RAPIDRATINGS

DEFAULT ANALYSIS

Q1 2018

2018 Annual Default Review

Executive Summary

Examining companies which have defaulted through the lens of the RapidRatings FHR®, a single number from 0-100 that indicates the overall financial health of a given company at a glance, demonstrates how to successfully pick out the warning signs of deterioration and, ultimately, company failure. Specifically, this study explores trends from the 2017 default* cohort, which encompasses the 47 US non-financial companies that defaulted, against the backdrop of the 269 US non-financial companies which defaulted from 2013-2017. At a glance, this year's study found the following:

- For the 2017 default cohort, the average FHR at default was 25, falling in the High Risk category.
- At the start of 2017, the High Risk category encompassed 23% of the general population and captured 81% of subsequent defaulters.
- 96% of defaulters filed for bankruptcy while rated High or Very High Risk (FHR below 40), demonstrating exceptional precision in default identification.
- RapidRatings successfully separated likely defaulters from likely survivors to provide highly accurate early warnings with very low false alarm rates, enabling confident business decision making.
- Defaulters' debt burdens proved costly. The average defaulter in 2017 had twice the amount of leverage compared to non-defaulters (65% vs 27%), with a higher cost of debt (7% vs 4%) and a lower capacity to pay (interest coverage of -3.1x vs +2.7x).

Examining the FHR for companies that have failed demonstrates the efficacy of the RapidRatings Financial Health System in providing early foresight into these companies' deterioration and failure. Companies with low ratings have a higher probability of default and companies with high ratings have a lower probability of default.

*For this study, the term default is defined as a missed interest payment on public debt or bankruptcy filing in a U.S. Bankruptcy Court.

Part 1: Rating Analysis for 2017 Default Cohort

Following is a summary of the risk profiles exhibited by the 47 defaulters from 2017 at the time of and approaching default:

- The average FHR at default was 25. Twelve months prior to default: 33. Thirty-six months prior: 42.
- 50% of firms defaulted with an FHR below 23; 90% defaulted with an FHR below 37.

- 96% of defaulters filed for bankruptcy while rated High or Very High Risk (FHR below 40).

These numbers demonstrate that:

- Firms with lower FHRs are more likely to default than those with higher FHRs,
- In many cases, the high-risk warning was provided in excess of 12 months prior to the default,
- RapidRatings downgrades firms on their road to default (and into higher and higher risk categories) with ample warning time for our customers to take action.

Figure 1 presents the distribution of observed FHRs at default for the full set of defaulters across the 5 year period, that is, the 269 companies which defaulted from 2013-2017, shown in red. The lowest FHR at default was 11 and the highest FHR at default was 73 (SIGA Technologies Inc, a drug manufacturer which filed for bankruptcy to ensure uninterrupted drug manufacturing while settling a lawsuit). The most common FHR at default was 22 with 21 events. The dark blue distribution presents the frequency of FHRs 12 months prior to default. The similarity of dark blue and the red distributions show that many of the defaulting companies were flagged for warning more than 12 months in advance of the default event.

The 2017 default summary statistics were representative of the overall period. Table 1 shows the summary statistics for each year in the 5 year period, as well as the period total.

Figure 1: Actual and Statistical Distributions of FHR at Default (2013-2017)

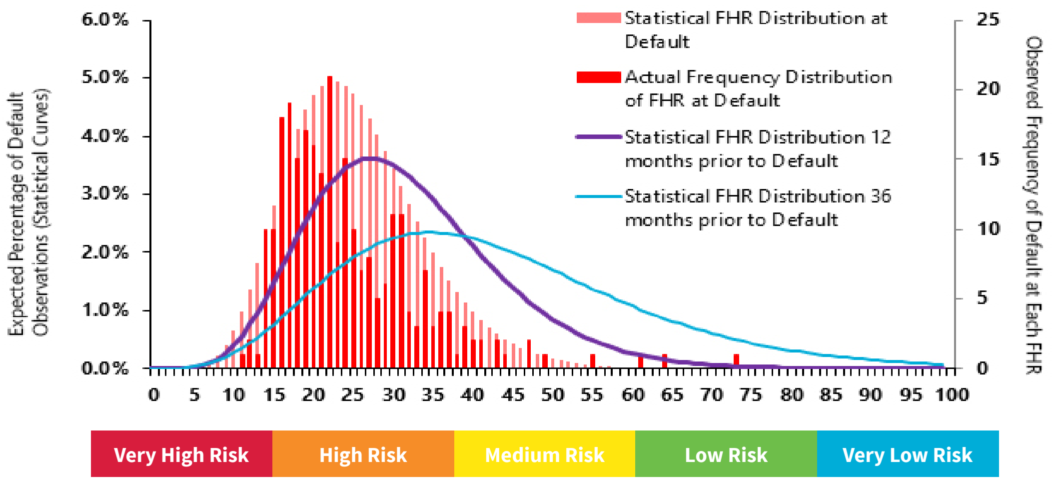


Table 1: Annual default summary statistics, 2013-2017

	2013	2014	2015	2016	2017	2013-17
Number of defaults	50	42	61	69	47	269
Average FHR at default	27.0	23.3	22.3	24.1	24.8	24.2
Average FHR 12 months prior to default	34.0	30.7	31.0	32.8	33.2	32.3
Average FHR 36 months prior to default	37.6	48.4	45.8	41.7	41.8	43.0
% defaults from High or Very High Risk	90%	98%	97%	94%	96%	95%
50% of defaulters defaulted below:	27	22	21	23	23	23
90% of defaulters defaulted below:	40	33	35	34	37	36

Part 2: High Accuracy, Low Rate of False Alarm

The effectiveness of a model is measured by comparing how many defaults were detected with how many flags were raised. To study this, we compare the ratings as of January 1, 2017 for two groups of companies:

1. 2017 U.S. Coverage
2. 2017 Default Cohort (the subset of U.S. Coverage which went on to default)

In Table 2 and Figure 2 below we demonstrate that these two groups have very different ratings profiles, which is evidence of the FHR's exceptional classification accuracy.

The distribution of risk across the U.S. Coverage going into 2017 was very different from the distribution of risk for what would become the 2017 default cohort. **By identifying 81% of defaults in High or Very High Risk while only classifying 23% of the population in these higher risk categories, we provided exceptional accuracy with a very low false alarm rate.**

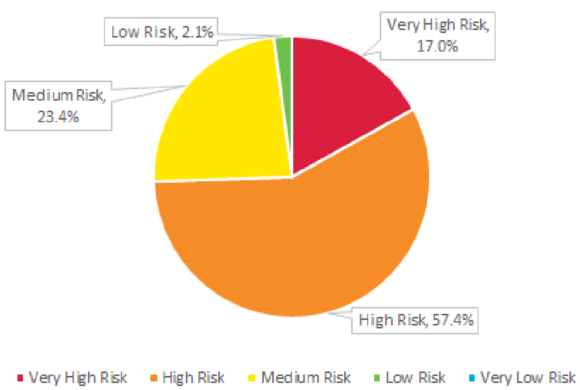
Table 2: Risk Distributions for Future Defaulters and U.S. Coverage going into 2017

	Future Defaulters at 1/1/2017	US Coverage at 1/1/2017
Very High Risk	24%	2%
High Risk	57%	21%
Medium Risk	17%	32%
Low Risk	2%	29%
Very Low Risk	0%	16%

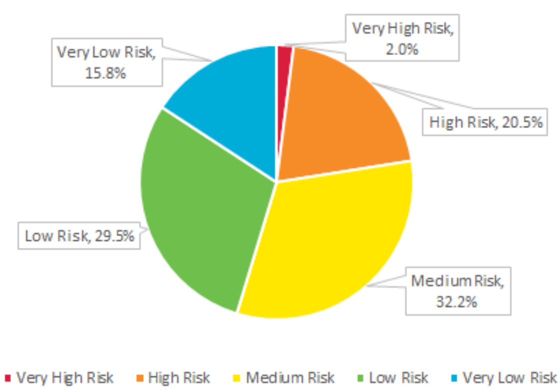
81% vs. 23%

Figure 2: Cumulative proportion of U.S. Coverage and Future Default Cohort samples through the FHR scale from 0-100.

Future Defaulter Cohort going into 2017



General U.S. Coverage going into 2017



Part 3: How Do the 2017 Defaulters Compare to the 2016 Defaulters?

We compare the characteristics of the 2016 default cohort with the characteristics of the 2017 cohort by identifying their respective financial profiles at the beginning of each year with the backdrop of the 2017 and 2018 general population's respective financial profiles.

Table 3: Comparison of Financial Characteristics for Defaulters in 2016 vs. 2017

Ratio	2016 Default Cohort	2017 Default Cohort	U.S. Coverage (Jan 2017)	U.S. Coverage (Jan 2018)
Number of Observations	69	47	2986	3159
Cash to Current Liabilities	8%	13%	38%	43%
Cash From Operations (CFO) to Current Liabilities	–1%	–2%	43%	34%
Return on Assets	-40%	–17%	3%	2%
Retained Earnings to Total Debt	103%	–79%	16%	3%
Debt to Assets	64%	65%	27%	25%
Interest Expense to Total Debt	8%	7%	4%	4%
Operating Profit to Interest Expense	–7.4x	–3.1x	2.7x	2.5x

Key observations:

- In both 2016 and 2017, these companies generally maintained cash levels that were less than 15% of their current liabilities. This suggests that companies in distress should maintain a cash ratio greater than 15% and preferably greater than 20%.
- Cash From Operations (CFO) to Current Liabilities was negative for these companies in both 2016 and 2017. Positive CFO is critical to sustainability.
- The profitability characteristics of 2017 defaulters were better than that of 2016 defaulters. As an example, ROA improved from -40% to -17%. This improvement in economic conditions matches the lower default frequency in 2017.
- Leverage levels for defaulting companies remained relatively unchanged in 2017, at 65%, and remains more than twice the level of leverage of the general population. Further exasperating the issues, the default cohort had a higher cost of debt (7% versus 4% for the general population), and significantly less capacity to make payments (interest coverage of -3.1x versus +2.7x).

Part 4: 2017 Default Cohort with Ratings at and Leading to Default

Table 4: 2017 Default Cohort - FHR at the Time of Default, Along With 6, 12, 18 and 24 Months Prior to Default. NR: Not Rated

Company Name	Default Date	D	6M	12M	18M	24M
Ignite Restaurant Group Inc	6/6/2017	11	13	24	39	29
The Gymboree Corporation	6/11/2017	14	22	13	13	13
Bonanza Creek Energy Inc	1/4/2017	15	32	31	54	77
Forbes Energy Services Ltd	1/22/2017	15	32	42	47	39
Avaya Inc	1/19/2017	16	27	30	28	26
Grandparents.com Inc	4/14/2017	16	15	28	18	19
Rooster Energy Ltd	6/2/2017	17	23	24	25	22
COPsync Inc	9/29/2017	17	17	27	50	17
Point.360	10/10/2017	17	18	24	30	25
Katy Industries, Inc	5/14/2017	18	20	20	20	26
Appvion Inc	10/1/2017	18	21	20	18	13
Armstrong Energy Inc	11/1/2017	18	33	33	33	40
Protea Biosciences Group Inc	12/1/2017	18	18	16	16	15
Ultrapetrol (Bahamas) Limited	2/6/2017	19	21	34	30	39
Nuverra Environmental Solutions	5/1/2017	19	23	19	26	24
GulfMark Offshore	5/17/2017	19	25	36	46	77
Uni-Pixel Inc	8/30/2017	19	37	41	25	30
Azure Midstream Partners LP	1/30/2017	20	40	37	30	78
Unilife Corp	4/12/2017	20	23	20	21	21
CGG SA	6/14/2017	20	44	36	38	43
Terravia Holdings Inc	8/2/2017	20	34	35	35	36
hhgregg, Inc.	3/6/2017	22	33	28	39	43
Goodman Networks Inc	3/13/2017	22	17	19	26	42
AM Castle & Co	6/18/2017	22	18	17	18	22
Cumulus Media Inc	11/29/2017	22	23	60	24	27
Dextera Surgical Inc	12/11/2017	22	29	37	39	38
Gordman's Stores Inc	3/13/2017	25	27	30	32	45
Peekay Boutiques Inc	8/10/2017	26	26	25	15	17
Rentech, Inc.	12/19/2017	26	23	37	27	34
Quadrant 4 System Corp	6/29/2017	27	27	27	26	26
Cobalt International Energy, Inc.	12/14/2017	27	30	32	39	43
21st Century Oncology Holdings Inc	5/25/2017	28	28	28	36	37
Toys R US Inc	9/19/2017	28	28	28	27	27
Pacific Drilling SA	11/12/2017	28	43	51	61	58

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Table 4: (cont.)

Company Name	Default Date	D	6M	12M	18M	24M
Vanguard Natural Resources Inc	2/1/2017	30	26	31	49	58
Tidewater Inc.	5/17/2017	31	35	62	55	58
Ironclad Performance Wear Corp	9/8/2017	31	28	30	60	57
Seadrill Ltd	9/12/2017	31	44	41	48	62
Global A&T Electronics Ltd	12/17/2017	31	33	41	41	46
Ciber, Inc	4/9/2017	34	37	44	50	42
GenOn Energy Inc	6/14/2017	34	45	41	61	65
Perfumania Holdings, Inc.	8/26/2017	36	45	46	48	53
PhaseRx Inc	12/11/2017	37	43	23	23	24
Homer City Generation LP	1/11/2017	38	41	50	52	64
Memorial Production Partners LP	1/16/2017	39	38	32	39	48
Adeptus Health Inc	4/19/2017	49	58	62	64	35
Crossroads Systems Inc	8/13/2017	55	51	49	49	26

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