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## Relationships between Speculative-Grade Liquidity Ratings and Credit Default Swap Spreads

### Contents:

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- Summary
- What Are SGLs?
- Why Should Investors Care About SGLs?
- Expected Relationships between SGLs and CDS Spreads
- Empirical Relationships between SGLs and CDS Spreads
- Appendix: Moody's Speculative-Grade Liquidity Rating Definitions

### Summary

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- Speculative-grade liquidity ratings (SGLs) are opinions about speculative-grade issuers' relative abilities to generate cash from internal resources and the availability of external sources of committed financing, in relation to their cash obligations over the coming twelve months.
- Defaulting issuers have generally had very weak SGLs immediately prior to default. However, Moody's has only been assigning SGLs since October 2002 and the available data is too limited to draw meaningful conclusions about the relationship between default risk and SGLs. Instead, this Special Comment analyzes the relationship between SGLs and credit risk by examining market opinions about credit risk inferred from credit default swap (CDS) premiums.
- Conditional on the rating, issuers with strong SGLs should in theory face a steeper term structure of credit spreads than issuers with weaker SGLs. Since one would expect issuers with the same rating to have similar long-term cumulative expected default and loss rates, then issuers with relative low short-term liquidity risk are likely to experience lower short-term marginal default rates but higher long-term marginal default rates.
- Our empirical analysis, however, reaches very different conclusions. Holding long-term ratings constant, we do find that CDS premiums vary significantly and negatively with SGLs. The slopes of the term structure of CDS premiums, however, do not vary significantly with SGLs. Moreover, we find that CDS spreads tend to widen and narrow during the weeks preceding SGL downgrades and upgrades, respectively. Lastly, spreads tend to continue to widen and narrow in the same direction during the weeks following SGL changes.
- These findings suggest that SGLs contain information that is highly relevant to investors. SGL ratings may in certain cases signal future rating changes. Changes in SGLs appear to be signaled by changing CDS spreads but also signal future changes in spreads.
- Oddly, issuers with stronger SGLs do not necessarily have steeper term structures of credit risk as expected. This counterintuitive finding may reflect differences of opinion between the ratings and the market or may simply reflect poor quality CDS data on contracts for maturities other than five years.<sup>1</sup>

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1. Discussions with the CDS data providers indicate that trading is often very limited at non-standard maturities. Therefore, the prices they distribute for those maturities are less reliable indicators of market opinion.



## What Are SGLs?

SGL ratings are opinions of speculative-grade issuers' relative abilities' to generate cash from internal resources and external sources of committed financing in relation to their cash obligations over the coming 12 months. The first SGLs were assigned to 36 issuers in October 2002. Since that time, the number of issuers with SGLs has grown rapidly to 304 outstanding, as of April 2005. The SGL rating scale is summarized below. More detailed definitions appear in the Appendix.

<b>Exhibit 1</b> <b>SGL Rating Definitions</b>	
Rating	Liquidity Relative to Other Speculative-Grade Issuers
SGL-1	Very Good
SGL-2	Good
SGL-3	Adequate
SGL-4	Weak

The analysis underlying the SGL rating represents just a portion of the factors that determine an issuer's senior implied rating (also known as its corporate credit rating), which summarize its long-term risk of default and loss. As a result, SGLs and senior implied ratings are correlated, but imperfectly so, as indicated in Exhibit 2. Issuers with stronger long-term credit ratings tend to have stronger SGLs, but there are cases of strong issuers with only adequate SGLs and cases of weak issuers with very good SGLs

<b>Exhibit 2</b> <b>Relationship Between SGL Ratings and Senior Implied Ratings</b> <b>(SGLs as percent of issuers as of April 2005)</b>					
	SGL-1	SGL-2	SGL-3	SGL-4	# of Issuers
<b>Ba</b>	37.9%	53.4%	8.6%	0.0%	116
<b>B</b>	9.0%	41.8%	42.9%	6.2%	177
<b>Caa</b>	9.1%	27.3%	45.5%	18.2%	11
<b>Total</b>	20.1%	45.7%	29.9%	4.3%	304

## Why Should Investors Care About SGLs?

SGLs measure one input to, and hence a partial decomposition of, an issuer's long-term credit rating. Investors may be interested in SGLs for a number of reasons, including:

- In evaluating the relative risks of loans of different tenors, lenders need to evaluate borrowers' short-term liquidity profiles.
- The partial decomposition of the credit rating implied by the SGL allows lenders to reassess an issuer's overall risk profile in light of their own opinions about an issuer's short-term liquidity or the weight that they place on the relative importance of short-term versus and long-term default risk.
- Strong or weak SGLs, or SGL changes, may anticipate changes in long-term credit ratings and/or default risk.

Though the historical data available on SGLs is quite limited, it is nonetheless instructive to review the relationship between SGL ratings and historical defaults. As indicated in Exhibit 3, only 7 issuers with SGLs outstanding have defaulted to date. Within a month before their defaults, their long-term credit ratings varied between B2 and Caa2, but all had SGL-4's, except Level 3 which had an SGL-1.<sup>2</sup> It is noteworthy that six out of the seven defaulters had SGL-4's and SGL-4's are currently assigned to only 4.3% of the overall population (Exhibit 2) and to only 18.2% of the Caa-rated population. Though the data is quite limited, SGLs do appear to have anticipated increases in issuers' short-term default risk

2. Level 3's default took the form of distressed exchange and may have surprised market participants since it was not precipitated by a liquidity shortage.

### Exhibit 3 Issuers with SGLs at Default

	Default Date	Senior Implied Rating 1-Month Prior to Default	SGL 1-Month Prior to Default
Atlas Air, Inc.	03/28/03	B3	SGL-4
Collins & Aikman Products Co.	05/17/05	B3	SGL-4
Fleming Companies, Inc.	04/01/03	B2	SGL-3
Level 3 Communications, Inc.	12/02/04	Caa2	SGL-1
RCN Corporation	01/15/04	Ca	SGL-4
Tower Automotive, Inc.	02/02/05	B2	SGL-4
Trump Atlantic City Associates	10/21/04	Caa2	SGL-4
Trump Casino Holdings, LLC	10/21/04	Caa1	SGL-4

## Expected Relationships between SGLs and CDS Spreads<sup>3</sup>

As seen earlier in Exhibit 2, issuers with weaker SGLs generally - but not always - have weaker long-term credit ratings. Moreover, as evident in Exhibit 3, SGLs tend to be quite weak prior to default. The information content of SGLs could be reflected in credits in a variety of ways. In the sections that follow, we consider the following potential relationships between CDS spreads and SGLs:

- SGLs and overall spread levels;
- SGLs and the term structure of credit spreads; and
- Changes in SGLs and changes in spreads.

Spreads should be wider on issuers that have weaker SGLs because, as shown in Exhibit 2, issuers with weak SGLs tend to have weak long-term credit ratings. However, even among issuers with the same long-term rating, spreads may be wider for issuers with weaker SGLs if, compared to Moody's, the market places a greater weight on short-term liquidity in measuring short-term default risk or a greater weight on near-term risk in its assessment of long-term risk.

The slopes of issuers' term structures of credit spreads may also vary systematically with SGLs, even among issuers with the same credit rating. The term structure of those with stronger SGLs should be steeper (more upward sloping) than those with weaker SGLs, because the default risk of issuers with stronger SGLs should be more "back-loaded" (less "front-loaded") than those with weaker SGLs.

Spreads may also vary systematically around the announcement dates of changes in SGLs. Changes in SGLs may:

- Be preceded by changes in spreads if changes in SGLs are anticipated by the market;
- Coincide with changes in spreads if changes in SGLs are unanticipated by the market; and
- Anticipate changes in spreads if the market initially pays insufficient attention to the default risk information conveyed by the change in SGL.

## Empirical Relationships between SGLs and CDS

In the following section, we review the empirical relationship between SGLs and credit spreads using CDS price data from Markit, Inc.

### *SGLs and the Level of Spreads*

As indicated in Exhibit 4, CDS spreads increase sharply as SGLs move from SGL-1 down to SGL-4. Spreads are considerably higher for issuers with weaker SGLs, even within the same rating category. Ba issuers with SGL-1 ratings had an average CDS spread of 2.0% (200 basis points) compared to 3.4% for a SGL-4 issuer. Similarly, a B-rated issuer with a SGL-1 rating had an average CDS spread 4.4% compared to 10.7% for a SGL-4 issuer.<sup>4</sup>

3. This analysis was also conducted on bond market spreads, and the results were similar.

4. These averages include all month-end observations from 2002 to present. The number of unique issuers underlying each statistic is (reading from SGL-1 to SGL-4): Ba - 45, 48, 23, 2; B - 12, 37, 24, 8; and Caa - 1, 2, 3, 2.

<b>Exhibit 4</b>				
<b>Average Spreads on 5-Year CDS: 10/02-4/05</b>				
	<b>SGL-1</b>	<b>SGL-2</b>	<b>SGL-3</b>	<b>SGL-4</b>
All Firms				
Ba	2.0%	2.2%	3.3%	3.4%
B	4.4%	6.6%	5.7%	10.7%
Caa	14.5%	6.6%	14.6%	43.4%

### ***SGLs and the Term Structure of Spreads***

The expected relationship between SGLs and issuers' term structures of credit spreads, however, is not very evident in the data. Exhibit 5 reports the differences between the 5-year and 1-year CDS premiums of issuers with different long-term ratings and different SGLs.<sup>5 6</sup>

<b>Exhibit 5</b>				
<b>Median Differences Between the 5-Year and 1-Year CDS Spreads by SGLs</b>				
<b>Sample: All Issuers with SGLs and CDS Price Data: October 2002 - April 2005</b>				
	<b>SGL-1</b>	<b>SGL-2</b>	<b>SGL-3</b>	<b>SGL-4</b>
Ba	0.7%	0.8%	1.1%	1.6%
B	1.3%	1.2%	0.9%	2.2%
Caa	9.1%	5.5%	1.1%	-6.6%
Memo Items:				
Number of Monthly Observations				
Ba	210	168	25	6
B	38	133	53	11
Caa	7	6	13	8
Number of Unique Issuers				
Ba	35	34	9	1
B	8	25	13	5
Caa	1	2	3	1

Rather than decrease as expected, the slopes for Ba and B-rated issuers increase as SGLs decline from SGL-1 to SGL-4. For Caa issuers, however, we do see the predicted relationship, although the Caa sample is based on only a handful of issuers. There are many possible interpretations of these findings:

- The market may not agree with Moody's assessment of relative liquidity risk;
- Market pricing may be inefficiently incorporating short-term credit risk into the term structure; or
- Pricing data on maturities other than the more liquid 5-year CDS may be unreliable

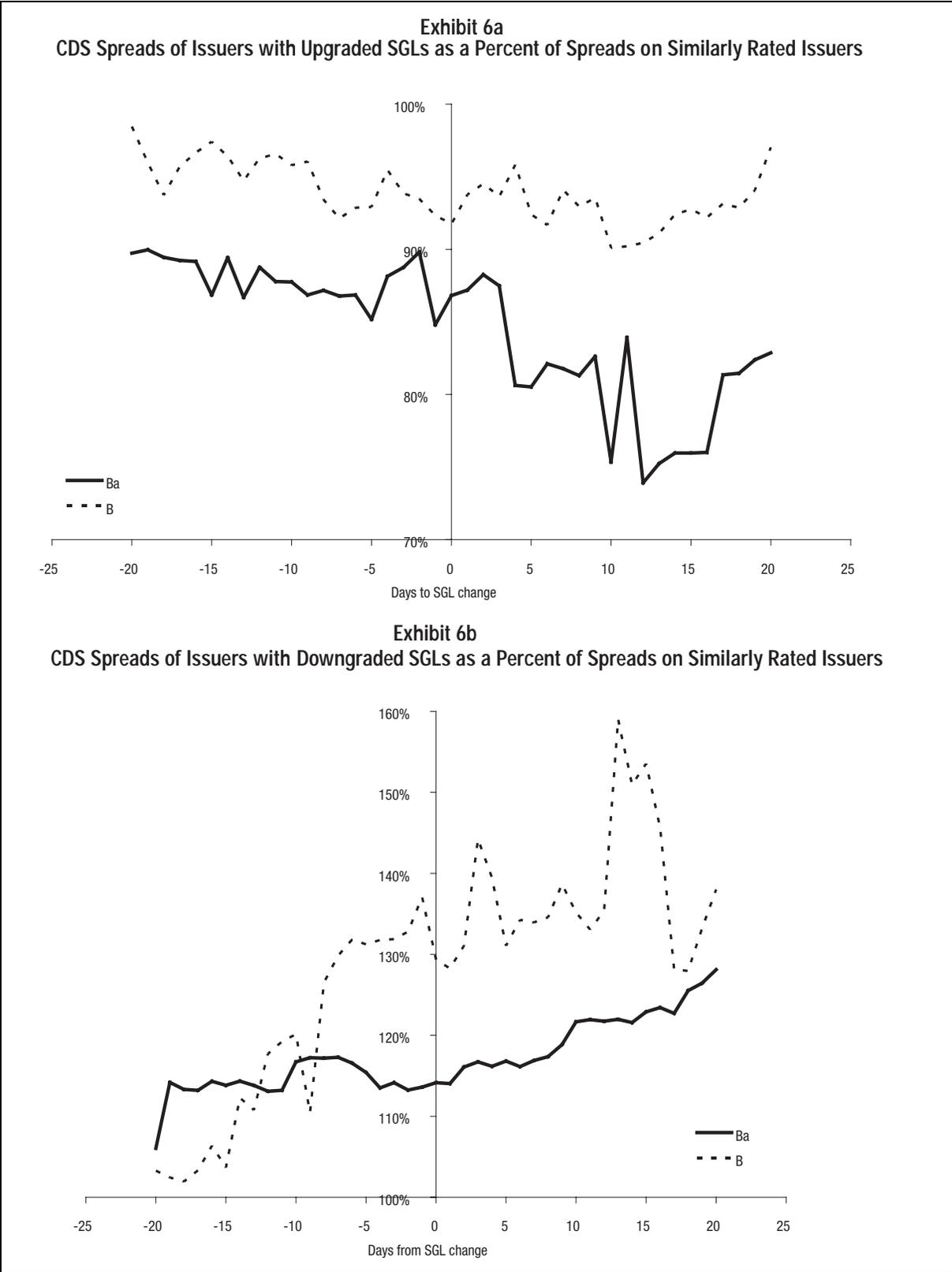
### ***Changes in SGLs and Changes in CDS Spreads***

In Exhibits 6a and 6b we track movements in CDS spreads of Ba- and B-rated issuers around dates in which an SGL rating change was announced, but there was no accompanying change in the company's senior implied rating. The main finding of Exhibit 2, that weaker SGLs are reflected in higher spreads within rating categories - is echoed in these charts. Issuers that have their SGLs upgraded (downgrade) trade at less (more) than 100% of the average spread for issuers of their own long-term rating category.<sup>7</sup> From 2002 to present, there were 24 Ba-rated and 20 B-rated SGL upgrades and 14 Ba-rated and 9 B-rated SGL downgrades without accompanying long-term rating changes.

5. Other measures of the term structure using various combinations of years from one to ten led to the same qualitative conclusions.

6. These averages include all monthly observations from July 2004 to present. The number of unique issuers underlying each statistic is (reading from SGL-1 to SGL-4): Ba - 35, 34, 9, 1. B - 8, 25, 13, 5. and Caa - 1, 2, 3, 1.

7. The specific method used for creating Exhibits 6a and 6b was to measure spreads as a percentage of daily controls for each rating category. Daily controls were made by averaging together all spreads from issuers of a given rating. Movements in the graphs can therefore be interpreted as above and beyond movements due to the market as a whole.



The market anticipates to some extent the change in SGL and there is little evidence, if any, of a jump on the day the SGL change is announced. However, in the days that follow, upgraded (downgraded) issuers tend to experience a tightening (widening) of spreads relative to issuers with the same long-term credit rating. The market, therefore, appears to anticipate some but not all of the effects of a change in SGL.

## Appendix: Moody's Speculative-Grade Liquidity Rating Definitions

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SGL ratings are opinions of a speculative-grade issuer's relative ability to generate cash from internal resources and the availability of external sources of committed financing, in relation to its cash obligations over the coming 12 months. SGLs consider the likelihood that committed sources of financing will remain available. Other forms of liquidity support are evaluated and consideration is given to the likelihood that these sources will be available during the coming 12 months.

### SGL-1

Issuers rated SGL-1 possess very good liquidity. They are most likely to have the capacity to meet their obligations over the coming 12 months through internal resources without relying on external sources of committed financing.

### SGL-2

Issuers rated SGL-2 possess good liquidity. They are likely to meet their obligations over the coming 12 months through internal resources but may rely on external sources of committed financing. The issuer's ability to access committed financing is highly likely based on Moody's evaluation of near-term covenant compliance.

### SGL-3

Issuers rated SGL-3 possess adequate liquidity. They are expected to rely on external sources of committed financing. Based on Moody's evaluation of near term covenant compliance there is only a modest cushion, and the issuer may require covenant relief in order to maintain orderly access to funding lines.

### SGL-4

Issuers rated SGL-4 possess weak liquidity. They rely on external sources of financing and the availability of that financing is in Moody's opinion highly uncertain.

## Related Research

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### **Rating Methodology:**

[Speculative Grade Liquidity Rating September 2002, \(76003\)](#)

### **Special Comments:**

[Moody's Observations on Speculative-Grade Liquidity Ratings, November 2004 \(89342\)](#)

[Speculative Grade Liquidity Ratings: An In-Depth Discussion Of The Key Credit Considerations, May 2005 \(92712\)](#)

*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.*



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