U.S. MIDDLE MARKET RISK REPORT

Authors

Stephanie Yu
Single Obligor Research
Assistant Director

Irina Korablev
Single Obligor Research
Senior Director

Stafford Perkins
Single Obligor Research
Senior Director

Douglas Dwyer
Single Obligor Research
Managing Director

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.co

Japan
+81 3 5408 4100
clientservices.japan@moodys.com

Private Firm Summary

(Report Date: May 2016 (data as of December 2015)

This semiannual report examines credit risk in the otherwise opaque U.S. private firm credit market. We report trends in four different areas of risk measurement: realized defaults, internal bank ratings, financial statement-based information, and model-based risk estimates. We derive the statistics in this report from Moody's Analytics Credit Research Database (CRD®).

This report contains EDF™ (Expected Default Frequency) values calculated using the RiskCalc™ U.S. 4.0 Corporate model. We calculate stressed EDF measures using the RiskCalc Plus Stress Testing Model, ratio-based approach. The model adjusts a company's financial statements depending on how various statement inputs behave under different stress scenarios to calculate pro forma FSO EDF values. The model also estimates stressed credit cycle signals under different scenarios. Combining the pro forma FSO EDF with the stressed credit cycle factors generates a meaningful quarterly stressed EDF measure.

Highlights

» Private firm default rates have declined steadily during the past five years. At 1.0%, the rolling 12-month default rate is down 81% from its September 2009 peak of 5.5% (Fig.1). This trend has been driven primarily by a decline in the charge-off rate, now at its lowest level in ten years. In addition, the rate of borrowers in non-accrual status has decreased 68% since September 2009. The number of borrowers rated "Substandard" has seen a steady increase since the first quarter of 2015, and it remains slightly above pre-crisis levels, reflecting banks' cautious lending practices (Fig.2).

» Internal rating downgrades have increased during the past year, with 14.8% of borrowers downgraded compared to 12.9% a year ago (Fig.6). This finding suggests caution among banks.

» The Mining sector bears the highest percentage of balances adversely rated in 2015, with Construction next (Fig.5). Across all industries, the percentage of balances adversely rated remained relatively unchanged during the past year. This figure remains slightly lower than pre-crisis levels.

» The median RiskCalc 4.0 CCA EDF value for the U.S. rose slightly from 0.56% in December 2014 to 0.62% in December 2015. In August 2014, the median RiskCalc 4.0 CCA EDF credit measure fell to its lowest level in ten years (Fig.8). The median CCA EDF increased for both Pass and Non-Pass borrowers during the last two quarters of 2015 (Fig.9).

» Financial statement ratios generally improved in 2014, showcasing banks' decisions in extending credit to stronger borrowers. Debt Coverage reached the highest level during the past ten years. Leverage, measured by Retained Earning over Current Liabilities continued to improve over the past decade. Sales Growth and Change in ROA both have been relatively level for the last three years, indicating stable borrower growth. Meanwhile, we also observe increases in Inventory to Sales and Current Liabilities to Sales, a sign of potential deterioration (Fig.13).

» Real Estate & Leasing and Information displayed the highest EDF levels as of December 2015, at 0.95% and 0.88%, respectively (Fig.14). Almost all industries experienced an increase in EDF levels during the past year except Construction (Fig.15). The Mining sector showed the largest EDF level increase, rising 39.8% since December 2014 (Fig.15).

» Among the ten states that showcased the largest change in EDF levels during the past ten years, Oklahoma and New Mexico experienced significant increases. The three states with the greatest improvements in one-year median CCA EDF level during the past decade were Michigan, Nebraska, and Kentucky (Fig.18). Michigan leads the recent recovery in credit quality with an 88.1% decline in its median EDF level since December 2009 (Fig.19).

Charts also include a projection value. We include this value because a significant reporting lag exists between default occurrence and the time when the default information is actually received. For example, as of December 2015, we observe borrowers that are 90 days past due, but have a pass rating. A certain proportion of these borrowers will become non-pass rated in the future. In such cases, we record each default as occurring on the date the borrower first became 90 days past due. An analysis using eight years of data shows that, on any given quarter end date, banks report approximately 88% of defaults occurring one year prior, 87% of those occurring nine months prior, 63% of those occurring six months prior, and only 50% of those occurring three months prior. The projection provides an estimate of what the actual default rate likely will be once we receive all of the default information.

As of December 2015, private firm default rates have declined steadily over the past five years. At 1.0%, the rolling 12-month default rate is down 81% from its September 2009 peak of 5.5% (Fig.1). The trend has been driven primarily by a decline in the charge-off rate, now at its lowest level in the last ten years, 0.3%. In addition, the proportion of borrowers in non-accrual status has decreased by 68% since September 2009. The number of borrowers rated "Substandard" has seen a steady increase since the first quarter of 2015 and remains slightly above pre-crisis levels, reflecting banks' cautious lending practices (Fig.2).

Figure 1 Rolling 12-Month Private Firm Default Rate by Default Type

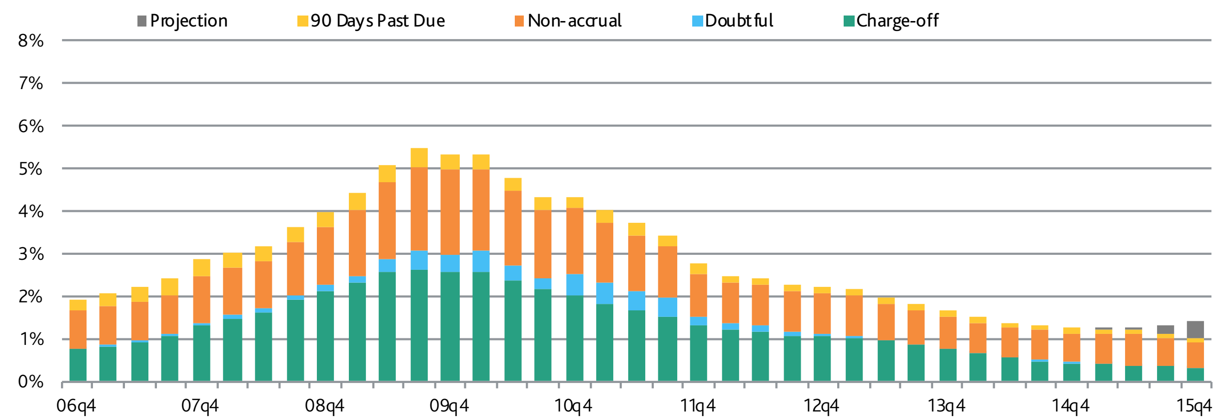
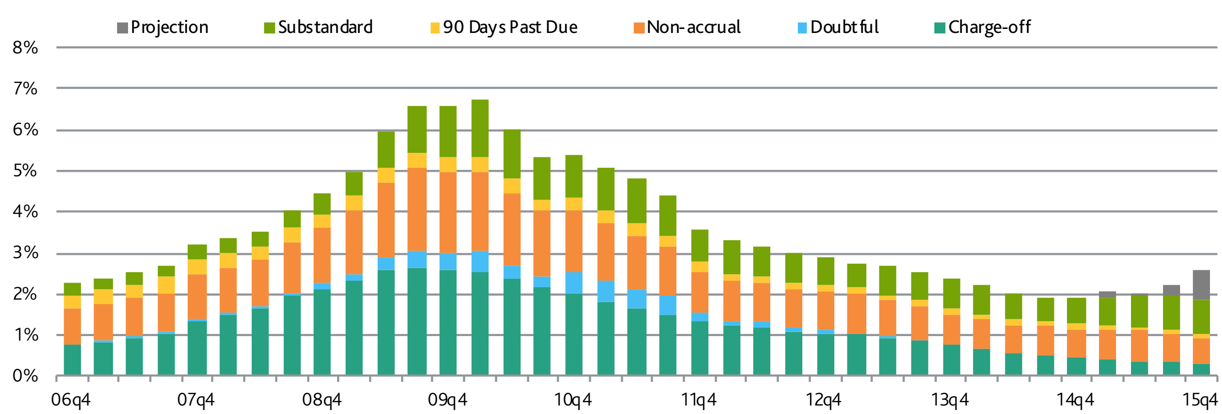
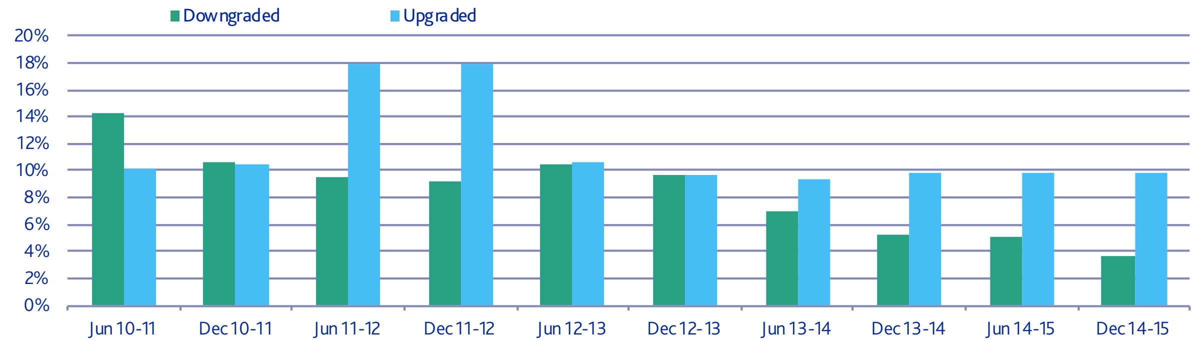


Figure 2 Rolling 12-Month Private Firm Default Rate by Default Type, Including Near-Defaults[2]



[2] We calculate the rolling 12-month default rate as the total number of defaulted and near-defaulted (i.e., Substandard) borrowers during the past four quarters, divided by the average number of borrowers across the same four quarters.

Figure 3 Migration from Substandard to Other Classifications



Adversely Rated Credits

This analysis examines the actual and perceived future risk of the portfolios contained in the Credit Research Database. Figure 3 shows the rates at which borrowers classified as Substandard migrated to more or less severe classifications during the past five years. Figure 4 presents adversely rated credits as a percentage of all loan balances over time. Table 3 shows adversely rated credits as a percentage of total loan balances by year and industry. Figure 5 presents adversely rated credits as a percentage of loan balances as of December 2015 by regulatory rating and industry. Because many banks cease tracking loan information once a loss occurs, loss percentages are most likely higher than presented.

The number of Substandard borrowers upgraded has been greater than that of those downgraded during the past four years (Fig.3). Additionally, the percentage of balances rated Substandard continues to decrease from the 11% high mark posted in December 2009, now at 3% (Fig.4).

The percentage of balances adversely rated continues to decrease from the 26% high mark posted in December 2009, now at 7% (Fig.4). Mining bears the greatest percentage of adversely rated balances as of December 2015 (Fig. 5), increasing to 39.8% from 8.6% in one year (Table 3). The stark increase may be attributed to the commodity price slump during the past year. The Construction sector continues to carry a high percentage of adversely rated balances (Fig. 5), but recorded a 3.3% improvement since December 2014 (Table 3). Adverse ratings are much less prevalent in the Finance sector and in sectors with significant government interest or oversight, such as Public Administration (Fig.4).

Figure 4 Percentage of Balances with Adverse Bank-Assigned Regulatory Ratings, by Year

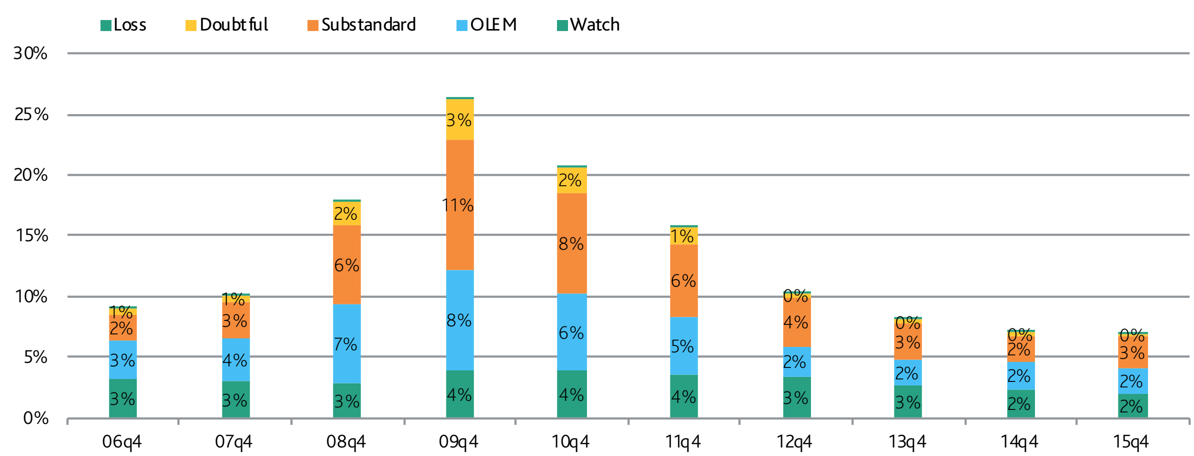
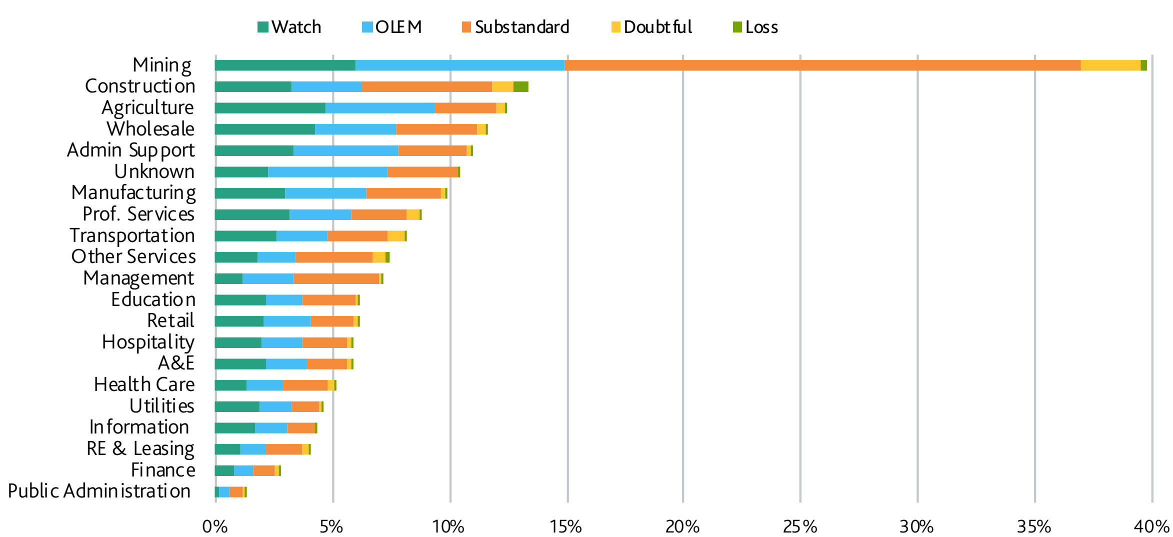


TABLE 3

Percentage of Balances with Adverse Bank-Assigned Regulatory Ratings, by Industry and Year

	2011	2012	2013	2014	2015
A&E	15.3%	11.0%	8.4%	7.0%	5.8%
Admin Support	19.4%	12.5%	12.1%	10.5%	11.0%
Agriculture	17.1%	15.9%	15.3%	11.1%	12.5%
Construction	39.2%	28.9%	21.6%	16.6%	13.3%
Education	6.7%	7.7%	6.4%	5.4%	6.1%
Finance	9.9%	6.7%	3.5%	4.0%	2.8%
Health Care	9.0%	7.4%	7.3%	6.0%	5.1%
Hospitality	17.8%	11.7%	8.0%	7.6%	5.8%
Information	16.9%	8.7%	6.4%	6.1%	4.3%
Management	17.7%	12.0%	12.2%	8.6%	7.1%
Manufacturing	18.7%	13.0%	10.6%	9.8%	9.9%
Mining	11.7%	12.9%	7.7%	8.6%	39.8%
Other Services	18.7%	13.4%	10.4%	8.9%	7.4%
Prof. Services	13.7%	10.8%	9.9%	9.9%	8.8%
Public Administration	2.6%	2.5%	2.0%	1.3%	1.2%
RE & Leasing	23.8%	15.2%	8.6%	5.3%	4.0%
Retail	17.2%	11.2%	9.1%	7.6%	6.1%
Transportation	13.1%	8.0%	7.4%	7.6%	8.1%
Unknown	30.4%	27.0%	21.3%	15.6%	10.4%
Utilities	4.9%	6.3%	4.7%	3.9%	4.5%
Wholesale	16.5%	10.7%	10.8%	11.4%	11.5%

Figure 5 Percentage of Balances with Adverse Bank-Assigned Regulatory Ratings in Current Period, by Industry

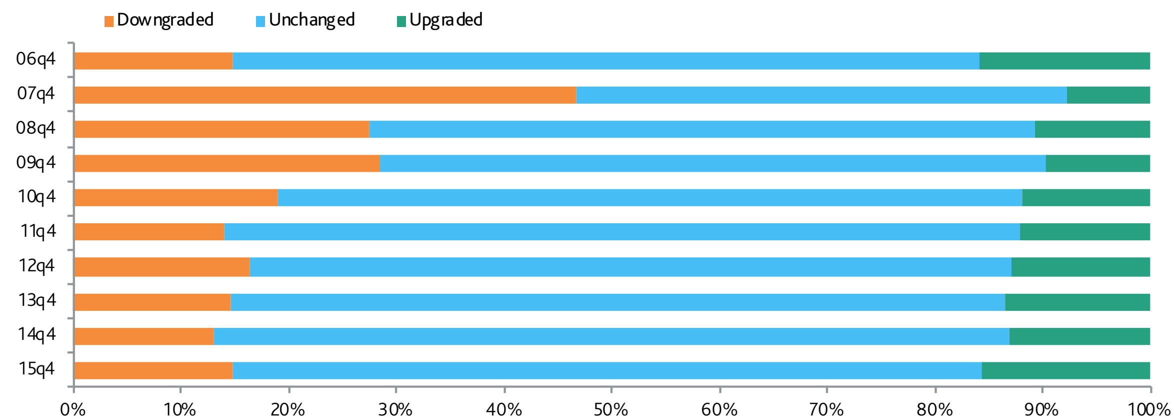


Internal Risk Rating Migration Summary

The rate at which banks change internal risk ratings reveals how they interpret changes in the credit risk of their portfolios. Figure 6 shows the migration of internal risk ratings assigned to borrowers by institutions annually since 2006. A borrower is considered "Upgraded" when an institution changes its risk rating to one that is less severe; a borrower is considered "Downgraded" when the rating increases in severity.

In 2015, 14.8% of borrowers were downgraded by banks, compared to 12.9% a year ago. The percentage of downgrades during the past year reached a comparable level of that during the financial crisis, which suggests caution among lenders (Fig.6).

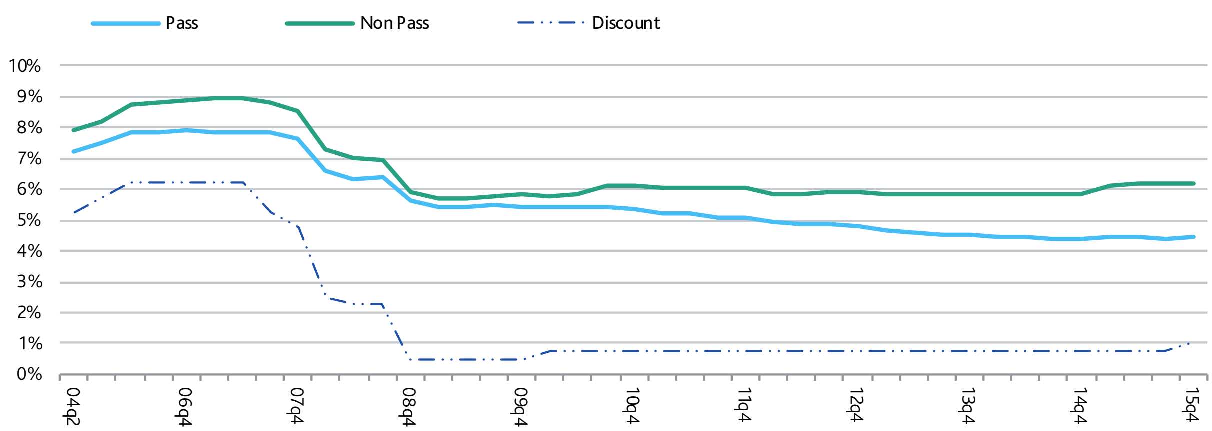
Figure 6 Migration Summary of Bank-Assigned Risk Ratings



Coupon Rates

Figure 7 presents the average coupon rate by bank-assigned regulatory rating over time. The figure also shows the primary credit discount rate offered by the Federal Reserve. Interest rates in the middle market have remained relatively stable during the past five years. Meanwhile, the interest rate spread between the two widened marginally, from 143 basis points in December 2014 to 174 basis points in December 2015.

Figure 7 Mean Coupon Rates by Regulatory Rating Over Time



EDF Credit Measures

We generate the EDF credit measures presented throughout this report using RiskCalc 4.0's Financial Statement Only (FSO) mode and Credit Cycle Adjusted (CCA) mode. Unlike the Financial Statement Only (FSO) mode, which delivers EDF credit measures based primarily on financial and industry information, the CCA factors in an adjustment are designed to account for the market's current assessment of the credit cycle. This factor is estimated using the distance-to-default estimate from Moody's Analytics' Public Firm Model. The CCA EDF credit measure is a forward-looking indicator of probability of default.

RiskCalc 4.0 CCA EDF Credit Measure Trends

Figures 8 and 9 present Credit Cycle Adjusted (CCA) One-Year EDF credit measures over time. Figure 9 segments by regulatory rating.

The median RiskCalc 4.0 CCA EDF value for the U.S. rose slightly from 0.56% in December 2014 to 0.62% in December 2015. In August 2014, it reached its lowest point in ten years, 0.52% (Fig.8). The median CCA EDF increased for both Pass and Non-Pass borrowers during the last two quarters of 2015 (Fig.9).

Figure 8 CCA EDF Credit Measures Trends[3]

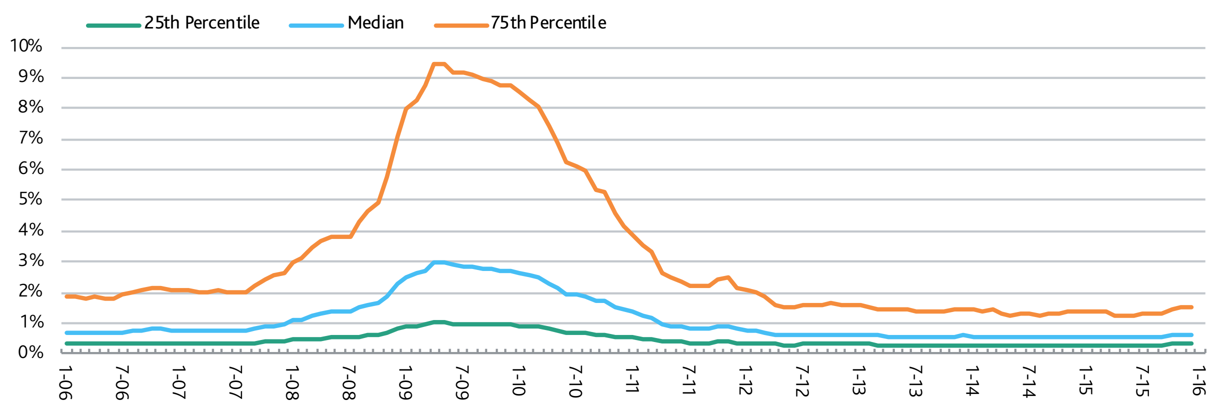
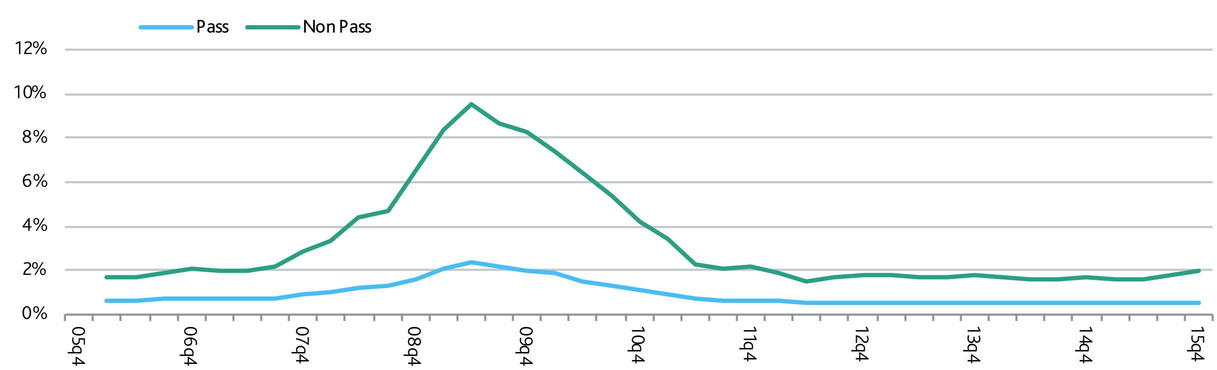


Figure 9 Median CCA EDF Credit Measures by Regulatory Rating

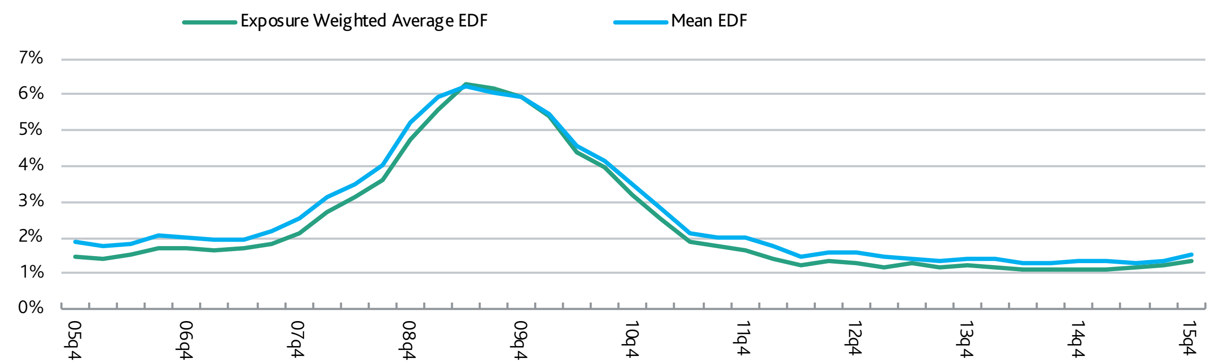


[3] Excludes borrowers from industries for which RiskCalc is not designed, such as Vehicle Dealers, Financials, Insurance, Government Services, and Real Estate.

RiskCalc 4.0 Exposure Weighted-Average CCA EDF Credit Measure

Figure 10 depicts the exposure weighted-average CCA EDF measure compared with the mean EDF measure for those borrowers that have both an EDF measure and an outstanding exposure as of the chart date.

Figure 10 Exposure Weighted Average vs Mean CCA EDF Credit Measure



RiskCalc 4.0 FSO EDF Credit Measure Loan Vintage Analysis

Figure 11 and Figure 12 present risk level, measured by median Financial Statement Only (FSO) One-Year EDF of loans by year of origination. Figure 13 presents RiskCalc ratio percentiles over time and does not incorporate any credit cycle adjustment.

Following the market collapse stemming from the dot-com bubble, loan origination showed a decreasing risk trend from 2002–2004. From 2004–2006, the period between economic downturns, we observe an increase in the level of risk tolerance for new loans (Fig.11). Similar to the trend displayed following the dot-com bubble, loans originated from 2008–2011 show a decreasing level of risk. The median FSO EDF credit measures of different vintage loans all fell below 0.80% in 2014. The convergence tendency indicates the improving overall credit risk profile of middle market portfolios and tighter lending standards (Fig.12).

Figure 11 Median FSO EDF by Origination Year: 2002–2007

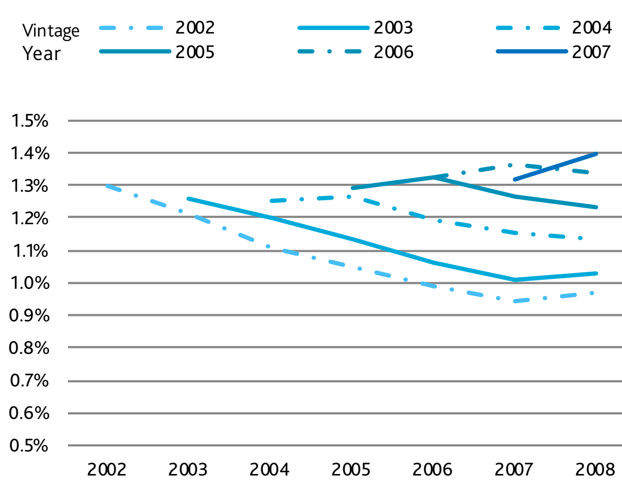
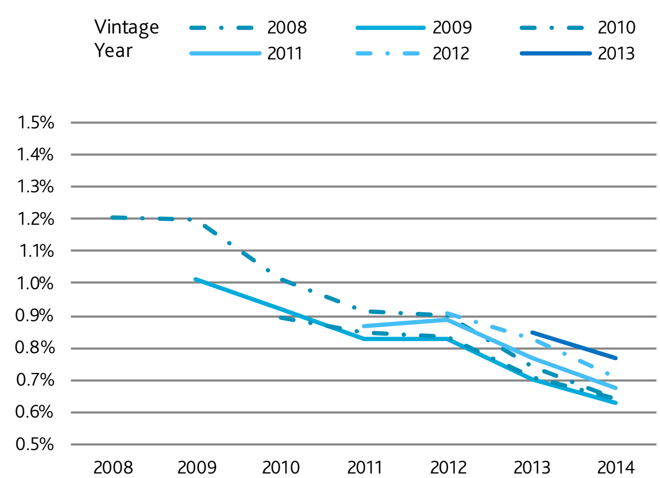


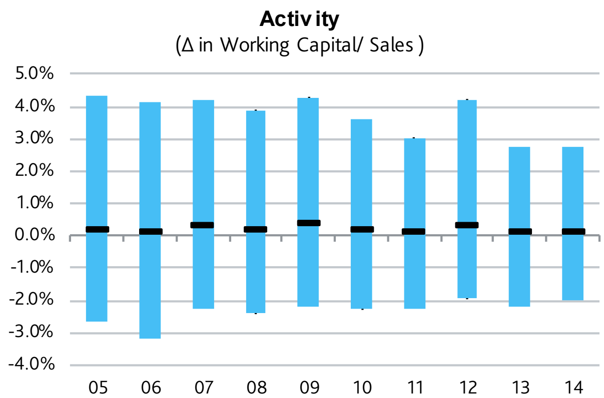
Figure 12 Median FSO EDF by Origination Year: 2008–2013

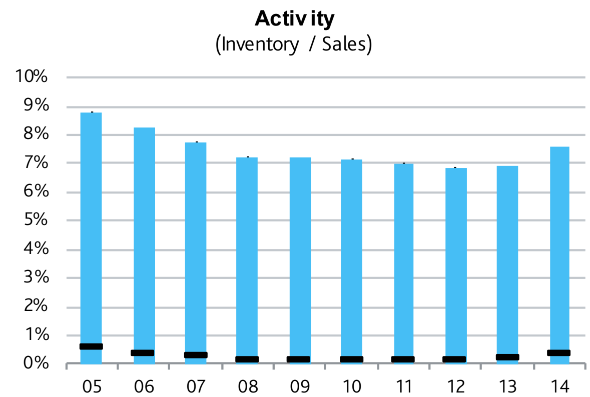


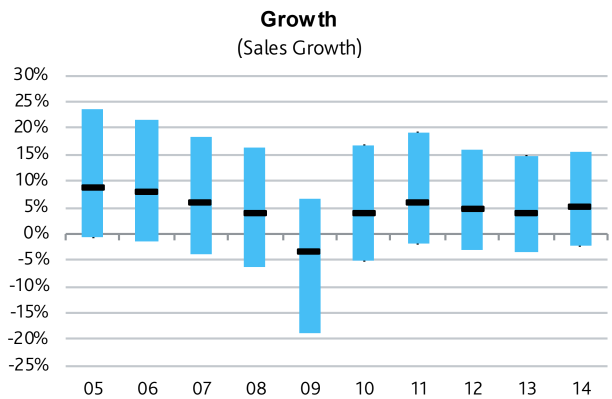
RiskCalc 4.0 Ratio Trends

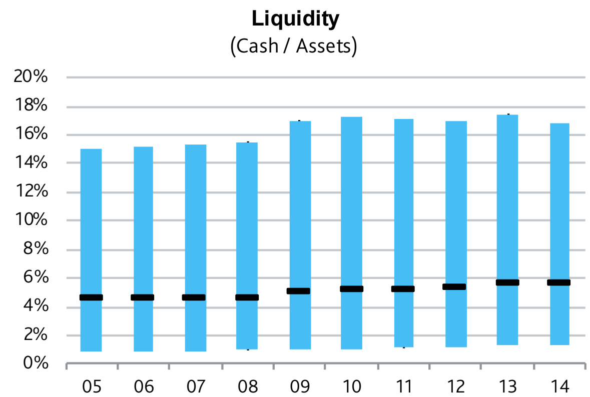
The median of borrowers' financial ratios generally improved during 2014. Debt Coverage is at its highest level in more than ten years, and it has increased 14% from its 2013 level. Leverage, measured by Retained Earning over Current Liabilities, has continued to improve during the past decade. Sales Growth and Change in ROA both have remained relatively level for the last three years, indicating steady growth for borrowers. Borrower size continued rising in 2014, indicating that banks increasingly prefer to lend to larger borrowers. Meanwhile, we also observe increases in Inventory to Sales and Current Liabilities to Sales, a sign of potential deterioration (Fig.13).

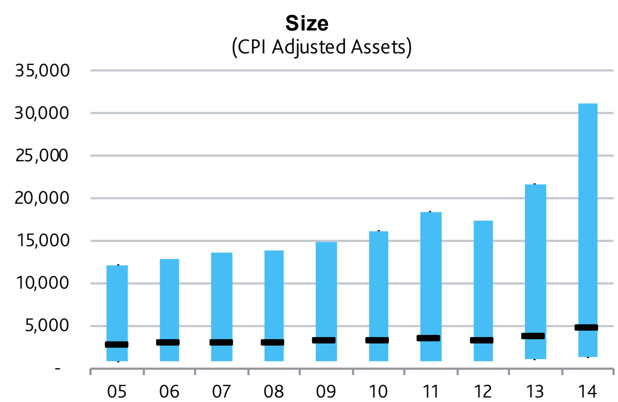
Figure 13 Financial Statement Ratios Used in RiskCalc 4.0 (25th, 50th, and 75th Percentiles)


Activity
(Δ in Working Capital/ Sales)
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
-1.0%
-2.0%
-3.0%
-4.0%
05
06
07
08
09
10
11
12
13
14


Activity
(Inventory / Sales)
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
05
06
07
08
09
10
11
12
13
14


Growth
(Sales Growth)
30%
25%
20%
15%
10%
5%
0%
-5%
-10%
-15%
-20%
-25%
05
06
07
08
09
10
11
12
13
14


Liquidity
(Cash / Assets)
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
05
06
07
08
09
10
11
12
13
14


Size
(CPI Adjusted Assets)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
05
06
07
08
09
10
11
12
13
14

Industry Analysis

Table 4 presents median CCA EDF credit measures by NAICS industry, as of December, for each of the past 10 years. Figures 14 through 16 show CCA EDF credit measures by sector as of December 2015: Figure 14 presents median EDF values, Figure 15 shows percentage changes in median EDF over the past year, and Figure 16 presents the percentage of borrowers in each industry with an EDF value above the 90th percentile for the entire population.

The industries with the greatest risk in December 2015, as measured by RiskCalc CCA EDF credit measures, were Real Estate & Leasing and Information (Fig.14). Almost all industries experienced an elevation in EDF levels during the past year except Construction. The Mining sector showed the largest EDF level increase, climbing 39.8% since December 2014 (Fig.15).

The Construction sector showed the largest concentration of highly risky borrowers; 14.7% of firms in this sector had CCA EDF values higher than 90% of the overall population (Fig.16). Information and Mining were the second and third riskiest sectors by this measure, 13.2% and 11.9%, respectively. The Utilities sector, 1.2%, had the lowest proportion of highly risky borrowers.

TABLE 4

Median CCA EDF Values by NAICS Sector [4]

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
A&E	0.66%	0.98%	2.68%	3.38%	1.53%	0.79%	0.64%	0.60%	0.55%	0.60%
Admin Support	0.72%	0.91%	1.86%	2.15%	1.24%	0.77%	0.66%	0.66%	0.60%	0.62%
Agriculture	0.99%	0.84%	1.76%	2.64%	2.22%	0.94%	0.51%	0.73%	0.61%	0.65%
Construction	1.50%	1.74%	3.48%	3.81%	2.40%	1.55%	0.96%	0.93%	0.87%	0.82%
Health Care	0.43%	0.51%	1.13%	1.39%	0.75%	0.50%	0.42%	0.41%	0.36%	0.41%
Hospitality	0.65%	0.86%	2.55%	3.26%	1.44%	0.70%	0.54%	0.48%	0.50%	0.52%
Information	0.89%	1.06%	2.99%	3.97%	1.89%	0.97%	0.92%	0.86%	0.69%	0.88%
Manufacturing	0.90%	1.05%	2.61%	3.30%	1.77%	0.86%	0.71%	0.61%	0.56%	0.67%
Mining	0.45%	0.50%	1.27%	1.27%	1.09%	0.56%	0.48%	0.57%	0.59%	0.81%
Other Services	0.45%	0.53%	1.45%	2.15%	0.95%	0.52%	0.47%	0.42%	0.41%	0.44%
Prof. Services	0.68%	0.85%	1.73%	2.01%	1.16%	0.74%	0.63%	0.59%	0.58%	0.58%
RE & Leasing	1.19%	1.43%	3.60%	4.31%	2.29%	1.27%	1.01%	0.91%	0.82%	0.95%
Retail	0.86%	1.18%	3.08%	3.45%	1.59%	0.86%	0.66%	0.63%	0.61%	0.66%
Transportation	0.68%	1.02%	2.20%	2.32%	1.58%	0.81%	0.58%	0.55%	0.54%	0.66%
Unknown	0.81%	0.88%	2.11%	2.79%	1.38%	0.90%	0.68%	0.62%	0.60%	0.61%
Utilities	0.26%	0.29%	0.59%	0.78%	0.46%	0.27%	0.23%	0.29%	0.26%	0.35%
Wholesale	0.68%	0.88%	2.16%	2.28%	1.23%	0.68%	0.57%	0.56%	0.54%	0.62%

[4] Table 4 presents median EDF credit measures as of December of each year.

Figure 14 One-Year CCA EDF Measures by NAICS Sector

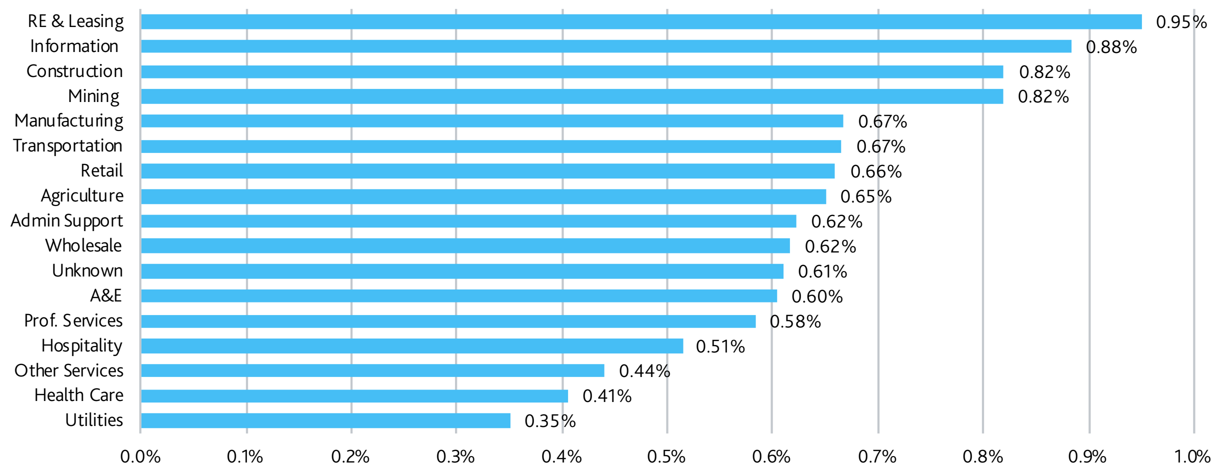


Figure 15 Percentage Change in CCA EDF Credit Measures During Past Year

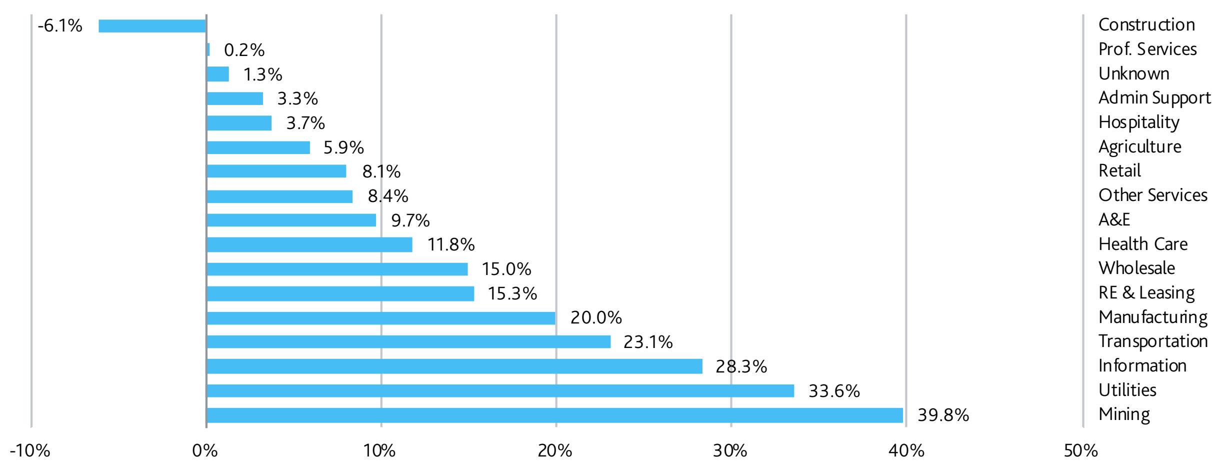
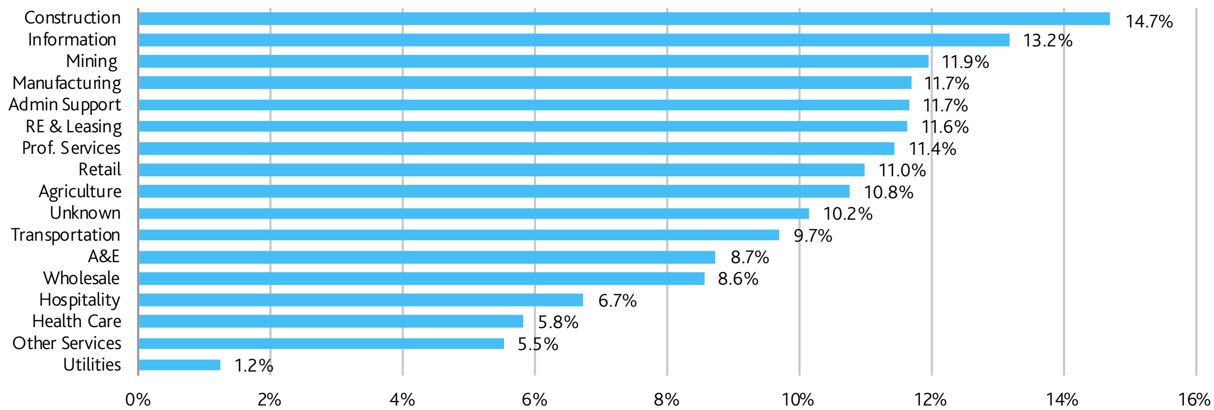


Figure 16 Percentage of Firms with CCA EDF Values Greater than 90th Percentile



Credit Migration

In this section, we report CCA EDF credit measure migrations during three different periods. To construct each migration matrix, we group firms into rating categories using their CCA EDF credit measures. Migrations below show annual transition rates averaged over the periods since 2005, 2010, and 2014, respectively.

TABLE 5

CCA EDF-Implied Rating Migration: Average One-Year Rating Migration Rates (%)

(2005-2015) TO													MIGRATION SUMMARY	
FROM	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa-C	%UP	%DOWN
A1	38.8	32.9	10.2	4.9	5.6	3.5	2.1	0.5	0.4	0.9	0.1	0.1	0.1		61.2
A2	12.6	33.6	19.8	11.3	11.0	5.0	2.6	1.6	1.0	0.7	0.4	0.2	0.3	12.6	53.8
A3	3.0	21.0	23.2	15.7	18.6	8.0	4.2	2.2	1.5	1.1	0.6	0.4	0.6	24.0	52.7
Baa1	0.9	10.4	18.0	18.5	25.5	11.8	5.9	3.2	2.0	1.5	0.9	0.6	0.8	29.3	52.2
Baa2	0.2	3.5	9.4	13.8	31.2	19.1	9.6	4.6	3.0	2.2	1.2	0.9	1.3	26.9	41.9
Baa3	0.0	0.9	3.1	6.4	23.8	27.5	16.8	8.2	4.7	3.3	1.8	1.4	2.1	34.3	38.3
Ba1	0.0	0.3	1.1	2.6	12.6	23.5	24.3	13.8	8.2	5.3	2.7	2.1	3.5	40.1	35.6
Ba2	0.0	0.1	0.5	1.2	6.4	14.6	23.3	19.9	13.1	8.4	4.2	3.1	5.2	46.1	34.1
Ba3	0.0	0.1	0.2	0.7	3.6	8.9	17.0	20.1	18.1	12.8	6.6	4.7	7.2	50.6	31.3
B1	0.0	0.0	0.1	0.4	2.1	5.5	11.1	15.7	19.0	18.1	9.7	7.1	11.1	54.0	27.9
B2	0.0	0.0	0.1	0.3	1.5	3.6	7.4	11.0	15.7	19.4	14.0	10.4	16.5	59.0	26.9
B3	0.0	0.0	0.1	0.2	1.0	2.6	5.4	8.4	11.9	17.0	15.0	14.4	24.1	61.5	24.1
Caa-C	0.0	0.0	0.0	0.1	0.6	1.5	3.1	4.7	6.8	10.8	11.4	14.3	46.6	53.4	

TABLE 6

CCA EDF-Implied Rating Migration: Average One-Year Rating Migration Rates (%)

(2010-2015) TO													MIGRATION SUMMARY	
FROM	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa-C	%UP	%DOWN
A1	49.7	29.8	8.3	3.6	3.9	2.3	1.3	0.4	0.3	0.1	0.1	0.0	0.1		50.3
A2	16.2	40.1	18.8	8.6	8.0	3.5	2.1	1.1	0.6	0.5	0.2	0.2	0.1	16.2	43.7
A3	4.3	27.0	26.3	15.3	14.4	5.7	2.8	1.6	1.0	0.7	0.4	0.2	0.2	31.3	42.4
Baa1	1.3	13.5	22.4	20.4	23.3	8.8	4.4	2.2	1.5	1.1	0.5	0.3	0.3	37.2	42.4
Baa2	0.4	4.8	11.6	17.0	34.1	16.8	6.9	3.2	2.0	1.4	0.7	0.5	0.5	33.9	32.1
Baa3	0.1	1.3	3.9	7.9	28.6	29.8	14.4	5.8	3.2	2.1	1.2	0.8	0.9	41.8	28.3
Ba1	0.0	0.4	1.5	3.2	15.0	28.2	26.3	11.9	5.7	3.3	1.8	1.3	1.5	48.3	25.4
Ba2	0.0	0.2	0.7	1.5	7.6	17.5	27.6	21.2	11.3	5.6	2.7	1.8	2.4	55.0	23.8
Ba3	0.0	0.1	0.3	0.8	4.4	10.5	20.4	23.6	18.8	10.8	4.2	2.8	3.2	60.2	21.1
B1	0.0	0.1	0.2	0.6	2.6	6.5	13.2	19.0	21.9	18.1	7.8	4.6	5.3	64.1	17.8
B2	0.0	0.1	0.2	0.4	2.0	4.5	8.6	13.0	18.3	22.0	14.0	8.3	8.7	69.0	17.0
B3	0.0	0.0	0.1	0.3	1.3	3.3	6.5	10.0	14.0	19.0	16.5	13.7	15.1	71.2	15.1
Caa-C	0.0	0.0	0.1	0.2	0.9	2.1	4.1	6.0	8.3	12.9	13.5	16.0	35.9	64.1	

TABLE 7

CCA EDF-Implied Rating Migration: Average One-Year Rating Migration Rates (%)

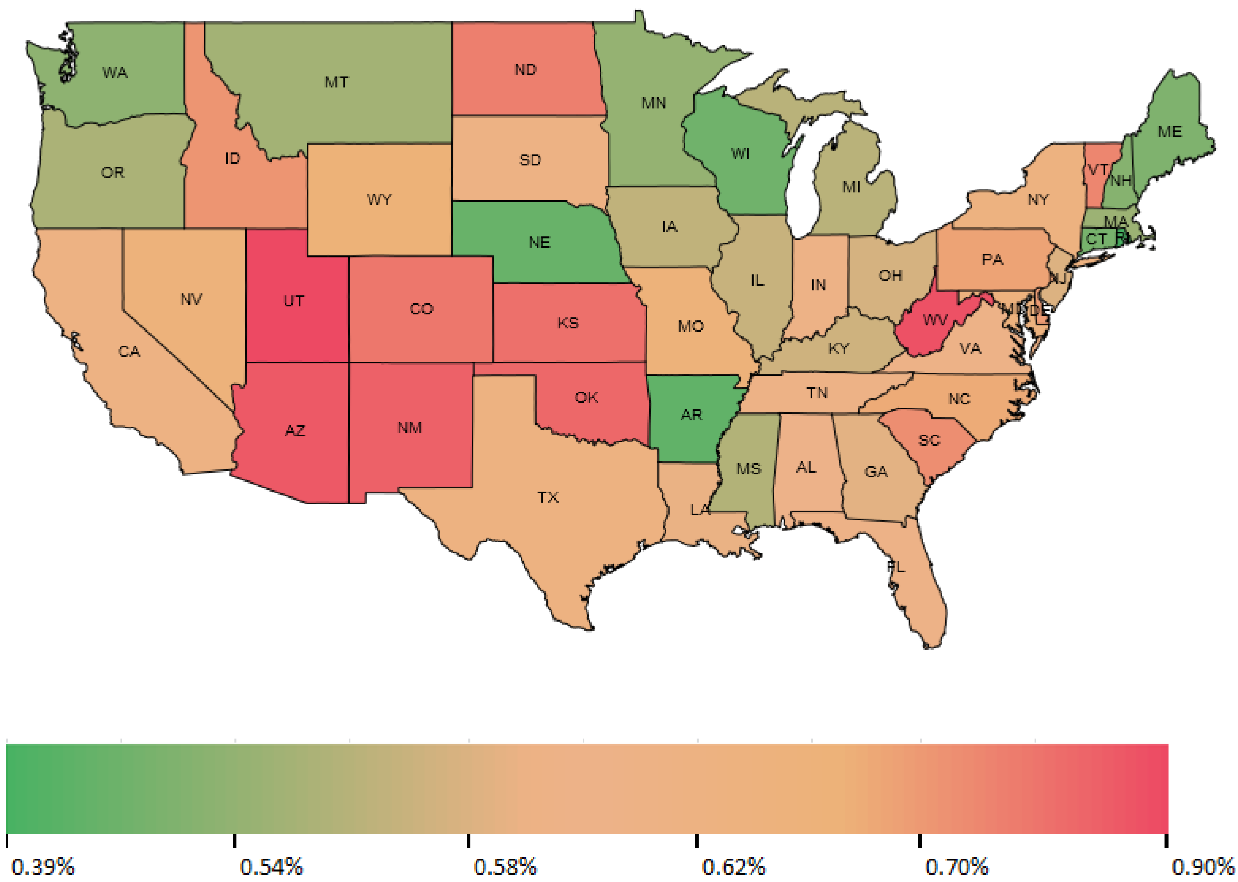
(2014-2015) TO													MIGRATION SUMMARY	
FROM	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa-C	%UP	%DOWN
A1	33.4	39.7	12.1	5.2	4.4	2.8	1.4	0.6	0.2	0.2	0.1	0.0	0.0		66.6
A2	4.9	36.2	25.3	13.1	10.7	4.1	2.3	1.4	0.6	0.7	0.2	0.2	0.2	4.9	59.0
A3	1.2	12.4	28.4	22.0	20.0	7.5	3.4	1.9	1.2	0.7	0.6	0.3	0.4	13.5	58.0
Baa1	0.3	4.5	13.9	22.2	34.7	12.4	5.4	2.4	1.6	1.0	0.7	0.5	0.5	18.7	59.1
Baa2	0.1	1.6	5.1	10.3	37.7	25.3	10.0	3.8	2.4	1.7	0.8	0.6	0.6	17.1	45.1
Baa3	0.0	0.5	1.4	3.8	18.2	35.5	22.6	8.6	3.8	2.4	1.3	1.0	0.9	23.9	40.6
Ba1	0.0	0.1	0.6	1.7	7.7	19.5	32.7	18.7	8.6	4.7	2.1	1.5	2.1	29.7	37.6
Ba2	0.0	0.1	0.4	0.7	3.9	10.1	21.6	26.5	19.2	7.8	3.9	2.4	3.5	36.8	36.7
Ba3	0.0	0.0	0.1	0.4	2.8	5.8	13.1	19.6	25.2	17.9	6.5	3.9	4.5	41.9	32.9
B1	0.0	0.0	0.1	0.3	1.6	4.2	8.6	12.6	20.6	24.5	12.8	7.2	7.5	48.0	27.5
B2	0.0	0.1	0.3	0.3	1.4	3.3	5.6	9.2	14.5	20.5	18.3	13.7	12.9	55.1	26.5
B3	0.0	0.0	0.1	0.2	0.9	2.3	4.5	7.4	11.2	14.1	14.7	19.5	25.0	55.4	25.0
Caa-C	0.0	0.0	0.1	0.1	1.2	2.0	3.5	4.6	6.7	9.4	11.7	13.9	46.8	53.2	

Regional Analysis[5]

The map below reports EDF credit measures by state. To estimate each state's median credit risk score, we use the median one-year CCA EDF score assigned by the RiskCalc U.S. 4.0 Model as of December 2015. The spectrum legend below the U.S. heat map contains the range of observed median EDF values in December 2015. The states with the lowest median EDF were Rhode Island and Alaska, both at 0.39%, while Utah had the highest median EDF, 0.90%.[6]

Figures 18 through 20 present the 10 largest changes in median EDF credit measures by state since December 2005, June 2009, and December 2014, respectively. Oklahoma and New Mexico saw the largest rise in median CCA EDF values compared to ten years ago. Both states' economies declined, due to the recent oil price drop. Louisiana and Mississippi showed the largest improvement, with a 66.0% and 64.8% decline, respectively (Fig.18). All states' median CCA EDF measures have fallen since June 2009. Michigan led all states during this period with an improvement of 88.1% (Fig.19). On the other hand, we observe EDF measure elevation in most states during the most recent year, led by West Virginia (34.7%) and New Mexico (34.5%) (Fig.20).

Figure 17 One-Year CCA Median EDF Values by State as of December 2015



[5] The data used in constructing this map contains a relatively small number of observations from Wyoming and Vermont. For each state, median EDF values may reflect different data population characteristics including lenders (CRD Participants) and distributions of borrowers across industries, asset sizes, and other characteristics that may materially impact EDF values for that state. EDF calculations using RiskCalc 4.0 do incorporate some state-level macroeconomic factors, such as unemployment.

[6] Alaska's low median EDF value should be interpreted with caution due to a low number of observations.

Figure 18 Top-Ten Largest Changes in One-Year CCA Median EDF During Past Decade

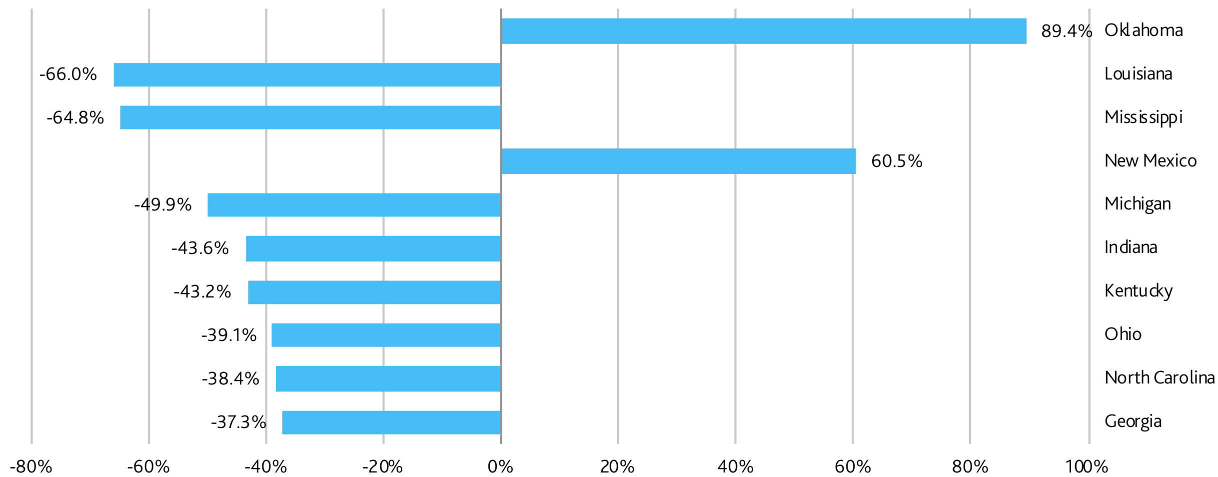


Figure 19 Top-Ten Largest Changes in One-Year CCA Median EDF Since June 2009

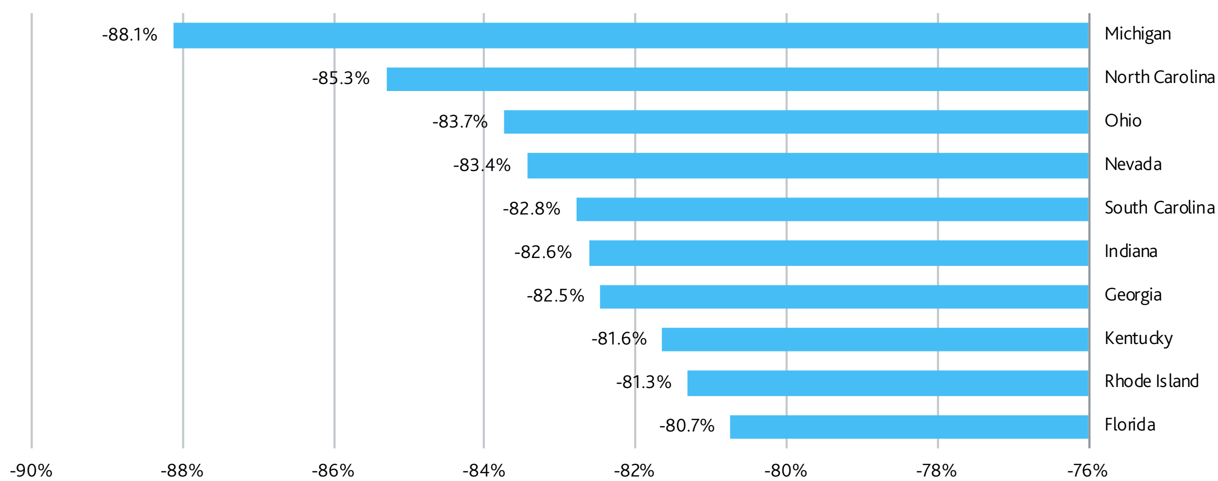
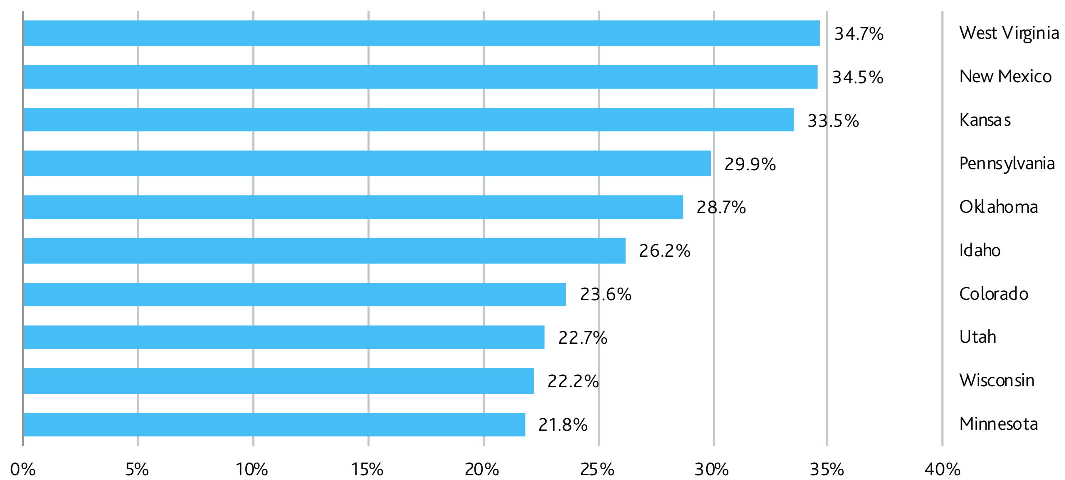


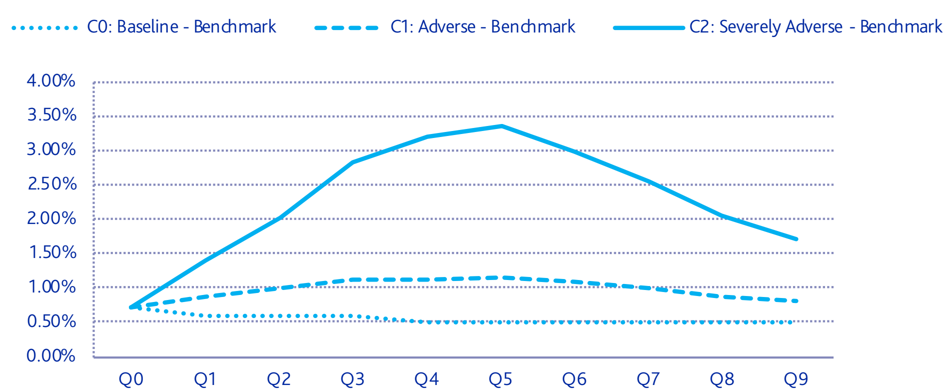
Figure 20 Top-Ten Largest Changes in One-Year CCA Median EDF Since December 2014



Stressed EDF Analysis

Figure 21 presents the stressed EDF forecast based on the Federal Reserve's CCAR Scenarios. It is based on scores from the most recent statement for each company in the CRD, no older than four years old. We calculate the annualized nine-quarter EDF forecasts shown below using a forecast date of Q1 March 2016, on the February 2016 Federal Reserve's CCAR Scenarios.

Figure 21 Median, Ratio-Based Stressed EDF



Conclusion

The credit risk of private-firm borrowers in the U.S. middle market has improved since peaking in 2009. The market has shown credit soundness during the past year, as illustrated by the stable, rolling 12-month default rate and the median CCA EDF level. Changes in borrowers' financial positions during the past year have generally been positive, as seen in RiskCalc ratios (Fig.13). The actual default rate has steadily decreased during the past five years (Fig.1) while the RiskCalc 4.0 One-Year CCA EDF credit measure has risen slightly during the past year(Fig.8), indicating potential deterioration.

Meanwhile, lenders have remained conservative. The overall number of bank-assigned risk rating downgrades outnumbered upgrades (Fig.6), although upgrades are more common than downgrades for Substandard borrowers (Fig.3).