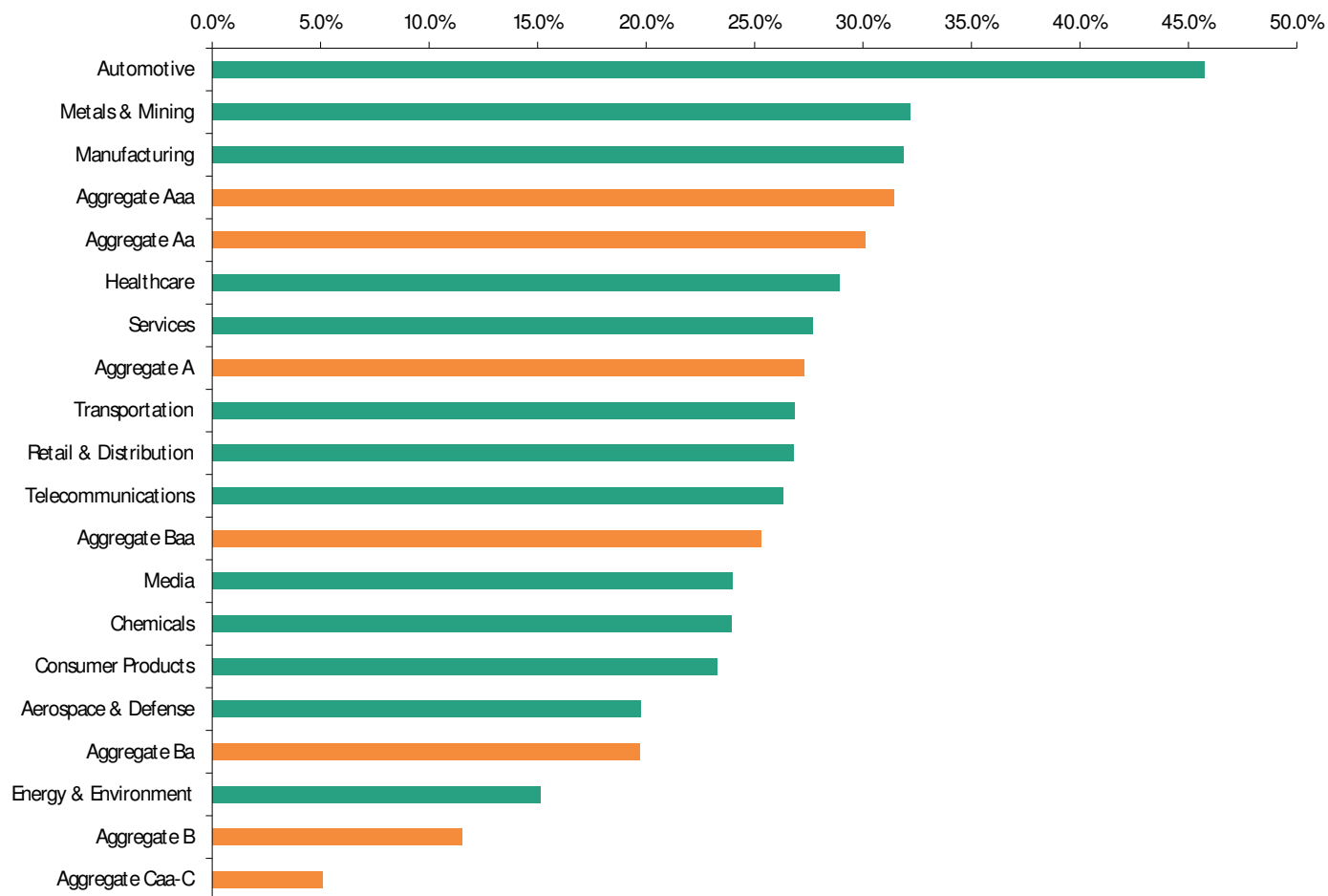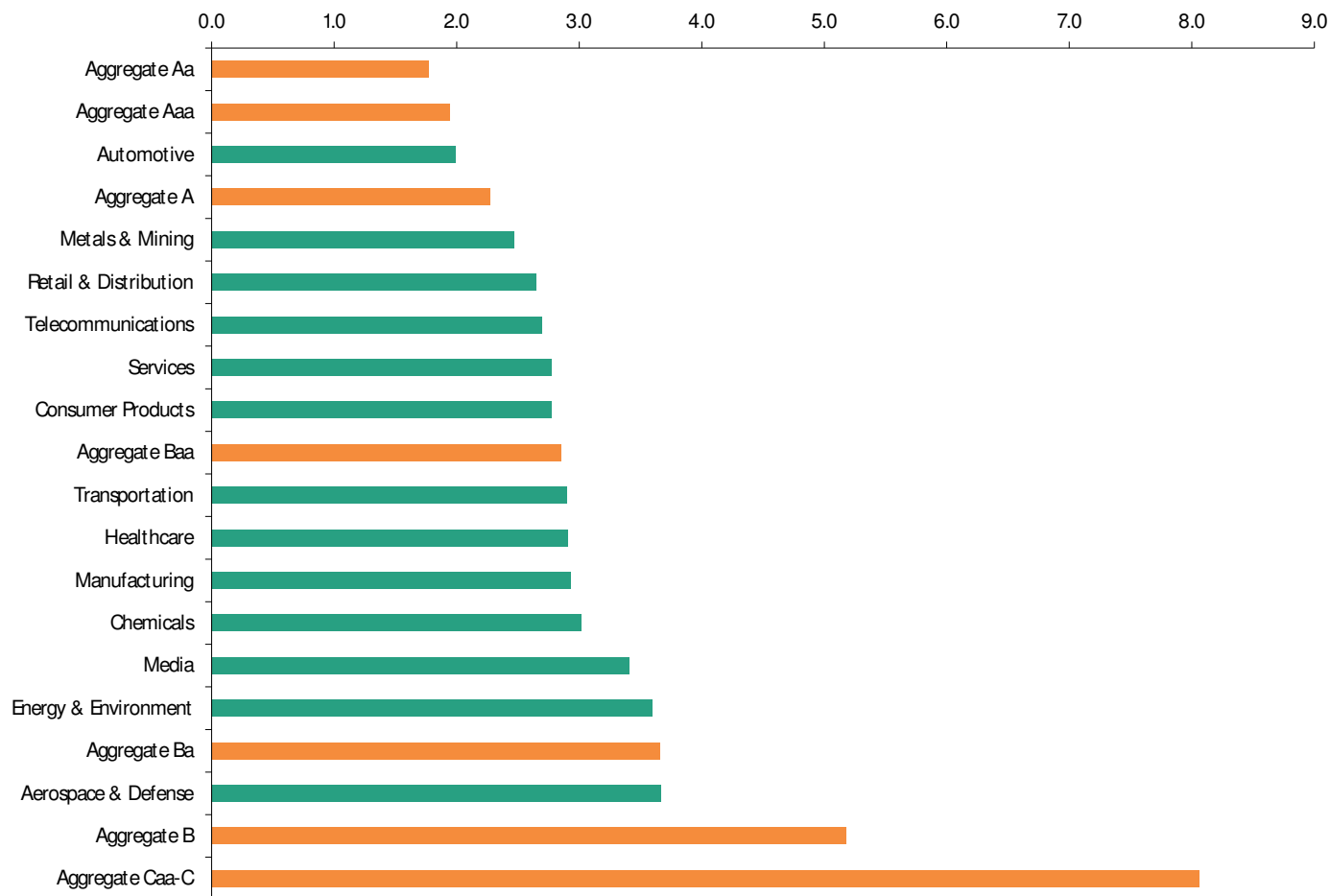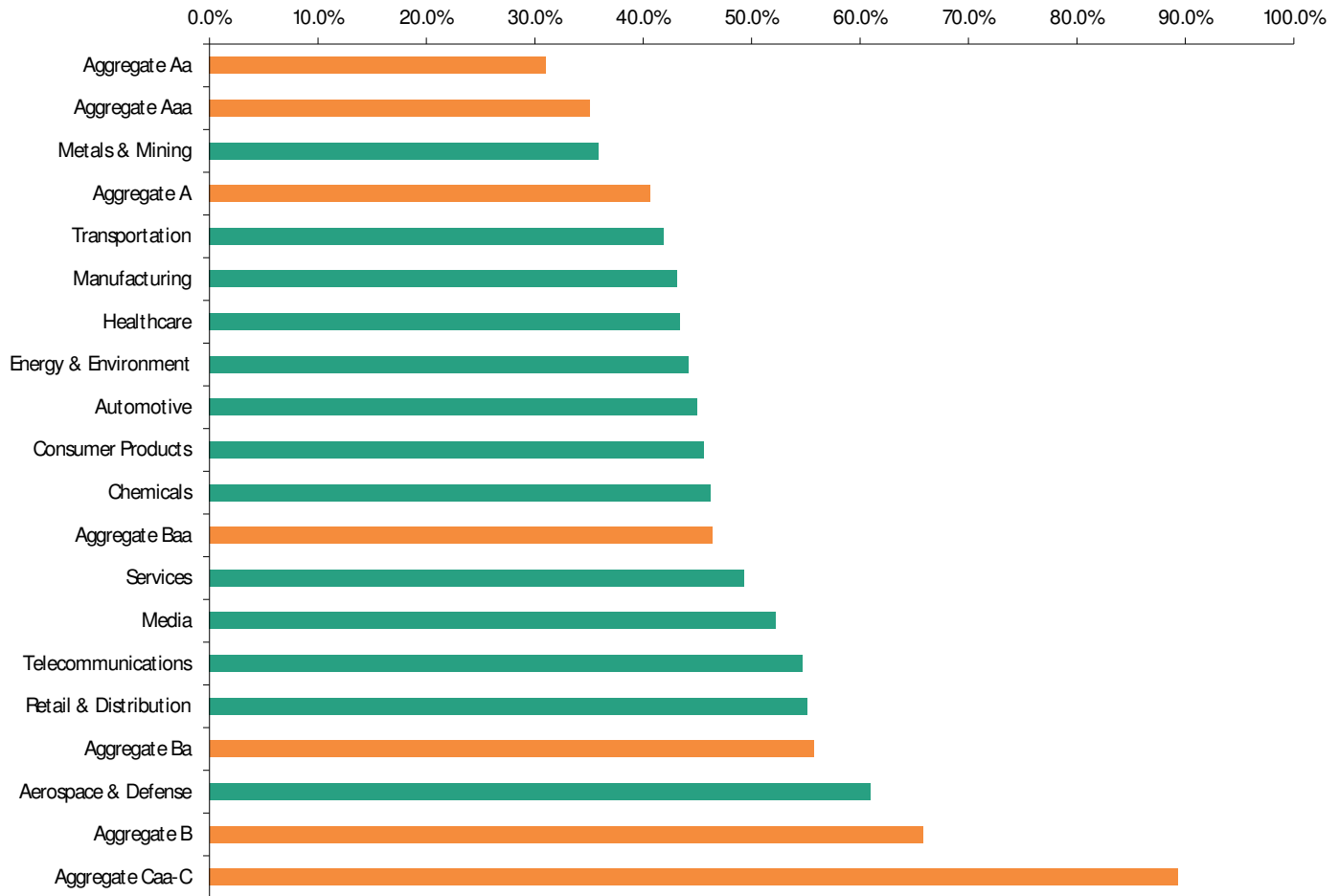**Median Baa Revenue Volatility**
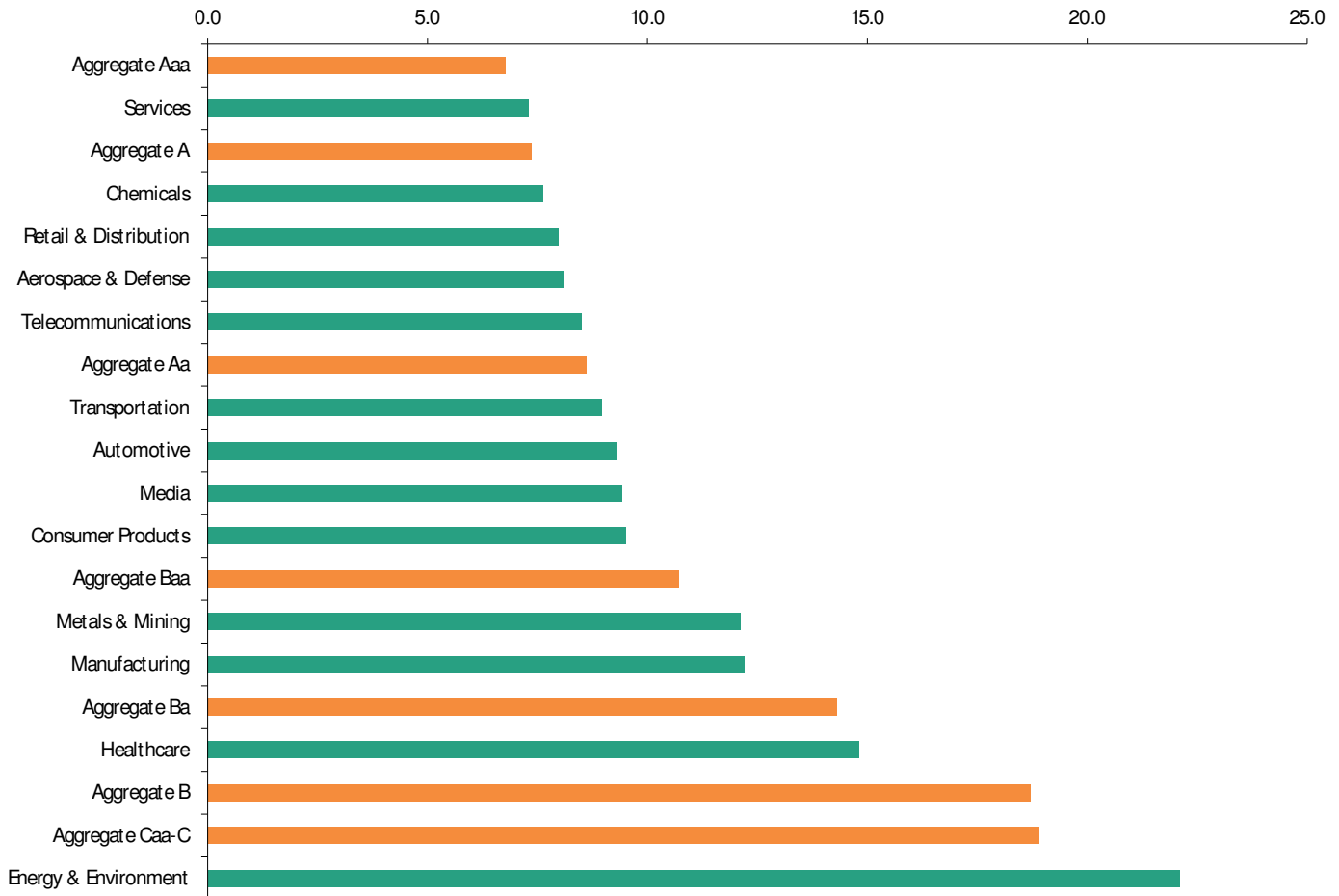
Source: Moody's Financial Metrics™

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%	7.7%	8.3%
mean		12.3%	17.1%	16.9%	10.8%	8.6%	7.9%	7.8%
min		12.3%	15.0%	5.5%	-6.2%	1.4%	1.3%	-0.5%
max		12.3%	20.6%	34.4%	25.8%	29.6%	23.9%	16.8%
standard deviation		0.0%	3.1%	8.1%	5.6%	4.8%	4.2%	5.8%
n=		1	3	21	54	59	39	6
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	1.3
mean	11.5	44.8	34.2	9.0	4.8	2.4	1.8
min	11.5	12.0	2.2	-8.3	0.4	0.3	-0.1
max	11.5	82.1	148.2	42.8	43.8	7.7	4.2
standard deviation	0.0	35.3	35.8	8.4	5.9	1.7	1.6
n=	1	3	21	54	59	39	6
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%	14.0%
mean	30.6%	24.0%	31.0%	19.5%	18.8%	17.9%	16.5%
min	30.6%	17.3%	7.7%	-16.4%	1.4%	1.8%	-0.4%
max	30.6%	29.9%	70.4%	44.4%	86.1%	58.1%	44.4%
standard deviation	0.0%	6.3%	15.1%	11.1%	15.4%	12.3%	16.1%
n=	1	3	21	54	59	39	6
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%	10.2%
mean	25.4%	20.8%	27.5%	15.9%	14.1%	12.2%	13.9%
min	25.4%	13.5%	7.2%	-20.2%	-6.2%	-2.6%	-0.5%
max	25.4%	27.9%	66.4%	40.6%	80.4%	54.4%	42.2%
standard deviation	0.0%	7.2%	14.5%	10.5%	14.2%	11.0%	15.7%
n=	1	3	21	54	59	39	6
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	3.7	2.0
mean	17.2	50.6	38.1	11.3	7.1	4.0	2.8
min	17.2	15.1	5.9	-2.2	0.6	1.3	0.5
max	17.2	94.6	146.4	48.7	43.1	8.3	6.4
standard deviation	0.0	40.4	39.2	8.8	6.6	1.7	2.2
n=	1	3	21	54	59	39	6
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%	10.0%
mean	41.5%	107.2%	103.9%	33.6%	26.9%	18.0%	15.2%
min	41.5%	52.9%	21.4%	-7.3%	-2.2%	3.7%	-4.1%
max	41.5%	198.5%	505.2%	92.5%	144.1%	94.7%	38.7%
standard deviation	0.0%	79.5%	115.7%	18.3%	20.7%	14.9%	16.9%
n=	1	3	21	54	59	39	6
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%	13.2%
mean	31.4%	133.4%	62.4%	54.4%	47.3%	20.5%	22.8%
min	31.4%	48.0%	-363.0%	-343.8%	-7.5%	0.2%	-10.7%
max	31.4%	278.9%	1000.1%	1092.3%	811.4%	111.9%	75.1%
standard deviation	0.0%	126.6%	326.9%	166.3%	106.5%	19.9%	30.9%
n=	1	3	21	54	59	39	6
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	5.1	5.0
mean	2.6	1.1	1.6	2.6	3.8	4.9	6.5
min	2.6	0.4	0.2	-8.6	0.6	0.9	2.2
max	2.6	1.7	4.0	10.4	12.0	9.5	15.5
standard deviation	0.0	0.6	1.0	2.0	1.9	1.7	5.1
n=	1	3	21	54	59	39	6
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%	85.0%
mean	56.6%	38.9%	33.8%	55.3%	57.4%	82.7%	84.5%
min	56.6%	10.4%	5.9%	22.1%	17.0%	40.1%	46.8%
max	56.6%	68.3%	81.7%	137.4%	240.7%	252.5%	135.6%
standard deviation	0.0%	28.9%	18.4%	21.2%	29.0%	38.9%	33.2%
n=	1	3	21	54	59	39	6
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

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

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	1.1	0.8
mean	1.1	1.6	1.6	1.4	1.5	1.2	0.9
min	1.1	1.3	0.9	0.4	0.5	0.1	0.6
max	1.1	2.0	4.2	4.3	23.0	2.6	1.1
standard deviation	0.0	0.4	0.9	0.7	2.9	0.5	0.2
n=	1	3	21	54	59	39	6

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	6.5
mean	6.8	10.0	15.0	12.4	17.0	24.8	9.0
min	6.8	1.7	1.5	1.7	0.9	3.5	4.1
max	6.8	16.7	57.1	40.2	77.2	96.4	17.9
standard deviation	0.0	7.6	15.8	9.3	15.4	21.5	5.8
n=	1	3	21	54	59	39	6
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 - 2016[4]

	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.

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.moodys.com for the most updated credit rating action information and rating history.

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