

CREDIT RISK REPORT

MARCH 1, 2021

Authors

Michael Zeng
Associate Director—Research
+1.415.874.6182
michael.zeng@moodys.com

Zhong Zhuang
Director—Research
+1.415.874.6297
zhong.zhuang@moodys.com

Douglas Dwyer
Managing Director—Research
+1.212.553.4323
douglas.dwyer@moodys.com

Contact Us

Americas
+1.212.553.1658
clientservices@moodys.com

Europe
+44.20.7772.5454
clientservices.emea@moodys.com

Asia (Excluding Japan)
+85.2.2916.1121
clientservices.asia@moodys.com

Japan
+81.3.5408.4100
clientservices.japan@moodys.com

EDF Report February 2021 for North American Corporate Firms

North American corporates experienced a very steep credit quality decline following the global outbreak of the COVID-19 pandemic. By the end of February 2021, the median EDF™ (Expected Default Frequency) value of North American corporate firms was 1.07%, retreating from a high of 2.31% at the end of March 2020.

The elevated credit risk during the first half of 2020 is mostly attributable to substantially increased market leverage and asset volatility, following the severe drop in equity markets during the pandemic outbreak. The stock market has experienced a substantial recovery in recent months, which helped bring the market leverage to a level comparable to the historical norm. Asset volatility remains elevated relative to the historical benchmark.

We observe a similar magnitude of increasing credit risk in both bond spread and credit default swap (CDS) spread. All these credit metrics have seen pullbacks to different extents following their recent highs in March 2020.

Table of Contents

1. Overview	3
2. Credit measure trends	4
2.1 Realized defaults	4
2.2 EDF credit measures and drivers	5
2.3 EDF credit measures and drivers: rated firms	7
2.4 Credit spreads	8
3. Industry analysis	10
3.1 Riskiest industries	10
3.2 Industries with the largest credit risk increase	12
4. Credit migration	13
5. Summary	14

1. Overview

North American corporates experienced a very steep credit quality decline during the first half of 2020 following the global outbreak of COVID-19. By the end of February 2021, the median EDF value of North American corporate firms was 1.07%. The current level is noticeably lower compared to the 2.31% observed at the end of March 2020, which marked the first time the median EDF value has doubled year-over-year since September 2008. The decline in EDF from its high is attributed to the remarkable equity market recovery, while balancing out the fact that volatility remains heightened. The median EDF credit measure increased by 1.5% compared to the beginning of 2020.

We also observe a similar magnitude of declining risk in the credit markets following the high in March 2020, with both bond spreads and CDS spreads retracting from recent five-year highs. Yet again, the gap between the spreads from high-yield and investment grade remains large compared to recent history.

Observed corporate defaults of non-financial public firms still remain low compared with historical standards, but they are higher than what we saw during the previous years. The onset of the coronavirus outbreak was sudden and still relatively recent. It will take time for impacts to trickle down and become default events. However, we have started to see a handful of COVID-19-related defaults in the United States.

EDF levels for a number of risky industry sectors increased significantly during the last 12 months. Specifically, oil- and consumer-related industries made up the top of the list when ranking industries by liability-weighted EDF measures. These sectors were also among the industries that experienced the largest increases in risk during the prior year.

This report first shows overall credit trends reflected through realized default counts, the EDF credit measure and its drivers, and credit spreads for North American non-financial firms. Subsequently, we analyze the riskiest industry sectors using a variety of metrics. We also report credit migration patterns using EDF metrics.

During the last financial crisis, we published periodic EDF reports that many clients found helpful. This report follows our previous reports¹ for North American and European corporates regarding COVID-19's impact on EDF credit risk measures. These reports are available at www.moodyanalytics.com.

¹ <https://www.moodyanalytics.com/articles/2020/edf-report-march-2020-for-north-american-corporate-firms>
<https://www.moodyanalytics.com/articles/2020/edf-report-may-2020-for-north-american-corporate-firms>
<https://www.moodyanalytics.com/articles/2020/edf-report-june-2020-for-north-american-corporate-firms>
<https://www.moodyanalytics.com/articles/2020/edf-report-july-2020-for-north-american-corporate-firms>
<https://www.moodyanalytics.com/-/media/whitepaper/2020/edf%20report%20august%202020%20for%20north%20american%20corporate%20firms.pdf>
<https://www.moodyanalytics.com/-/media/article/2020/edf%20report%20september%202020.pdf>
<https://www.moodyanalytics.com/-/media/article/2020/edf%20report%20october%202020.pdf>
<https://www.moodyanalytics.com/-/media/article/2020/edf%20report%20november%202020.pdf>
<https://www.moodyanalytics.com/-/media/article/2020/edf%20report%20december%202020.pdf>
<https://www.moodyanalytics.com/-/media/article/2021/edf%20report%20january%202021.pdf>

2. Credit measure trends

This section shows EDF credit measure movements and key drivers for North American non-financial companies between January 2000 and February 2021. We report these trends in conjunction with realized default counts and credit spreads.

2.1 Realized defaults

Figure 1 shows quarterly default counts for North American public corporates, classified by whether the firm is rated at the time of default. Figure 2 presents the quarterly number of defaults, highlighting bankruptcy defaults. Default occurrences reaffirm that the most recent benign credit environment continued at least until the end of 2019. So far, we have seen a handful of defaults in the sample in 2020. However, given that the onset of the pandemic has been sudden, and we are still in the middle of it, we might still see a significant increase in defaults in the near future if the credit environment deteriorates due to uncertainties in the path of economic recovery. Figures 1 and 2 detail default counts by rating status and default type, respectively. Figure 3 reports monthly default counts occurring the previous year, during which period the default counts remained low. The 12-month default count rolling average currently stands at 8.00, up from 6.5 one year ago. As a benchmark, during the past 10 years, the average monthly default count is around 11.68.

Figure 1 Quarterly default counts by rating status

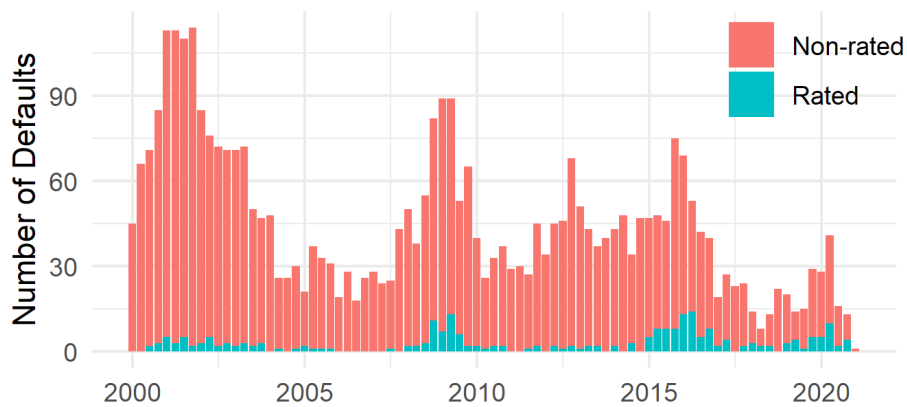


Figure 2 Quarterly default counts by default type

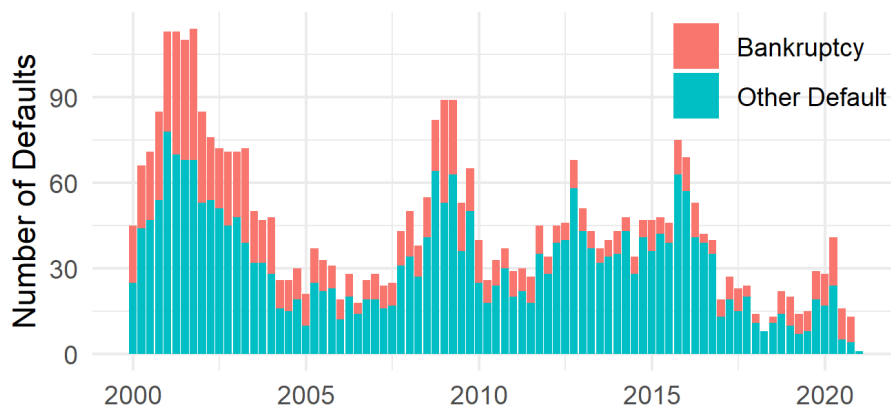
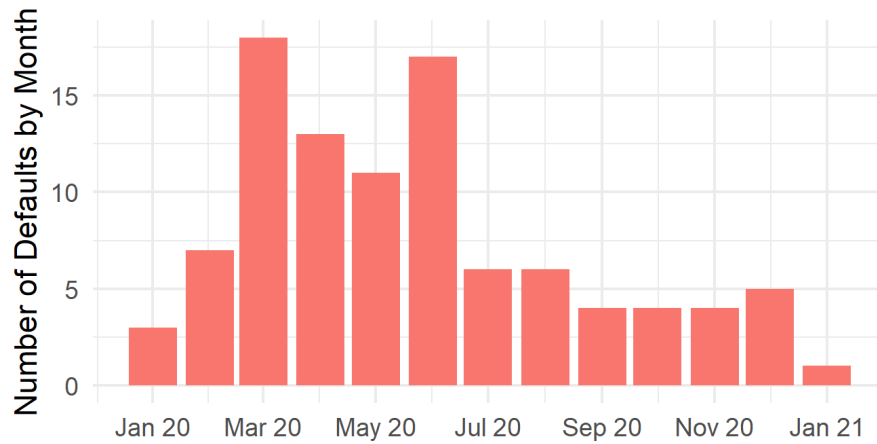


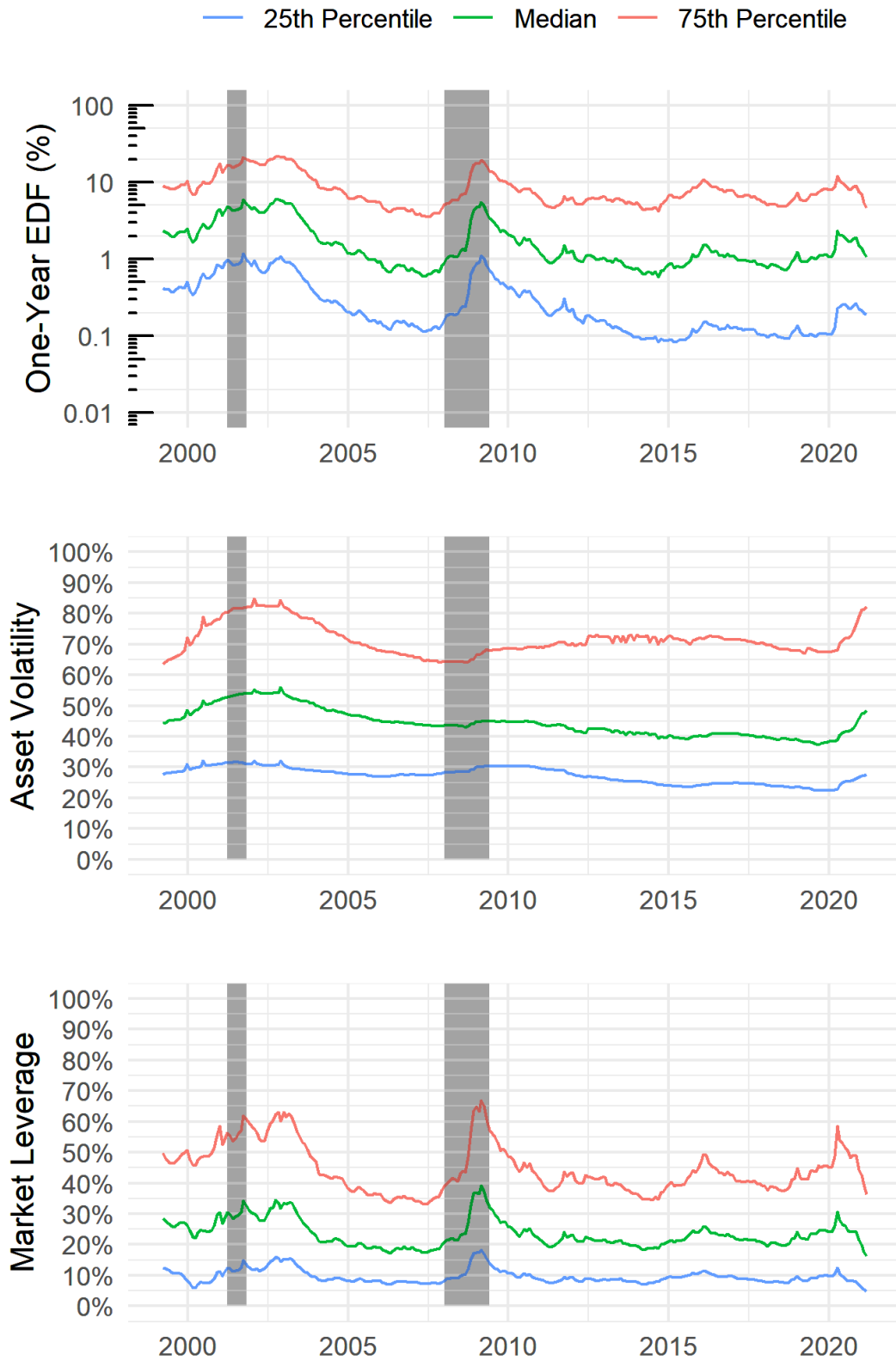
Figure 3 Monthly default counts during the past year



2.2 EDF credit measures and drivers

Figure 4 reports quartiles of the EDF credit measure and its drivers, including underlying asset volatility and market leverage, from January 2000 through February 2021. For a significant part of 2020, we have seen a substantial rise in EDF values as a result of significant market leverage increases. The level of EDF has retreated significantly from its high in March. In fact, compared to a year ago, the median EDF value declined about 19%, from 1.32% to 1.07%. At the same time, median leverage decreased from 26.17% to 16.21%, potentially due to the recent equity market recovery. Median asset volatility increased from 38.41% to 48.65%.

Figure 4 Trends of one-year EDF credit measures and drivers



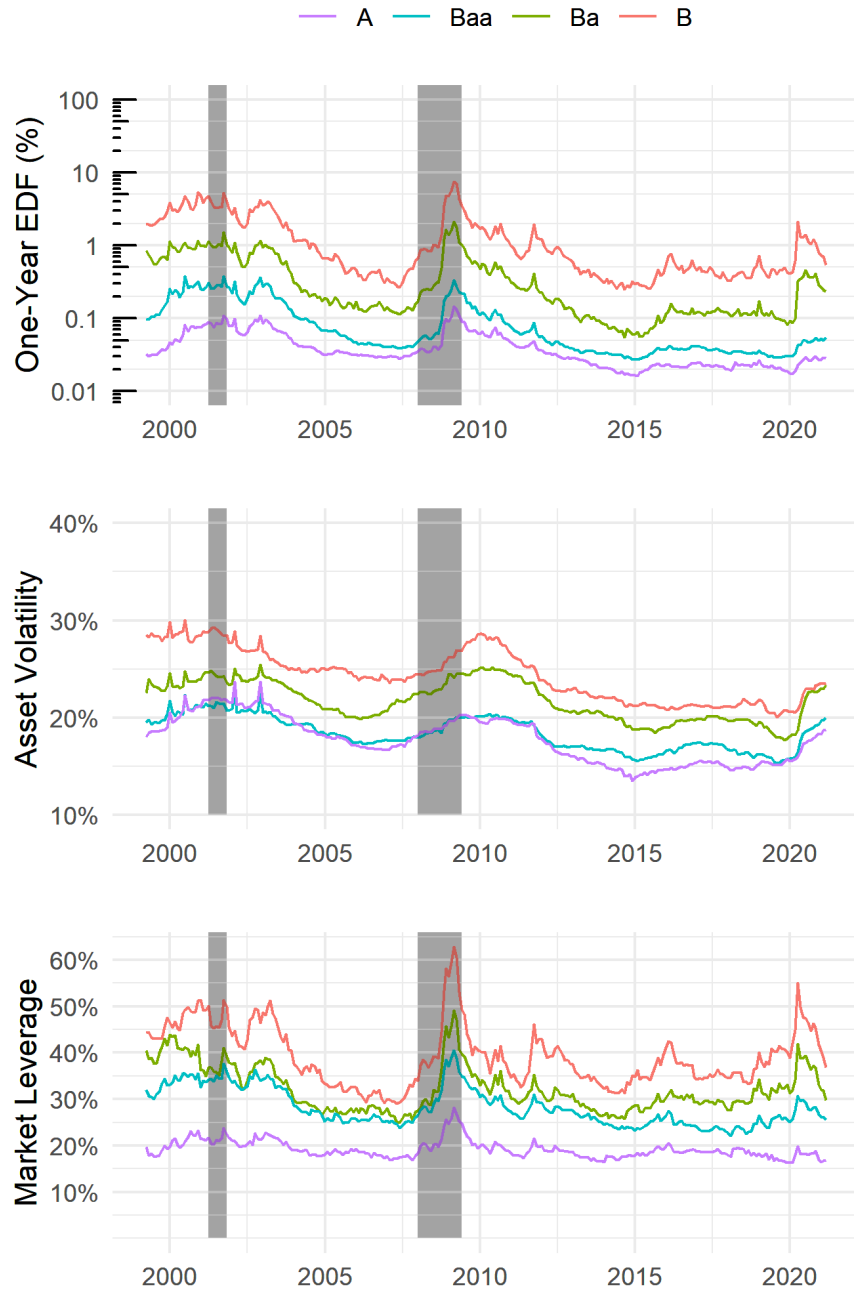
2.3 EDF credit measures and drivers: rated firms

Figure 5 presents EDF measures and drivers for firms holding an agency rating assignment by Moody's Investors Service. To ensure each rating group has a sufficiently large number of firms, we analyze only groups rated A through B. In the cross-section, the median EDF values for these rating groups are consistent with the risk order indicated by agency ratings. For EDF value drivers, B-rated firms are riskiest in terms of both business risk (that is, asset volatility) and financial risk (that is, leverage). The EDF value difference between Baa-rated and Ba-rated firms is primarily driven by asset volatilities, while leverage is the main driver for the EDF value difference between Baa-rated and A-rated firms.

Currently, Ba and B-rated firm EDF credit measures are still at levels close to the historical highs seen during 2008–2009. These levels show a stark contrast with the much more benign credit environment observed during the past few years. For example, a Ba-rated firm is now almost as risky as a B-rated firm in early 2019. However, despite the recent volatility, the EDF credit measures for investment-grade firms still remain relatively moderate.

We observed a moderate increase in median asset volatilities across all rating groups, up from historic lows in the second half of 2019. The bottom panel of Figure 5 shows that market leverage—the ratio of the default point over the market value of assets—presented a sharp increase from their historic lows and a recent significant pullback. The magnitude of the increase in leverage from the first half of 2020 is almost as steep as the one observed during October and November 2008. The recent pullback in market leverage reflected the recovery of market capitalization for North American corporates across all rating groups. Yet a heightened level in market leverage, especially for the speculative-grade firms, still points to the deteriorated debt service capacity of North American corporates in 2020.

Figure 5 Trends of one-year EDF credit measures and drivers: rated firms



2.4 Credit spreads

Figure 6 presents the time series of median values for the EDF credit measure, the five-year CDS spread, and the option-adjusted spread (OAS) of investment-grade and high-yield North American public firms from January 2014 to February 2021. Median bond option-adjusted spreads are derived from the sample of bonds in coverage by the Moody's Analytics EDF-based bond valuation model. Generally, all three measures have been moving in tandem during the longer history. The recent dramatic change is readily apparent for all three measures, especially for the high-yield space. Figure 7 shows the median credit metrics by broad rating group as of the end of February 2021 and one year ago. As oil and gas-related firms account for a large portion of high-yield bonds, we see the high-yield space was essentially hit concurrently by both the COVID-19 pandemic and the recent oil price shock, causing significant distress to speculative-grade debt.

Similar to the pattern observed for EDF credit measures, both OAS and five-year CDS spreads present a substantially steeper credit risk increase in the high-yield space than in the investment-grade space, suggested by the widened gap between the two broad rating classes, shown as the dashed blue line in Figure 6.

Figure 6 Medians of credit measures: investment grade vs. high yield

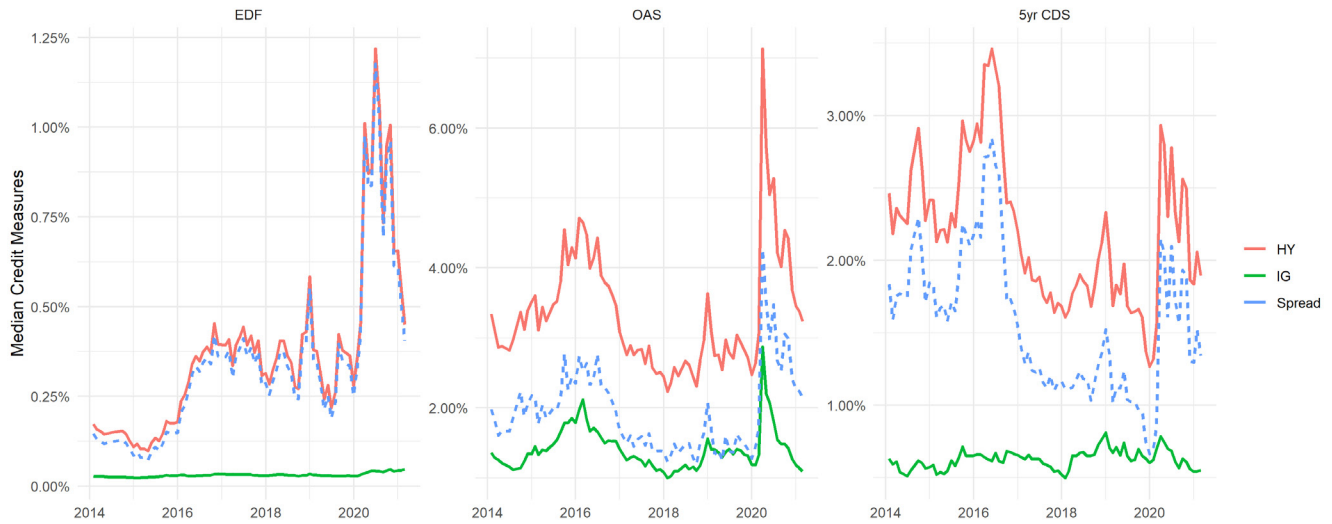


Figure 7 Median credit measures as of February 2020 and February 2021

2020-02				2021-02			
Rating	EDF	5yr CDS	OAS	Rating	EDF	5yr CDS	OAS
Aa	0.01%	0.39%	0.72%	Aa	0.01%	0.31%	0.56%
A	0.02%	0.49%	0.97%	A	0.03%	0.42%	0.84%
Baa	0.04%	0.80%	1.48%	Baa	0.06%	0.59%	1.21%
Ba	0.10%	1.35%	2.83%	Ba	0.26%	1.61%	2.51%
B	1.36%	2.22%	3.77%	B	0.73%	2.87%	3.78%
<B	18.24%	5.05%	8.42%	<B	1.29%	5.14%	6.40%

As the current elevated level of credit spreads potentially reflects both the anticipated increase in default risk and investors' increased risk aversion, we analyze market Sharpe ratios, estimated using a Moody's Analytics EDF-based bond valuation model shown in Figure 8. It is apparent that the estimated market price of credit risk has fallen back dramatically from the height during March 2020.

Figure 8 Market prices of credit risk estimated from bond option-adjusted spreads and EDF value data



3. Industry analysis

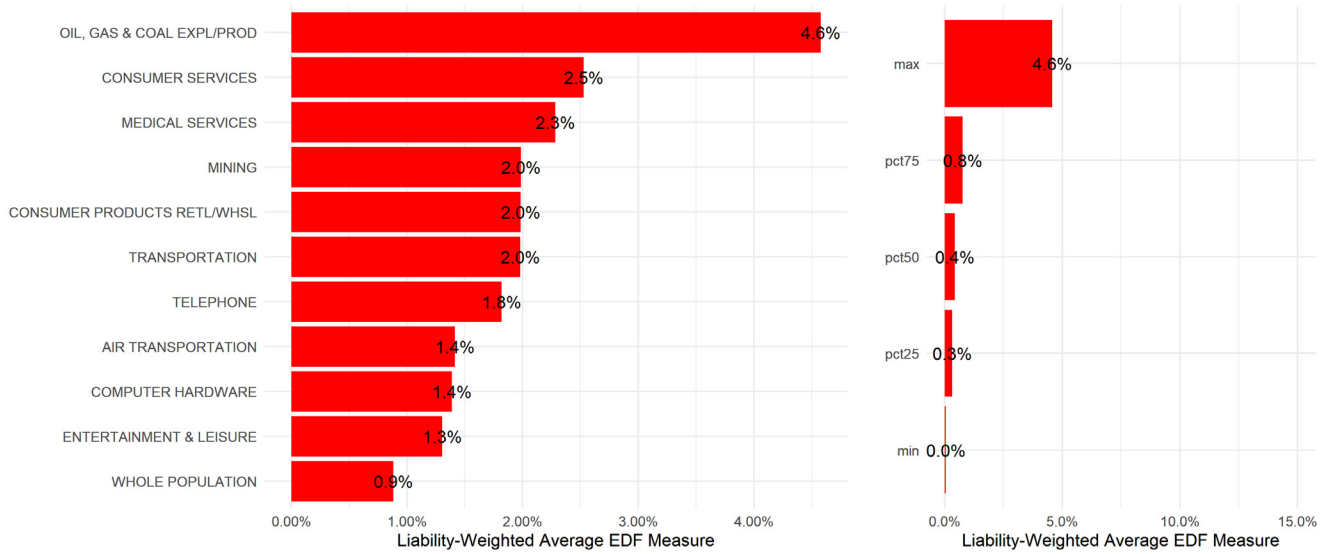
This section applies two measures that capture different aspects of industry risk. The first measure is based on the average EDF value weighted by total liabilities of each company in a given industry. Therefore, this measure is dominated by the risks of firms with large liability amounts. The second measure is the percentage of firms with EDF values greater than the 90th percentile of the entire population of North American non-financial companies. Consequently, this measure tends to be more represented by the risks of smaller companies, which are more likely riskier in most industries. With both measures, the analysis in this section helps paint a relatively complete picture of industry-level credit risk for North American corporates. To avoid small sample bias, we examine only industries with more than 20 firms as of the end of February 2021.

3.1 Riskiest industries

The entire North American corporate population has a 0.88% liability-weighted EDF credit measure, down from 1.53% last year. Figure 9 shows the riskiest industries and the distribution of liability-weighted EDF credit measures across all industries. The chart on the left side displays the top-ten riskiest industries and their EDF measures; the chart on the right side displays the EDF measure distribution of all industries.

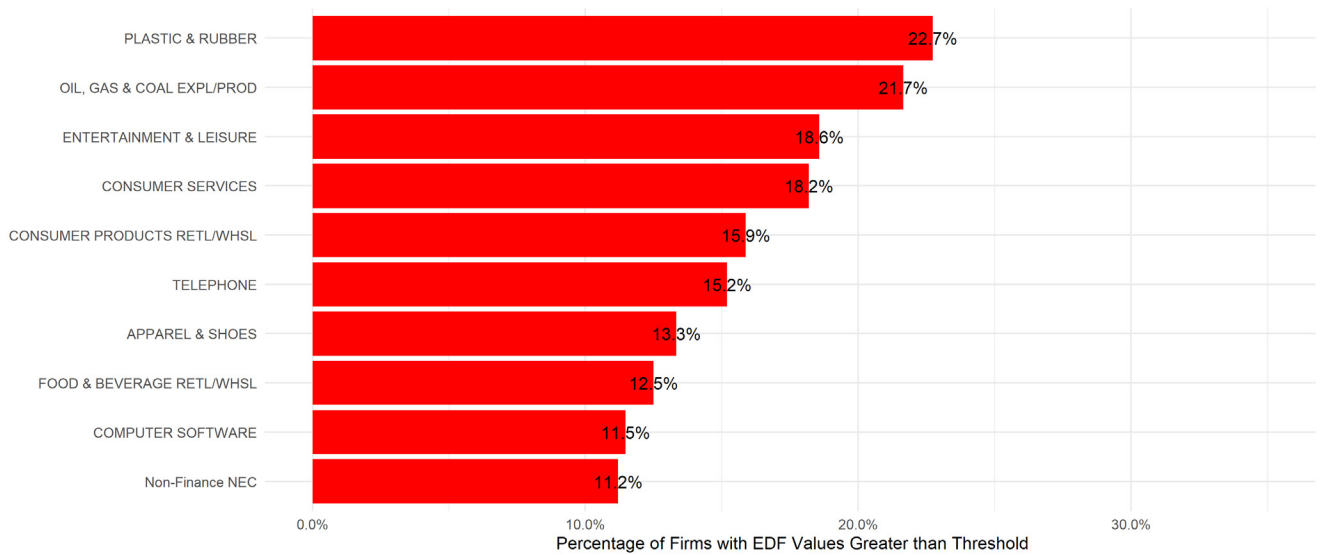
Among the riskiest industries is Oil, Gas & Coal Exploration/Production, probably not surprisingly. This industry was hit twice in rapid succession—decreased demand due to the coronavirus pandemic and a massive equity price drop due to the fall in oil prices. In particular, the liability-weighted EDF value for the Oil, Gas & Coal Exploration/Production industry is 4.6%, presenting alarming levels of default risk. Other industries topping the list tend to be non-essentials, including Consumer Services, as well as Consumer Products Retailers and Wholesalers. Compared to the levels in March 2020, all 10 riskiest industries experienced a decline in the liability-weighted EDF measure.

Figure 9 Riskiest industries by liability-weighted average EDF credit measures



Examining an alternative measure of industry risk, we compile the percentage of firms within an industry that have EDF values greater than the 90th percentile of the EDF value distribution for the entire population. At the end of February 2021, for the population of North American non-financial firms, this threshold value was 16.04%. Figure 10 lists the riskiest industries using this measure. The list is largely consistent with the list obtained using the other measure. Again, the Oil, Gas & Coal Exploration/Production industry is ranked among the riskiest, with about one fifth of firms above the threshold. Consumer Products, Consumer Services, and Consumer Products Retail and Wholesale appear on this list, consistent with a substantial drop in demand.

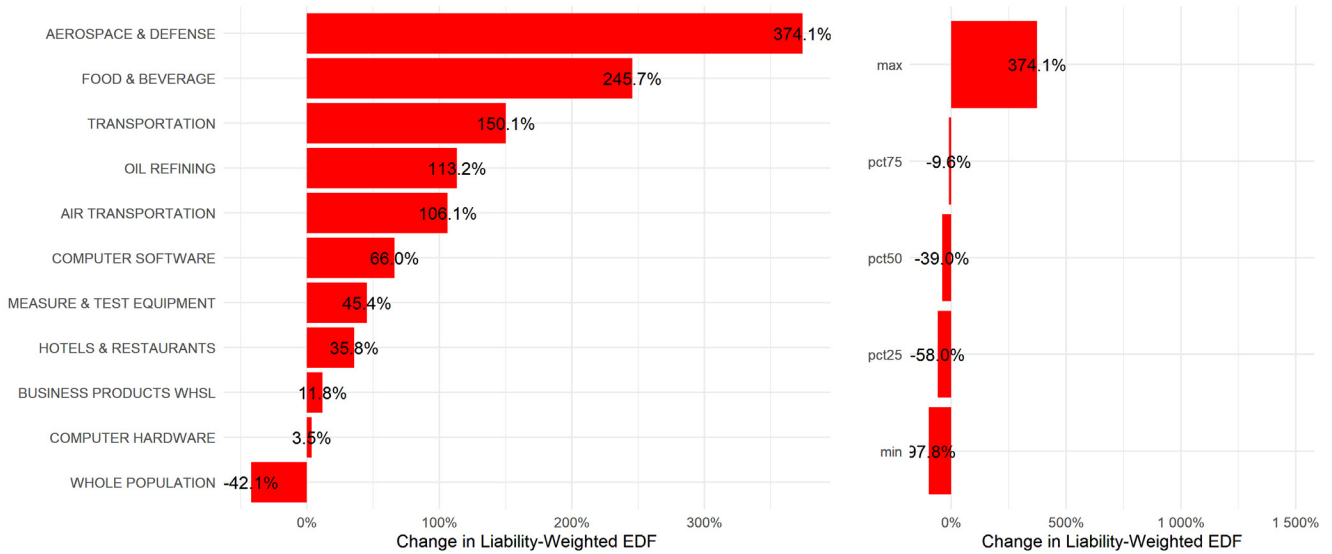
Figure 10 Riskiest industries by percentage of firms with EDF values greater than threshold



3.2 Industries with the largest credit risk increase

The sharp elevation in credit risk is more apparent when we look at year-over-year increases in EDF values within each industry. From February 2020 through February 2021, many industries in the North American corporate space experienced substantial increases in credit risk. The industries with the largest percentage increases are reported on the chart to the left in Figure 11, where we find industries related to oil refining, as well as industries that heavily engaged in travel and leisure, such as Transportation and Hotels & Restaurants. The chart on the right side of Figure 11 presents the distribution of changes across all industries, which is quite skewed.

Figure 11 Industries with the largest increases in liability-weighted EDF credit measures



4. Credit migration

This section analyzes credit quality shift from both the change in agency rating and the change in EDF-implied rating (EIR). The agency rating is more latent, reflecting the credit risk ranking of a firm over a long period of time and is thus more stable. On the other hand, the EIR is calibrated monthly, and is, therefore, more point-in-time but also more volatile.

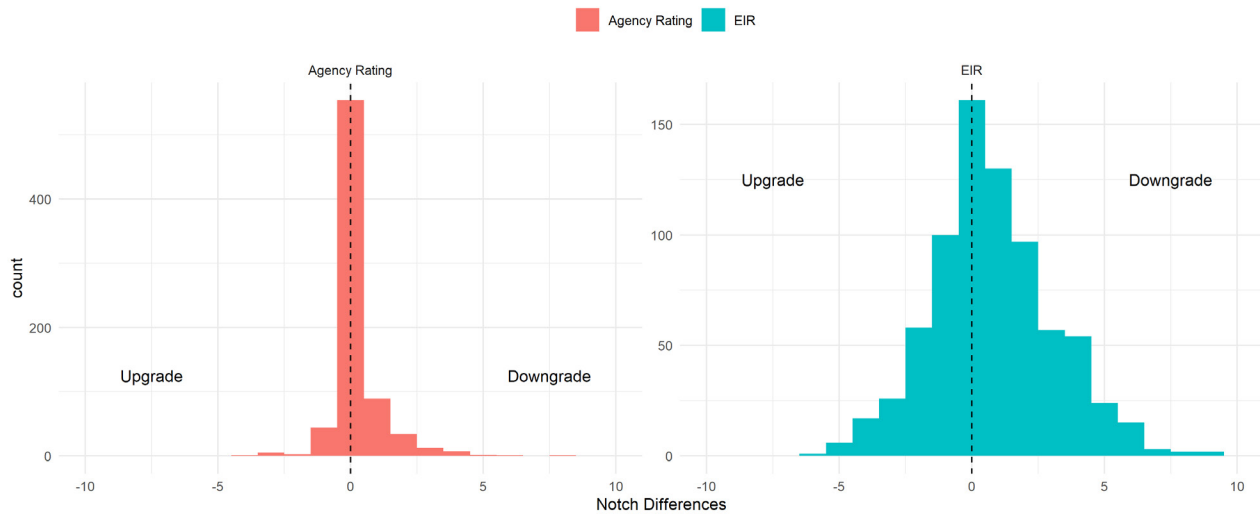
Figure 12 shows the mapping between EDF values and the corresponding implied ratings for North American non-financials as of January 2021. EDF values within the lower bound and upper bound are mapped to the corresponding rating class. The resulting EIRs are then compared to their counterparts in January 2020. Figure 11 shows the differences, along with the differences in agency ratings.

Figure 12 EDF-implied rating mapping for North American non-financials

Investment-Grade				High-Yield			
Rating	Median	Lower Bound	Upper Bound	Rating	Median	Lower Bound	Upper Bound
Aaa	0.0100%	0.0100%	0.0126%	Ba1	0.1490%	0.1162%	0.1911%
Aa1	0.0159%	0.0126%	0.0178%	Ba2	0.2450%	0.1911%	0.2813%
Aa2	0.0200%	0.0178%	0.0214%	Ba3	0.3230%	0.2813%	0.3709%
Aa3	0.0229%	0.0214%	0.0245%	B1	0.4258%	0.3709%	0.4890%
A1	0.0262%	0.0245%	0.0280%	B2	0.5615%	0.4890%	0.7029%
A2	0.0300%	0.0280%	0.0332%	B3	0.8799%	0.7029%	1.1014%
A3	0.0368%	0.0332%	0.0407%	Caa1	1.3788%	1.1014%	1.7260%
Baa1	0.0450%	0.0407%	0.0498%	Caa2	2.1607%	1.7260%	2.8073%
Baa2	0.0552%	0.0498%	0.0707%	Caa3	3.6474%	2.8073%	6.1572%
Baa3	0.0907%	0.0707%	0.1162%	Ca	10.3939%	6.1572%	22.7986%

Looking at the histogram of differences in ratings between February 2020 and February 2021 (Figure 13), even though the agency ratings suggest that the longer-term credit risk for the majority of the firms have changed little, we see a positive skewness for the EIR, suggesting clear, immediate credit deterioration, in line with other credit metrics.

Figure 13 Change in agency rating and EDF-implied rating (EIR): February 2021 vs. February 2020



5. Summary

The EDF levels for North American corporates have seen a substantial retreat from their recent multi-year high. This retreat coincided with the recovery in equity markets as well as other credit metrics such as five-year credit default swap (CDS) spreads and option-adjusted spreads (OAS). Nevertheless, with volatility still relatively heightened, EDF levels remained elevated compared to the norm in recent years. Substantial risk is still apparent in oil and consumer-related industries, which ranked high on the list by either the magnitude of EDF level increases compared to a year before or the liability-weighted EDF measure.

As the impact from the pandemic continues to unfold and the path to recovery takes shape, the EDF remains an accurate and responsive measure of credit risk. We will continue to monitor the changes in credit risk profiles for North American corporate firms and industries and publish relevant reports accordingly.

© 2021 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 CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. 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 OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER 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. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS 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, ASSESSMENTS, OTHER OPINIONS, AND 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, ASSESSMENTS, OTHER OPINIONS OR 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.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

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 its 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 CREDIT RATING, ASSESSMENT, 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 credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service 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 657AFSL 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.

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 credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY550,000,000.

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