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Fixed Income Falling Knives

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I. Introduction

A few years ago, the Brandes Institute ("Institute"), a division of Brandes Investment Partners, L.P., investigated opportunities and risks associated with investing in stocks described as "falling knives." These were stocks defined as declining in price 60% or more during a 12-month period and, as such, were viewed as "risky" investments. Of course, this assumes that risk is the potential for further price decline, de-listing, and/or the underlying firm filing for bankruptcy. The initial investigation revealed that stock falling knives in the United States did post a relatively high bankruptcy rate over the 3-year period following their initial drop. However, in aggregate, they also outperformed the S&P 500 Index by wide margins. A follow-up Institute study of falling knives in markets outside the United States revealed that non-U.S. equity knives also tended to outdistance their benchmarks, but with minimal bankruptcy rates. In essence, where many investors might perceive only risk, there was opportunity. Given the results of this research in global equity markets, the Institute sought to test the notion that a similar examination of the U.S. corporate bond market would produce comparable findings.

In this paper, fixed income falling knives are defined as U.S. corporate bonds whose option-adjusted spreads[1] (OAS) widened more than 100 basis points, relative to the spread of the market, within a 3-month period, at any time between December 31, 1989, and December 31, 2005. A variety of factors for these bonds, such as default rates, as well as returns and volatility over three, sequential 12-month periods (hereafter noted as Year 1, Year 2, or Year 3) where applicable[2] were investigated. The following points are noted for the fixed income falling knives studied:

- The default rate was 4.3%, higher than the overall default rate among investment-grade corporate bonds.
- The rate of falling knife generation was low during the early 1990s. The highest generation rates occurred in 1998 and 2002.
- Performance of falling knives was consistent with observations of equity falling knives, with average outperformance vs. the benchmark of over 3.5% on a 3-year annualized basis, post fall.
- A majority of falling knives were in the consumer discretionary, financial, and industrials industries.
    - While rare as falling knives, the best-performing falling knives appeared in the energy, information technology, and telecommunications industries.
    - The study also included Yankee bonds, which illustrate the behavior of non-U.S. domiciled bonds (although U.S. dollar-denominated).
- The asymmetrical distribution return pattern for falling knives suggests that bond selection has been an important factor in successful falling knife investment.
- A low debt-to-equity ratio among issuers may help investors distinguish the most compelling opportunities among falling knives.

The next section reviews the methodology employed. In subsequent sections, results are discussed in detail.

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[1] OAS reflects the application of option pricing techniques that adjust for a fixed income security's optionality. The OAS helps investors compare bonds with options to those without options.

[2] Note that falling knives occurring after December 31, 2002 will have limited subsequent periods by which returns and volatility can be evaluated.

II. Methodology

As described in the Introduction, a fixed income falling knife was defined as a U.S. corporate bond whose OAS widened more than 100 basis points, relative to the spread of the market, within any 3-month period between December 31, 1989 and December 31, 2005. Subsequent performance was tracked up to three years following the spread widening through December 2005. (The limited amount of robust, historical data prior to 1989 makes extending the history of this study extremely difficult.) While the essence of this falling knife definition was adopted from research conducted by Salomon Smith Barney[3], that definition was modified to incorporate a number of parameters for inclusion.

For example, an outstanding debt minimum of $100 million pre-fall was required to eliminate notably small bond issues, and to represent the universe available to an institutional investor. While Lehman Brothers and Citigroup use a $250 million minimum issue size hurdle in constructing their well-known indices, the $100 million floor was adopted to allow a contrast of the traits and performance of smaller- to larger-sized issues. A positive OAS pre- and post-fall also was demanded to account for any limitations of the OAS calculation model.

The universe in this study included both U.S. investment grade corporate and Yankee bonds. To be considered investment grade, at least two of the three major rating agencies (Moody's, Standard & Poor's, and Fitch) must have rated the bond at or above investment grade at the beginning of the falling knife event. If only two agencies rated a bond, then the lower of the two ratings was required to be investment grade. If only one agency rated a bond, that rating was followed; likewise, if there was no agency rating, the bond was not included in the universe.

Bonds containing call or put options were excluded as these can create changes in OAS that are independent of company-specific events. Bonds convertible to equity also were omitted, as the embedded options can result in price movements unrelated to the bond's fundamentals. Information on bond pricing and OAS was collected from FT Interactive Data and FactSet, respectively. Details on bond terms and conditions were compiled from Mergent.[4]

Issues were required to have maturities of greater than 12 months, as issues with shorter maturities tend to react more like corporate cash securities, and were deemed not meaningful for this analysis. Lehman Brothers applies a similar screen when compiling its bond universes. To identify falling knives, rolling 3-month windows[5] were examined to capture spread change events of 100 basis points or more.

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[3] Salomon Smith Barney researchers Terry Benzschawel and Dennis Adler sought to quantify the effects of "blowups" in the corporate bond market. They defined a "blowup" as a corporate bond that experienced a spread widening of 100 basis points or more, noting that these events may be triggered by "credit problems of individual issuers, decreases in market liquidity, or both." Benzschawel and Adler applied this definition to the Salomon Smith Barney Broad Investment Grade ("BIG") Bond Index and sampled bond OASs and prices at monthly intervals. The BIG Index includes investment-grade bonds with outstanding debt of $100 million or more. When Citicorp and Travelers merged in 1998 to form Citigroup, the name of the BIG index changed to the Citigroup U.S. Broad Investment Grade ("BIG") Corporate Bond Index.

[4] FT Interactive Data provides financial information and analytical software to global markets. Mergent Inc. provides financial information on global publicly traded companies, fixed income securities, indices, and exchanges.

[5] Rolling periods represent a series of overlapping, smaller time periods within a single, longer-term time period. A hypothetical example is the 20-year time period from 12/31/82 through 12/31/02. This long-term period consists of 16 smaller 5-year "rolling" segments. The first segment is the 5-year period from 12/31/82 to 12/31/87. The next rolling segment is the 5-year period from 12/31/83 to 12/31/88, and so on.

This OAS was measured relative to the corresponding OAS of the Citigroup U.S. Broad Investment Grade Corporate Bond Index ("BIG") for the same 3-month period.[6] The falling knives were analyzed in three segments based on the amount of spread widening they experienced during the 3-month period. The groupings included 100-149 basis points, 150-249 basis points, and equal to or greater than 250 basis points.

Falling knife generation over 1-, 6-, and 12-month rolling windows also was analyzed at spread widening increments of 10 basis points between 110 and 500. A 3-month window was adopted for the purposes of this study because it captured a significant number of falling knives across the spectrum of spread widening segments and appeared to be a practical choice from a practitioner's perspective.

As a result of applying these falling knife criteria, 397 falling knife companies, encompassing 1,497 debt issues, were identified.

III. Overall Results

Fixed Income Falling Knives Generation

Before reviewing the performance of the falling knives in the universe, the following features are analyzed: the frequency and the patterns, if any, in their generation, issue-level characteristics, and default rates.

As shown in Exhibit 1, spikes in falling knife events tended to coincide with rapid spread widening in the credit market, coupled with (downside) price volatility in the equity markets, as measured by the S&P 500 Index. For example, 542 of the 1,497 knives identified were generated in 2002 – a year in which the S&P 500 Index shed more than 22% (based on total return), and credit spreads widened at historically rapid rates. Similarly, knife generation also spiked in late 1998 amid the failure of a large, well-known hedge fund and the devaluation of the Russian ruble. Overall, half of the 1,497 knives identified were generated in the study's two most knife-intensive years, 1998 and 2002.

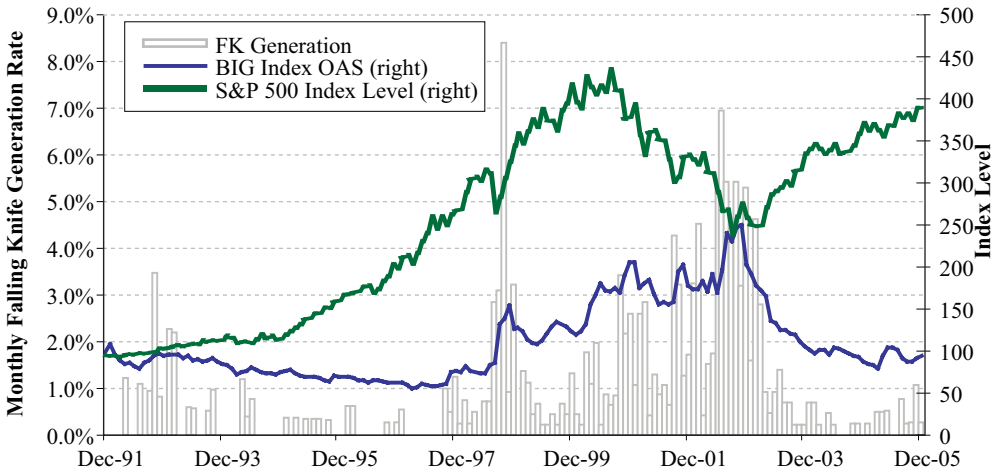
In addition, one-third of the universe consists of "follow-on" issues, or falling knives that reentered the universe following an earlier event. Typically, these follow-on events happened within three to 12 months after the initial falling knife occurrence.

The time period reviewed in this paper includes several periods of high correlations among returns for equities and corporate bond spreads. However, detailed analysis revealed relatively low correlations among these two factors over longer periods. Often, the shorter periods of high correlations were evident during times of extreme market volatility. This is similar to what has been observed in global equity markets during crises, when correlations among various asset classes tend to be high during or just after the crises, before diverging. In the case of corporate bond spreads and equity returns, the correlation is negative as stocks fall and spreads widen. For example, one-year correlations were below -0.75 during the market crash in the autumn of 1987, as well as during the bear market of 2000 through early 2003. These negative correlations coincided with Black Monday (October 19, 1987) and a rash of revelations of corporate malfeasance, respectively. (For a long-term review of

[6] Once an issue became a falling knife, it was removed from the universe of available issues for three months. After three months, these knives rejoined the broader universe. They could re-enter the falling knife universe at a later date if they met the criteria.

other historically volatile periods in the U.S. corporate bond market, see Exhibit A-1 in the Appendix. Exhibit A-2 in the Appendix shows the number of falling knives generated each year during the study and their relative returns.)

Exhibit 1: Falling Knife ("FK") Generation (1992-2005)[7], Corporate OAS, and S&P 500 Index Performance



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index option-adjusted spread (OAS), The Brandes Institute, FactSet, as of 12/31/05

Exhibit 2 provides a closer look at the composition and characteristics of the falling knife universe. Several factors are positively skewed, i.e., the average for a number of measures is greater than the median, reflecting an asymmetrical pattern favoring the right side of the factor distribution. The characteristics illustrate a universe of longer-term bonds that are on the cusp of investment-grade quality, with coupon rates to match their ratings at the time of their fall. While the median company does not appear to be aggressively levered (having a debt-to-equity (D/E) ratio of 1.67), the positive skew of the average D/E ratio (4.82) suggests there are a number of issues from companies with debt levels that are quite high. In later sections of this paper, the issue of company debt levels relative to performance of their falling knife issues is explored to help better understand the potential influence of capital structure and the subsequent ability of a company's debt to recover.

[7] The monthly falling knife generation rate in this exhibit represents the number of falling knife occurrences in a given month divided by the total number of bond issuers in the corporate bond universe. Falling knives are detected in the universe as early as 1990. However, due to the limitations of the databases used, the overall corporate bond universe does not reach a statistically robust size until 1992. As a result, comparisons of the number of falling knife events to the limited number of corporate bonds in the universe to represent the "monthly generation rate" prior to 1992 creates a misleadingly high percentage rate. Therefore, the period 12/31/1989 to 12/31/1991 is not illustrated in this chart. The total number of falling knife events from 1989-1991 was four.

Exhibit 2: Falling Knife Universe Characteristics (1990-2005)

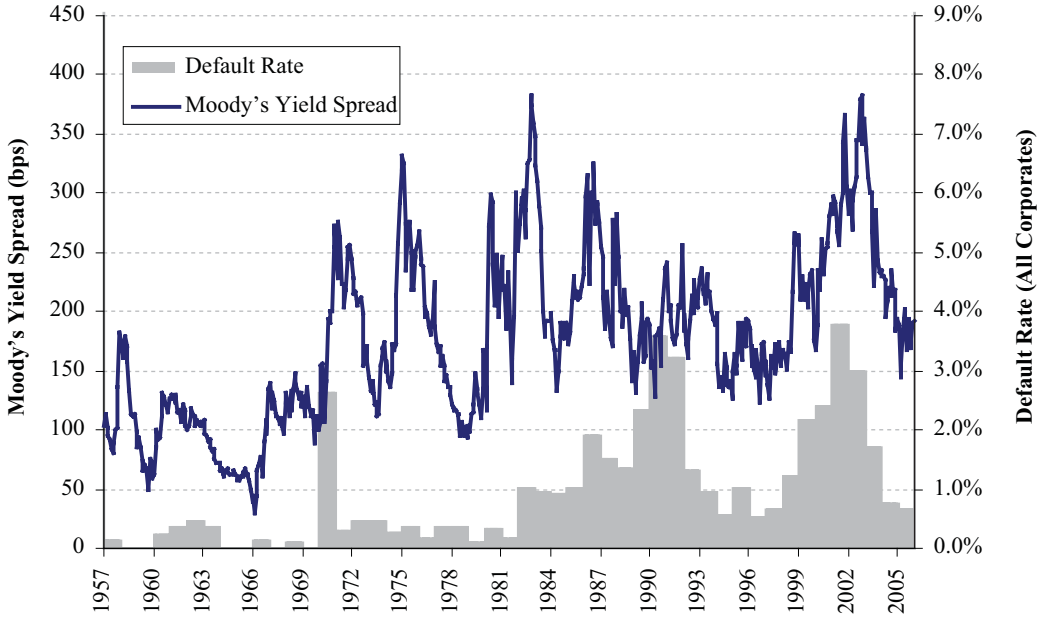
Statistic	Median	Average
Change in OAS (net)	136 bps	215 bps
Bond Issue Amount Outstanding	$250 million	$483 million
Term to Maturity (years)	10	14
Debt/Equity Ratio	1.67	4.82
Issue Size/Total Debt	2.94%	6.60%
Credit Rating (End of Fall)	BBB	BBB
Coupon	7.25%	7.39%

Source: FactSet; The Brandes Institute, as of 12/31/05

Default Rates

A historical review of the U.S. bond market shows a systematic increase in default rates beginning in the mid-1980s. See Exhibit 3. The growth of the high yield bond market and other factors raised the average default rate from approximately 0.5% of all outstanding issues per year prior to 1983 to an average of almost 2.0% per year post-1983, with several years approaching 4.0%. When comparing this chart with falling knife generation illustrated in Exhibit 1, it is clear that the period of this study (1990-2005) captures default rate volatility that had not been experienced in the U.S. corporate bond market previously (back to the mid 1950s). The period analyzed in this study may capture an anomaly, and default rates may revert to a more historical norm. Or perhaps, this more recent period is indicative of the future. The answer to this question is beyond the scope of this paper.

Exhibit 3: U.S. Historical Yield Spreads and Annual Default Rates (1957-2005)



Source: The Brandes Institute; Moody's Investors Service[8]; FactSet, as of 12/31/2005
Note: The yield spread is calculated monthly as Moody's Baa-rated long-term yield minus the yield on the 10-year Treasury Bond.

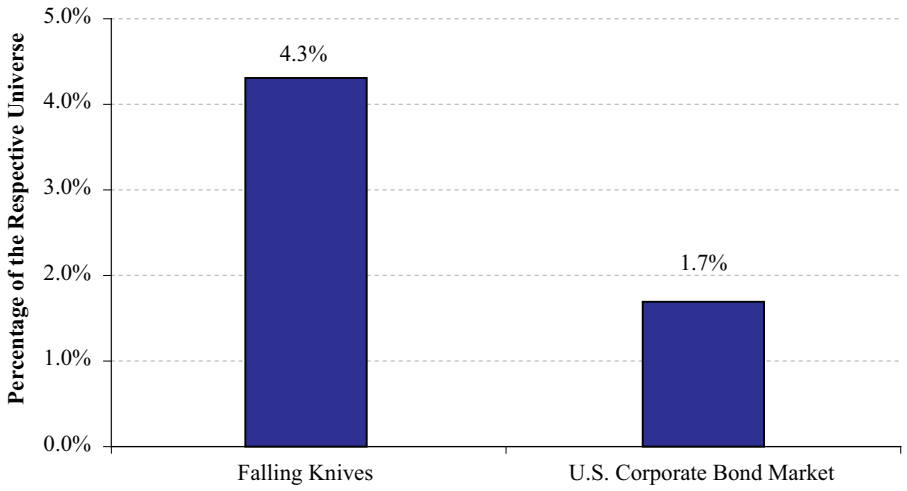
Among the falling knife universe, the heightened spread volatility of these bonds parallels higher default and bankruptcy rates relative to the overall U.S. investment grade bond market averages, as measured by Moody's.

During the period of study, the default rate for investment-grade bonds in the United States averaged 1.7% per year. In comparison, 4.3% of the falling knives in the study experienced defaults. See Exhibit 4.

This 4.3% rate included 64 issues that defaulted within the 3-year measurement period after their fall. Sixty-three of these defaults were due to companies seeking bankruptcy protection. The other was due to a missed interest payment. By the end of the period under study, 41 of the defaulted issues had been reinstated, with 37 being redeemed at reinstatement at an average price of $80 (a 31% premium over the price at the time of default). Forty-one reinstated of 64 defaulted bonds is equivalent to a 64% recovery rate, with an average time to recovery of 15 months.

[8] The source of default rate information is an annual survey published by Moody's Investors Service titled, Default and Recovery Rates of Corporate Bond Issuers, 1920-2005. Data from the January 2006 edition is used in this study.

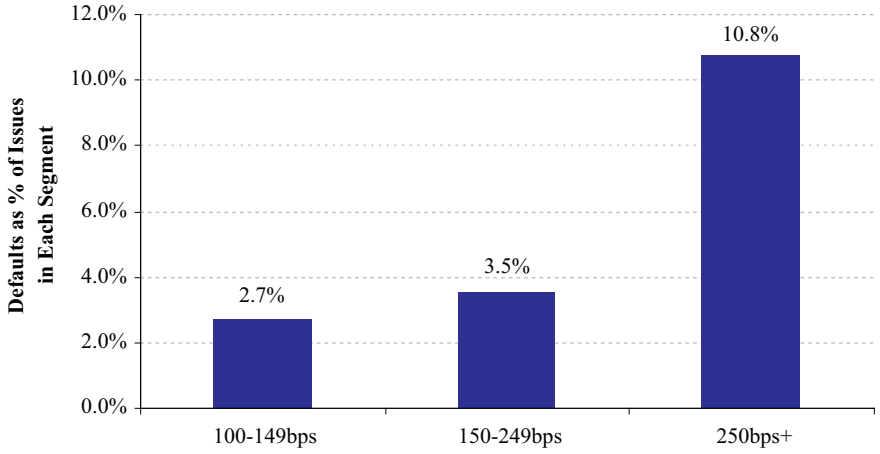
Exhibit 4: Falling Knife Default Rates (1990-2005)



Source: The Brandes Institute; FactSet; Moody's Investors Service[9], as of 12/31/05

Not surprisingly, the default rate increased with the magnitude of the OAS widening. As illustrated in Exhibit 5, the percentage of bonds that defaulted where the OAS spreads were less than 249 basis points was 2.7%-3.5%. The 250 basis point-plus spread group had default rates of almost 11.0%.

Exhibit 5: Falling Knife Default Rates, Segmented by OAS Widening, 1990-2005
(expressed as a percentage of issues in each segment)



Source: FactSet; The Brandes Institute, as of 12/31/05

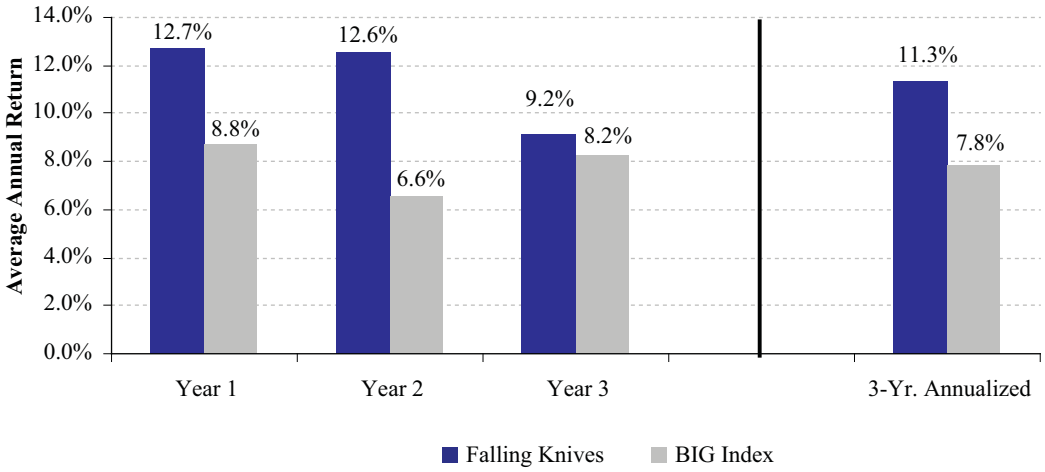
[9] For the falling knife universe, the default rate is the percentage of issues that defaulted during the 3-year period after their fall. For the U.S. corporate bond market, the default rate source is Moody's Investor Services' *Default and Recovery Rates of Corporate Bond Issuers 1920-2005*, January 2006.

The higher default rates for falling knives illustrate a degree of risk that many investors already may perceive for such issues. For some, Exhibits 4 and 5 may lend support to the adage that it is unwise to reach for falling knives. However, amid this perceived risk, is there opportunity?

Performance

Even accounting for falling knife defaults and bankruptcies, the average falling knife outperformed the bond index substantially – particularly in the Year 1 and Year 2 periods following its initial fall. Exhibit 6 shows the average knife gained an annualized 11.3% over the full three years following its initial fall, while the corresponding gain for the bond index averaged only 7.8%.

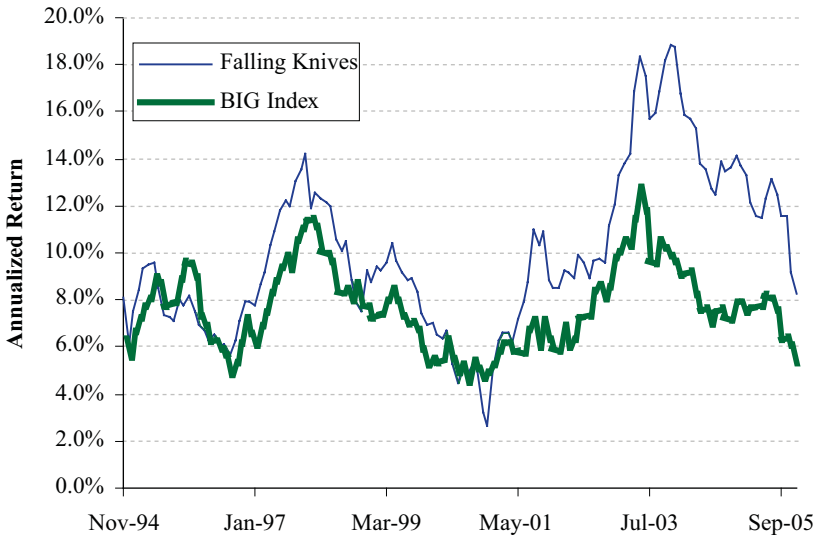
Exhibit 6: Average Annual Performance, Post Fall (1990-2005)



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; FactSet; The Brandes Institute, as of 12/31/2005

When looking at falling knives as a portfolio over time (Exhibit 6-A), the knife universe consistently outperformed the BIG Index in rolling 3-year periods over the course of the study.

Exhibit 6-A: Performance, Rolling 3-Year Periods[7]
(December 1991[10] -December 2005)



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; FactSet; The Brandes Institute, as of 12/31/05. The fixed income falling knife universe for each period includes newly generated knives, as well as existing knives still being tracked for subsequent 3-year performance. Also see Endnote i.

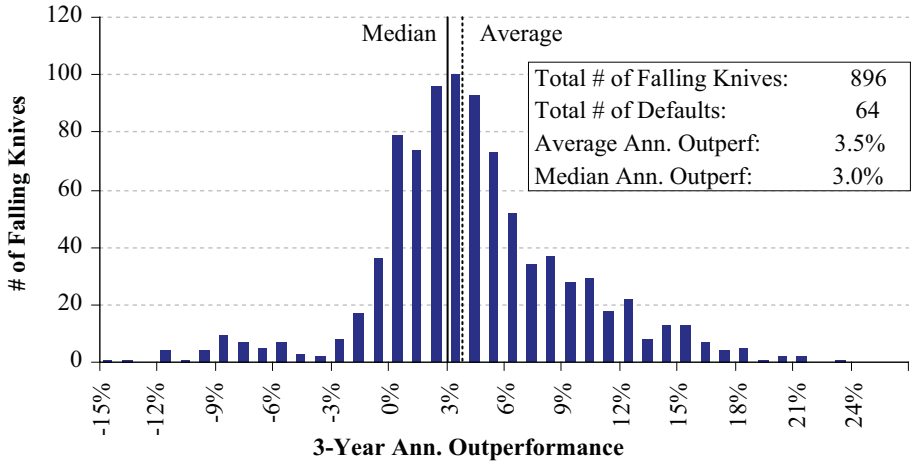
While performance benefited from select below-investment grade issues in the falling knife universe, all of the bonds were investment grade at the time of the fall, and therefore likely constituents of the comparative index. The contribution to the overall returns by what would be classified as "high yield" bonds is explored in greater detail in Section V: Credit Ratings and Fundamentals.

Performance: Distribution Pattern and OAS Segments

In evaluating the performance distribution pattern of the falling knife universe, Exhibit 7 shows how the positive skew is responsible for the *average* return of the corporate bond knife beating the BIG Index by 3.5%. The *median* knife outperformed by an annualized 3.0% over three years, or 50 basis points lower than the average. This asymmetrical distribution pattern suggests that bond selection has been an important factor in successful falling knife investment.

[10] The falling knife universe does not reach statistical significance until December 1991. Thus, the first, rolling 3-year period tracks performance from December 1, 1991 through November 30, 1994.

Exhibit 7: Distribution by 3-Year Annualized Outperformance vs. BIG Index[11] (1990-2005)



Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/05

A more detailed look at performance of the knives when segmented by magnitude in widening of the OAS shows an interesting intersection of volatility and performance. Knives with the most extreme spread events (equal to or greater than 250 basis points) yielded the strongest aggregate outperformance relative to the BIG Index in the subsequent 3-year annualized periods (a difference of 5.79%). The less-volatile end of the spread spectrum (100-149 basis-point spread) represented almost half of the overall universe, and also yielded attractive performance, with returns in excess of 2.5% over the index. See Exhibit 8.

Exhibit 8: Outperformance and Volatility, Segmented by OAS Spread (1990-2005), OAS Spread (in basis points)

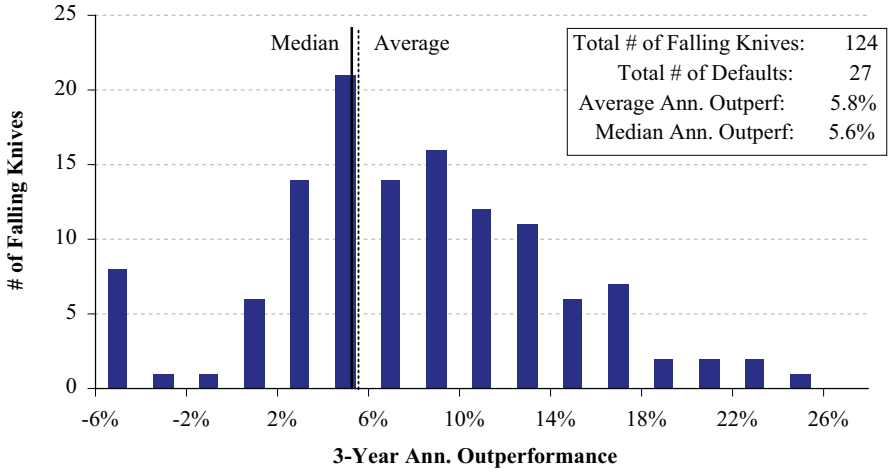
	OAS Spread (in basis points)			
Trait	**100-149**	**150-249**	**250+**	**Total**
Year 1 Relative Performance	2.79%	4.49%	7.60%	3.96%
Year 2 Relative Performance	3.08%	7.63%	14.89%	5.98%
Year 3 Relative Performance	0.15%	1.37%	3.44%	0.94%
Average Ann. 3-Year Relative Performance	2.52%	4.67%	5.79%	3.50%
Average Ann. 3-Year Information Ratio	0.36	0.45	0.45	0.40

Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; FactSet; The Brandes Institute, as of 12/31/05

[11] The total number of knives in the performance distribution does not include issues that did not yield a full 3-year performance record after the end of the 3-month falling knife event. This could be due to maturity, redemption, or the falling knife event occurring after 12/31/2002.

Of the entire universe, 251 issues had credit spread changes of equal to or greater than 250 basis points. The strong outperformance observed in the most extreme credit spread group helped account for the positive skew in the performance pattern featured in Exhibit 7. Exhibit 8-A illustrates the performance distribution of the greater-than-250-basis point spread group.

Exhibit 8-A: Distribution of 250+ OAS Segment by 3-Year Annualized Outperformance vs. BIG Index[11] (1990-2005)



Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005

After dividing the universe into three groups according to the magnitude of the change in OAS, performance was analyzed using the information ratio[12]. As shown in Exhibit 8 above, knives in the 150-249 and 250+ basis point OAS segments had the highest information ratios and, thus, delivered the best volatility-adjusted average returns. Note the greater outperformance vs. the BIG Index among issues in the 250+ segment vs. the 150-249 segment, yet both segments have identical information ratios. This reflects the significantly higher volatility and higher default rates that investors would have had to accept to have earned the return differential offered by the 250+ segment.

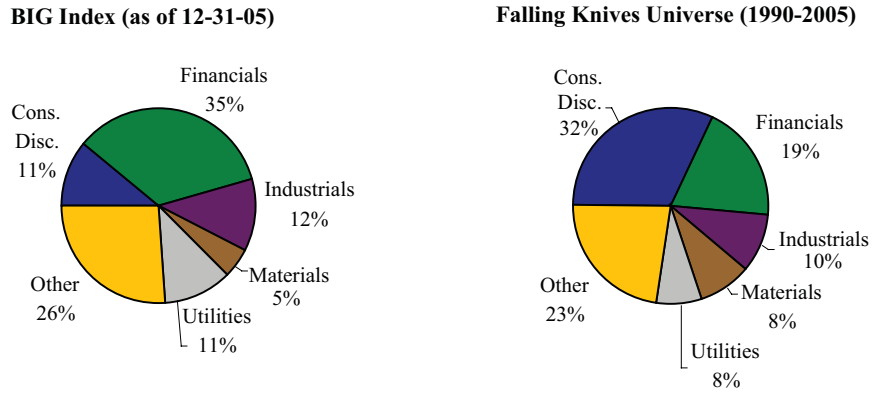
IV. Falling Knives: Industry Analysis

In this section, the fixed income falling knife universe is segmented into corporate industries to compare rates of return and default. As illustrated in Exhibit 9, the greatest number of knives came from the consumer discretionary industry, accounting for 33% of the falling knives in the study. In aggregate, the majority of these knives were generated in the late 1990s and in 2002, periods of unusual volatility. Within this industry, bonds issued by automobile and multi-line retail companies were responsible for the majority of falling knives. Other industries with relatively high levels of falling knife issues included financials and industrials. (Exhibit A-3 in the Appendix illustrates falling knife generation by industry during each year of the study.)

[12] Information ratio is a measure of residual return per unit of residual, "non-market" risk. It is calculated by dividing outperformance by the standard deviation of that outperformance.

Exhibit 9 illustrates the industry breakdown of the falling knife universe vs. the year-end 2005 snapshot derived for the BIG Index.[13] While comparable, the index shows a larger concentration in the financials industry and a lower weighting in the consumer discretionary industry. Granted, there are limitations in comparing a universe created over 13 years with a point-in-time index snapshot, but this information is offered to provide a reference point.

Exhibit 9: Industry Comparison for Falling Knives and BIG Index*



Source: www.yieldbook.com; Citigroup Fixed Income indices, FactSet, The Brandes Institute, as of 12/31/05

*The industry designation of bonds is based on the parent company.

Focusing on the falling knife universe, performance was fairly consistent across industries, as shown in Exhibit 10. Average, annualized 3-year outperformance vs. the BIG Index was positive for all 10 industries. Knives in the information technology (IT) and energy industries outperformed the benchmark by the greatest margin – and produced no defaults or bankruptcies. Interestingly, industries with the largest number of falling knives, including consumer discretionary, financials, industrials, and materials tended to deliver the weakest relative, 3-year performance.

[13] Industry data for corporate bond indices is not readily available. To facilitate comparisons, BIG Index constituents were extracted from the Yield Book website (www.yieldbook.com) as of December 31, 2005. (Historical constituents are not readily available.) Non-corporate issues such as agencies, treasuries, and mortgages were eliminated to derive BIG corporate constituents. GICS (Global Industry Classification Standard) sector categories were then applied to this Index in an identical manner as was done with the falling knife universe to derive corporate industries. The BIG Index is equal weighted by the number of issues in each sector.

Exhibit 10: Relative Performance and Default Rate, Segmented by Industry (1990-2005)

	# of Knives	Default Rate	Relative Performance			
			Year 1	Year 2	Year 3	3-Yr. Ann.
Consumer Discretionary	484	0.2%	4.5%	4.3%	-2.3%	2.50%
Consumer Staples	67	0.0%	5.2%	13.5%	-1.3%	3.08%
Energy	65	0.0%	4.6%	7.7%	6.8%	6.62%
Financials	288	3.8%	4.4%	0.7%	1.3%	3.26%
Health Care	48	0.0%	-0.3%	3.5%	4.5%	3.31%
Industrials	144	21.5%	2.8%	5.6%	-0.2%	2.75%
Information Technology	63	0.0%	-2.8%	15.6%	9.5%	7.00%
Materials	127	0.0%	3.5%	5.5%	0.8%	2.73%
Telecom. Services	94	5.3%	4.0%	5.5%	0.7%	4.60%
Utilities	115	13.9%	7.6%	16.3%	3.9%	4.58%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005
Note: The total number of knives in this distribution excludes two Yankee issues that are not classified by GICS.

Within the top-performing Information Technology industry, more than 90% of the knives were generated between the second half of 2000 and 2002 – clearly resulting from the tech-bubble fallout. Their equity falling knife counterparts during the same period were among the worst performers, as examined in the Brandes Institute's equity falling knives paper ("Falling Knives Around the World," published August 2004). This inverse relationship may offer insight into differing performance patterns for fixed income and equity falling knives. Based on the constituents of the IT industries in the respective falling knife studies, this divergence also may result from a difference in fundamentals. Where many of the equity tech-bubble knives were younger, service-oriented businesses with fewer "hard assets" on their balance sheets, the limited number of fixed income tech knives were more mature companies with businesses in manufacturing, as well as services.

Falling knives within the energy industry – while forming only a small portion of the overall sample – also posted substantial outperformance on average and registered no defaults. The solid performance and absent default risk within the energy industry likely stemmed from industry-specific developments in the early 2000s (with a few energy and utilities firms implicated in now infamous improprieties regarding pricing and trading activities). As power prices collapsed during this period, a number of energy companies experienced unusually large credit spread movements. However, as fundamentals within the industry reverted toward more normalized averages, prices of these bonds rebounded sharply. Regulatory statutes and the remaining oligarchy-like market structures may have meant that energy company falling knives were better equipped to handle the distress of a deterioration in credit.

With respect to defaults, knives were concentrated in two industries, industrials and utilities. There does not appear to have been industry-wide event(s) that triggered the defaults in the industrials industry. As for utilities, the circumstances of 2002 previously described helped cause at least three issues to default and/or file for bankruptcy. These incidents appear to be issuer specific. It is noteworthy to add that while the industrial and

utilities industries posted the highest percentage of defaulted *issues*, the number of companies responsible for those defaults was only five and four, respectively. Due to the large number of different bond issues that defaulted from these companies (usually at the same time), the default rate for these industries during the period of study may not be reflective of long-term averages.

U.S. vs. Yankee Bond Falling Knives

Earlier, Yankee bonds were cited as components of the fixed income falling knives studied. Here, results of a more detailed examination of the 222 Yankee bonds in the universe are provided. Generally, like the broader falling knife universe, the Yankee bonds exhibited relative performance advantages vs. the Citigroup U.S. Broad Investment Grade Corporate Sovereign-Provincial Yankee-Other Index ("Yankee Index"). Exhibits 11 and 12 support the following points when comparing and contrasting returns for Yankee bond falling knives and U.S. domiciled issues:

- U.S.-issued bonds delivered greater outperformance vs. Yankees on a 3-year annualized basis across all spread segments.
- The biggest difference between the 3-year annualized performance of U.S.-issued bonds and Yankees occurred in the 250+ basis point segment. This may be consistent with the differences in bankruptcy laws in the United States vs. other countries. Where the U.S. laws tend to be focused on reorganization (Chapter 11), international bankruptcy laws tend to focus on liquidation. As a result, the Yankee bonds that experienced the most severe credit spread events appeared less likely to recover.
- While the U.S.-issued bonds tended to have their strongest performance in Years 1 and 2, almost all of the recovery performance for the Yankee bonds was seen in Year 2.

Exhibit 11: Yankee Bond Relative Performance, Segmented by Spread Widening[14], (1990-2005)

	# of Falling Knives	Relative Performance			
		Year 1	Year 2	Year 3	3-Yr. Ann.
Total of all Yankee bonds in falling knives universe	222	0.30%	8.63%	-0.03%	2.53%
100-149 basis points	107	0.62%	1.66%	1.42%	2.00%
150-249 basis points	84	-0.31%	11.50%	-0.89%	3.50%
250+ basis points	31	0.98%	26.19%	-3.19%	1.59%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Sovereign-Provincial Yankee-Other Index, as of 12/31/2005
Note: There are eight bonds not designated as U.S. domiciled or Yankee; these were excluded from the analysis that yielded results for Exhibits 11 and 12.

[14] Outliers, defined as observations above three standard deviations, are excluded from each return period (i.e. Year 1, Year 2, Year 3 *and* 3-year annualized) and as such may cause discrepancies in aggregate relative return figures when comparing the three, subsequent 12-month periods to the annualized 36-month return.

Exhibit 12: U.S.-Domiciled Bond Relative Performance, Segmented by Spread Widening[14], (1990-2005)

	# of Falling Knives	Relative Performance			
		Year 1	Year 2	Year 3	3-Yr. Ann.
Total of all U.S.-domiciled issuers in falling knives universe	1,267	4.41%	5.27%	0.96%	3.49%
100-149 basis points	770	2.92%	3.10%	-0.20%	2.41%
150-249 basis points	283	5.93%	5.73%	1.82%	4.72%
250+ basis points	214	8.28%	13.47%	4.51%	6.41%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005
Note: There are eight bonds not designated as U.S.-domiciled or Yankee; these were excluded from the analysis that yielded results for Exhibits 11 and 12.

To help better explain performance differences between Yankee bonds and U.S. issues, the falling knives studied were segmented by country and industry. The country with the greatest number of Yankee bonds in the study was Canada with 64, or 29% of all Yankee bonds in the falling knife universe. However, this is relatively low considering that 60% of all Yankee bonds are issued by Canadian corporations.[15] There was just one Yankee bond that defaulted, and one foreign issuer that filed for bankruptcy during the period of study. In the Appendix, Yankee bond issuers are segmented by country and relative performance (Exhibit A-4).

With respect to industry concentrations, the majority of Yankee bonds were found in materials and financials. See Exhibit 13. Among the issues in the materials industry, a significant number were Canadian firms. The greater number of Yankee bonds in the materials and financials industries relative to the entire falling knife universe is reflective of the broader Canadian market, where materials and financial companies make up 15.1% and 31.6%, respectively, of the overall Canadian market.[16] Relative to U.S.-issued knives, greater weightings among Yankee bonds in materials and financials came at the expense of concentration within the consumer discretionary industry. See Exhibit 14. This relative difference is not surprising considering the large number of auto and retail issues within the consumer industry of the U.S. fixed income market.

The technology industry was by far the strongest-performing industry in the Yankee universe. Like the U.S.-domiciled universe, the occurrence of knives in this industry was rare, but returns were enhanced over a 3-year annualized period by strong outperformance vs. the Yankee Index from a small number of issues in Year 2. Other noteworthy Yankee industries were financials and utilities, which had both a large percentage of knives and strong annualized outperformance during the study period. Of course, given the small size of the Yankee bond sample, the results should be viewed as indicative rather than conclusive.

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[15] Reilly, Frank K. and Keith C. Brown. *Investment Analysis and Portfolio Management*, 8th ed. Thomson South-Western: Mason, OH. 2006. page 672.
[16] Here, the Canadian market is defined as the market cap weightings for the S&P/TSX Composite, as of December 31, 2005.

Exhibit 13: Yankee Bond Industry Breakdown and Relative Performance[14] (1990-2005)

	# of Falling Knives	% of Yankee Bonds	Relative Performance			
			Year 1	Year 2	Year 3	3-Yr. Ann.
Consumer Discretionary	9	4.1%	2.35%	0.05%	-1.20%	0.54%
Consumer Staples	8	3.6%	1.50%	2.10%	-1.86%	0.52%
Energy	10	4.6%	7.34%	-0.63%	-5.06%	1.09%
Financials	48	21.8%	1.75%	3.18%	5.19%	3.84%
Health Care	1	0.5%	1.77%	0.10%	2.29%	1.39%
Industrials	27	12.3%	-3.66%	15.77%	-3.56%	-0.71%
Information Technology	11	5.0%	-18.66%	85.16%	3.15%	11.40%
Materials	54	24.6%	2.16%	5.05%	-1.94%	1.83%
Telecom. Services	21	9.6%	-2.26%	-6.16%	0.31%	3.02%
Utilities	31	14.1%	3.35%	10.59%	0.97%	3.69%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Sovereign-Provincial Yankee-Other Index, as of 12/31/2005
Note: The total number of knives in this distribution excludes two Yankee issues that have no sector classification under GICS.

Exhibit 14: U.S.-Domiciled Bond Industry Breakdown and Performance vs. the BIG Index[14] (1990-2005)

	# of Falling Knives	% of U.S.-Dom. Bonds	Relative Return			
			Year 1	Year 2	Year 3	3-Yr. Ann.
Consumer Discretionary	474	37.4%	4.50%	4.36%	-2.33%	2.51%
Consumer Staples	59	4.7%	5.41%	15.35%	-1.40%	3.43%
Energy	55	4.3%	3.79%	9.12%	9.19%	7.49%
Financials	240	18.9%	4.69%	0.03%	0.23%	2.90%
Health Care	47	3.7%	-0.42%	3.57%	4.55%	3.33%
Industrials	110	8.7%	3.78%	3.00%	0.75%	3.98%
Information Technology	52	4.1%	0.66%	3.38%	10.55%	6.02%
Materials	73	5.8%	3.71%	4.73%	2.78%	2.49%
Telecom. Services	73	5.8%	5.43%	8.28%	0.57%	4.70%
Utilities	84	6.6%	9.15%	18.38%	4.88%	4.53%

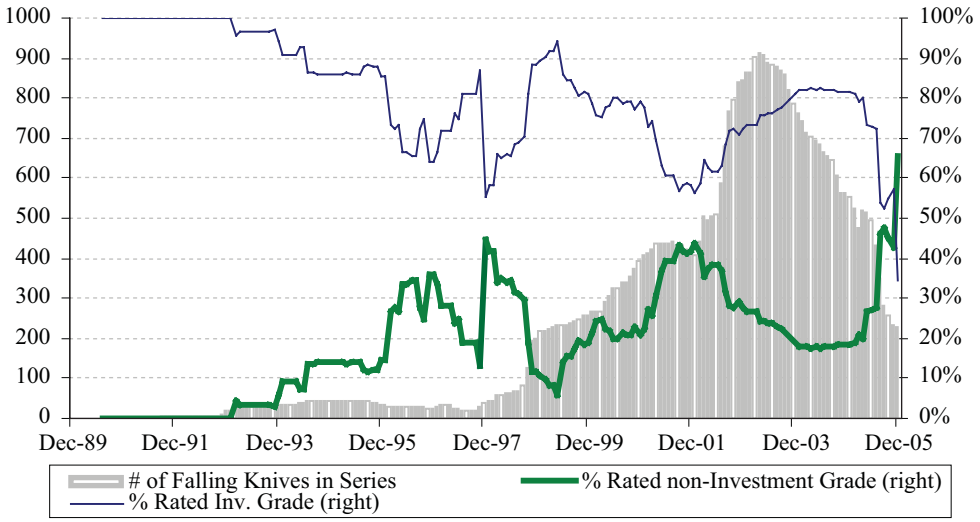
Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005

V. Credit Ratings and Fundamentals

Given the outperformance fixed income falling knives exhibited at an aggregate level, the notion of whether this was largely a "high yield effect" was explored. In addition, the question of which, if any, fundamental characteristics might best explain their returns and might offer insight into future performance also was addressed. It was hypothesized that perhaps the spread widenings for this universe paralleled credit downgrades to junk status and triggered performance consistent with the below-investment grade asset class. Overall, the analysis of credit ratings for the falling knife universe produced some results that may be counterintuitive. For example, following their fall, the average credit rating for most knives was on the cusp of the BBB investment grade threshold. While few bonds were downgraded to below-investment grade status in the first three months after their fall, more than half of the bonds were downgraded to this status at some point during their inclusion in the knife universe (i.e., three years after the fall), but, on average, stayed in the BB credit rating range. The remaining bonds retained their investment-grade status throughout the period of study. These facts suggest that outperformance among falling knives is not driven by a deep "high yield effect," i.e., a high concentration of bonds with a yield advantage and lower credit ratings, implying higher commensurate credit risk.

Exhibit 15 shows the percentage of issues that were investment grade vs. non-investment grade in a time series over the duration of the study. This is displayed with the number of knives in the universe at any given time. Although half of the total issues were downgraded to below investment grade at some point in the study, the percentage of high yield bonds in the universe was below 50% until the last few months of 2005. In fact, the average weight of high yield issues over the course of the study is closer to 30%. This is comparable to the high-yield component of all outstanding corporate debt in the United States, which was 20% in 2005.[17]

Exhibit 15: Investment-Grade vs. Non-Investment-Grade Composition of Falling Knife ("FK") Universe[18], 1990-2005



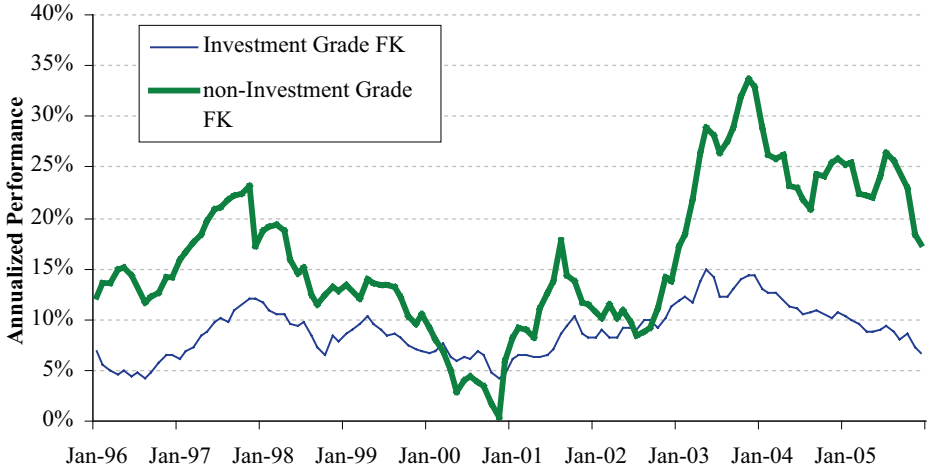
Source: The Brandes Institute; FactSet, as of 12/31/2005

[17] Reilly, Frank K. and Keith C. Brown. *Investment Analysis and Portfolio Management*, 8th ed. Thomson South-Western: Mason, OH. 2006. page 669.

[18] The first falling knife occurred during July 1990.

The rolling, 3-year annualized performance of investment-grade versus non-investment grade falling knives is consistent with what would be expected from their credit risk differentials. As shown in Exhibit 16, the non-investment grade knives outperform in most periods – in some extreme cases by 10%-15% annualized. This is compared with the annualized difference between the BIG Index and the Citigroup High Yield Market Index of 1.4% over the entire period of the study, 1990-2005.

Exhibit 16: Investment-Grade and Non-Investment-Grade Falling Knife ("FK") Rolling 3-Year Performance[19], 1993-2005



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; Citigroup High Yield Market Index FactSet; The Brandes Institute, as of 12/31/2005. Also see Endnote i.

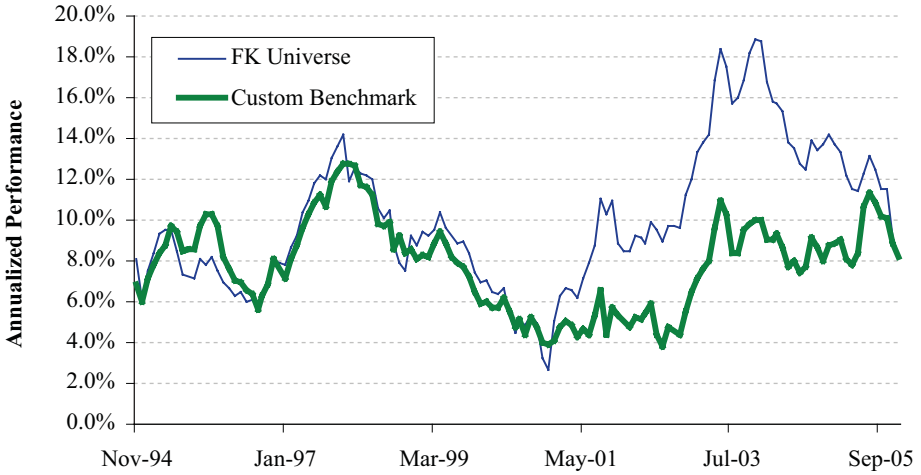
In seeking to better understand whether the unusually high performance of the falling knife universe was being influenced by systematic factors pertaining to the periods measured, as well as the presence of high yield bonds, a custom index was created. This custom index, designed to mirror the composition of the falling knife universe over time, was constructed using individual credit rating indices from Citigroup. The weights of the custom index were rebalanced monthly to match the weights attributable to the various credit rating segments of the falling knife universe constituents. Performance of the custom benchmark was calculated monthly.

Exhibit 17 shows the rolling, 3-year annualized performance of the falling knife universe versus this custom benchmark. Exhibit 18 illustrates the rolling, 3-year Sharpe Ratio[20] for the falling knives and the custom benchmark. Relative returns and volatility-adjusted relative returns for the falling knives match the custom benchmark through the 1990s. After 2000, a decoupling occurred and the falling knife outperformance was quite significant.

[19] The first falling knife with a non-investment grade rating occurs in February 1993. Thus, the first, rolling 3-year period tracks performance between February 1993 and February 1996. Note that the number of non-investment grade falling knives does not reach statistical significance until March 1998.

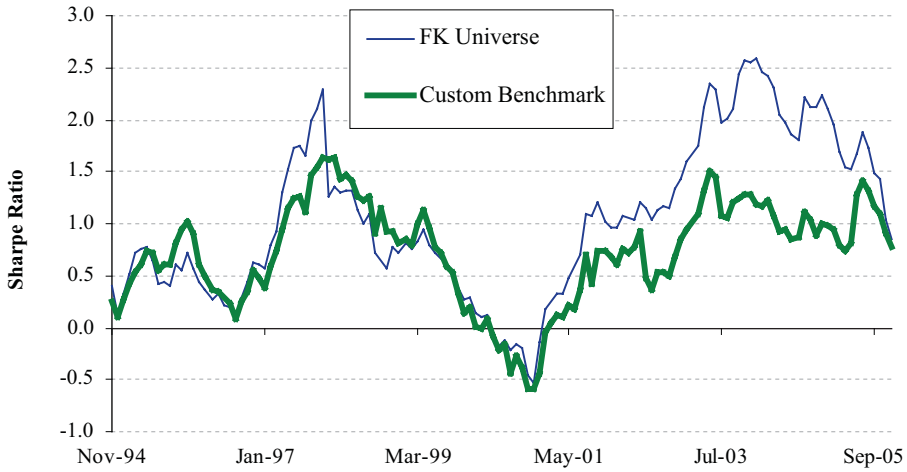
[20] Sharpe Ratio is a measure of volatility-adjusted returns. It is calculated by subtracting a risk-free rate of return from total return and then dividing by the volatility of the total return. When comparing assets or portfolios, a higher Sharpe Ratio suggests greater return for a comparable amount of volatility.

Exhibit 17: Falling Knife ("FK") Universe[7] and Custom Benchmark[21] Performance (Rolling, 3-Year Returns), 1991[10]-2005



Source: Citigroup Fixed Income Indices; FactSet; The Brandes Institute, as of 12/31/05. The fixed income falling knife universe for each period includes newly generated knives, as well as existing knives still being tracked for subsequent 3-year performance. Also see Endnote i.

Exhibit 18: Falling Knife ("FK") Universe[7] and Custom Benchmark[21] Sharpe Ratios (Rolling, 3-Year Returns), 1991[10]-2005



Source: Citigroup Fixed Income Indices; FactSet; The Brandes Institute, as of 12/31/05. The fixed income falling knife universe for each period includes newly generated knives, as well as existing knives still being tracked for subsequent 3-year performance. Also see Endnote i.

[21] The "Custom Benchmark" was created using the following Citigroup Fixed Income Indices: Citigroup BIG Credit AAA Rated, Citigroup BIG Credit AA Rated, Citigroup BIG Credit A Rated, Citigroup BIG Credit BBB Rated, Citigroup High-Yield BB Rated, Citigroup High-Yield B Rated, and Citigroup High-Yield CCC Rated.

Issues whose rating changed during the three months after their initial fall and their subsequent performance also were areas more closely investigated. Intuitively, credit rating upgrades might be expected to coincide with improving returns. During the three months when an issue entered the universe, *any* difference in its rating, measured by the average rating of all available rating agencies each month vs. the average rating for the issue at the start of the fall, was identified. As shown in Exhibit 19, there were 530 instances where a bond was downgraded; in 71 of those instances, the bonds were downgraded to junk status. These junk bonds tended to deliver the best relative performance vs. the BIG Index during the subsequent periods when compared with bonds whose ratings were unchanged or upgraded. Upgraded bonds tended to deliver the worst relative returns over the subsequent 3-year period, underperforming the BIG Index in years one and three, as also shown in Exhibit 19. Exhibit 19-A illustrates the credit rating level at the end of the fall and relative performance.

The performance discrepancy between downgraded bonds and upgraded bonds, as well as the discrepancy between the lowest- and highest-rated bonds, may reflect a behavioral bias in the market. This bias may be similar to that noted in the Brandes Institute's value vs. glamour equity research (see "Value vs. Glamour: Updated and Expanded" in the Research section of the Institute website at www.brandes.com/institute) where rosy expectations tend to parallel underperformance and low expectations often are rewarded with outperformance. Overall, given the relatively small numbers of bonds downgraded to junk (as well as the few number of upgrades) during the first three months of their inclusion in the knife universe, caution must be exercised when drawing conclusions regarding their respective influences on aggregate performance for the falling knife universe.

Exhibit 19: Credit Rating Changes and Relative Performance vs. BIG Index (1990-2005)

	# of Falling Knives	Relative Performance			
		Year 1	Year 2	Year 3	3-Yr. Ann.
Downgraded	530	3.55%	9.41%	2.68%	4.26%
To Junk	71	5.27%	10.48%	4.38%	4.74%
Unchanged	935	4.41%	4.21%	0.09%	3.18%
Upgraded	30	-2.29%	1.88%	-1.54%	1.00%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005

Exhibit 19-A: End of Fall Credit Ratings and Relative Performance vs. BIG Index (1990-2005)

	# of Falling Knives	Relative Performance			
		Year 1	Year 2	Year 3	3-Yr. Ann.
A- or Better	433	2.52%	3.15%	0.54%	2.75%
BBB- to BBB+	898	4.70%	6.84%	0.38%	3.48%
BB+ or lower	166	4.18%	9.33%	5.09%	5.83%

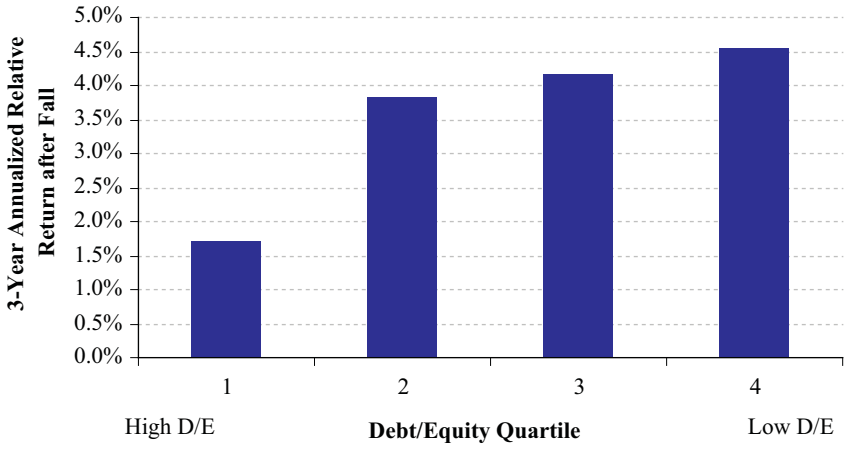
Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/2005

The usefulness of fundamental traits to help predict which falling knives are likely to outperform the BIG Index is an important question to the practitioner looking to implement a strategy that includes bonds from this universe. Metrics such as the debt-to-equity (D/E) ratio, issue size, market capitalization, and interest coverage ratios, a measure of a company's earnings that could be used to meet debt service obligations, were examined to determine if there was a relationship between any of these factors and falling knife performance.

While interest coverage ratios failed to provide any predictive insights, results for D/E ratios were compelling. To understand the relationship between a falling knife's post-fall D/E ratio and its subsequent performance, the universe of falling knives was sorted into quartiles based on the issuers' D/E ratios immediately after their initial fall. Falling knives with the highest D/E ratios were grouped in quartile 1. For each consecutive quartile, D/E ratios decreased, culminating in falling knives with the lowest D/E values forming quartile 4.

As shown in Exhibit 20, falling knives (excluding financial companies) with lower D/E ratios posted greater outperformance relative to the BIG Index than those with higher D/E ratios. On average, quartile 4 knives – with average D/E ratios of 0.40 – outpaced the BIG Index by 4.55% annualized in the subsequent three years (post fall). In contrast, the average quartile 1 knives – with an average D/E ratio of 7.83 – beat the BIG Index by only 1.70% annually. As noted earlier in the paper, the auto industry and its financing subsidiaries comprise a large part of the falling knife universe. These issues are particularly highly levered and dominate the first quartile of the D/E ratio analysis. The deciles were recalculated in Exhibit A-5 in the Appendix, excluding the financing subsidiaries of non-financial companies. While the linear relationship between the first and fourth quartiles is somewhat muted by this exclusion, the relationship of greater outperformance by the lower D/E ratio companies relative to their higher ratio counterparts remains intact.

Exhibit 20: D/E Ratios and Outperformance, 1990-2005*



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; FactSet; The Brandes Institute, as of 12/31/05

*Performance stated relative to the Citigroup U.S. Broad Investment Grade Corporate Bond Index and excludes financial companies due to the uniqueness of their balance sheets.

In addition, as shown in Exhibit 21, falling knives in the 250+ basis point widening segment actually had the lowest average D/E ratio, and as noted earlier, the best outperformance versus the BIG Index.

Exhibit 21: Falling Knives, Segmented by OAS Widening and Outperformance, 1990-2005

	Magnitude of Spread Widening		
	100-149 bps	**150-249 bps**	**≥ 250 bps**
Relative Performance*	2.36%	4.97%	5.76%
Average D/E Ratio	3.4	1.7	1.6
Average Market Cap (millions)	$32,105	$31,679	$30,391

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/05
*Average, annualized over the three years post fall vs. the BIG Index

Companies with the greatest spread widenings concurrently had the smallest average market capitalization. Granted, it was not significantly smaller than those in the 150-249 or 100-149 basis-point segments. It seems logical, however, that larger companies populate the smallest spread-widening segment. Their size, which may be perceived as insulation against solvency, liquidity, and bankruptcy risks, may help mute the market's reaction to falling-knife events.

Segmenting the falling knife universe by market cap, as shown in Exhibit 22, reveals that the relationship between market cap and outperformance is not linear.[22] However, issuing companies with market caps less than $10 billion tended to deliver better returns relative to the BIG Index than those with market caps above $10 billion – and, on average, had lower D/E ratios than their larger counterparts. This combination of small size and lower D/E ratios is consistent with the evidence examined earlier regarding low D/E ratios and higher outperformance. This may suggest that the small-cap risk premium seen in the equity markets also may have a presence in fixed income universes. Where smaller companies might be perceived as more "risky," or susceptible to default, those with solid balance sheets may offer exceptional opportunity.

[22] We recognize that, depending upon the relationship of an issuer's stock and bond prices, the market cap of issuers at the end of their falling knife event were more likely to have been affected by adverse movements in their stock prices. The relationship between stock and bond falling knife price fluctuations may be explored in greater detail in subsequent phases of research.

Exhibit 22: Falling Knives, Segmented by Market Cap and Outperformance (1990-2005)

	Market Cap Segments (in $ billions)				
	<1	**1-5**	**5-10**	**10-20**	**>20**
# of Falling Knives	58	253	83	82	230
Relative Performance*	3.84%	4.12%	5.45%	3.10%	2.33%
D/E Ratio	1.04	1.66	1.47	1.94	4.98%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/05
*Average, annualized for the three years post fall vs. the BIG Index
Note: While financials were excluded from this analysis, the average D/E ratios in the $10-$20 billion and >$20 billion segments were skewed by a few issuers in the automotive industry with large financing subsidiaries that generate balance sheets that resemble businesses in the financial sector.

VI. Conclusion

Among the highlights of this preliminary research on a fixed income falling knife universe of 1,497 constituents compiled between 1989 and 2005:

- A default rate of 4.3%, higher than the overall default risk among investment-grade corporate bonds.
- Performance of falling knives was consistent with observations on equity market falling knives, with average outperformance versus the benchmark of over 3.5% on a 3-year annualized basis, post fall.
- The asymmetrical distribution return pattern for falling knives underscores the importance of issue selection in falling knife investment.
- Purchasing bonds of issuers with low D/E ratios may help investors distinguish the most compelling opportunities among falling knives.

In essence, where many investors might perceive only risk, there is opportunity. For more information about falling knives, including the Brandes Institute's study of equities, visit www.brandes.com/institute.

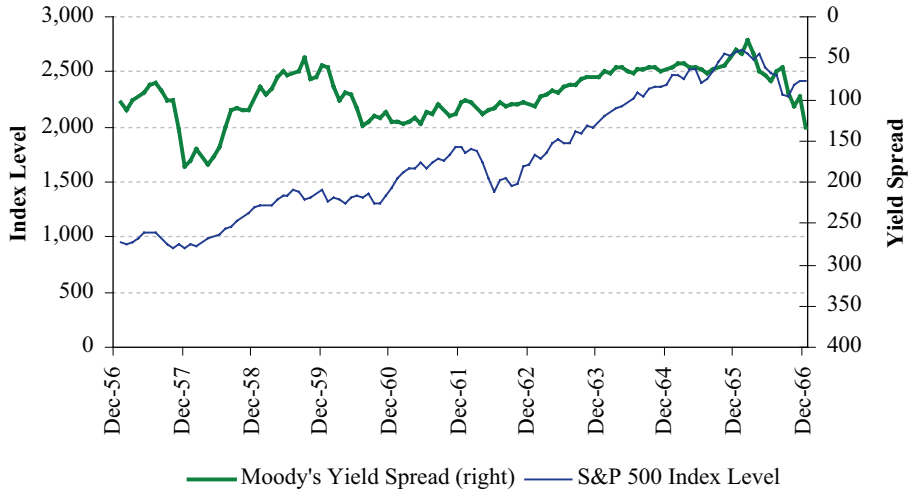
Appendix

Exhibit A-1: Yield Spread versus S&P 500 Index by 10-Year Periods (1957-2005)

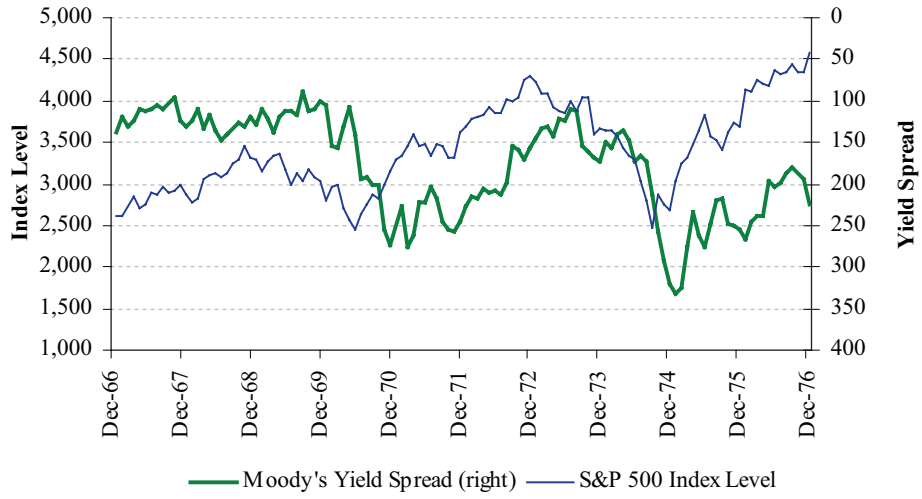
Source for each illustration: Moody's; Standard & Poor's, as of 12/31/05

Note: Moody's Yield Spread is calculated monthly as Moody's Baa-rated long-term yield minus the yield on the 10-year Treasury Bond.

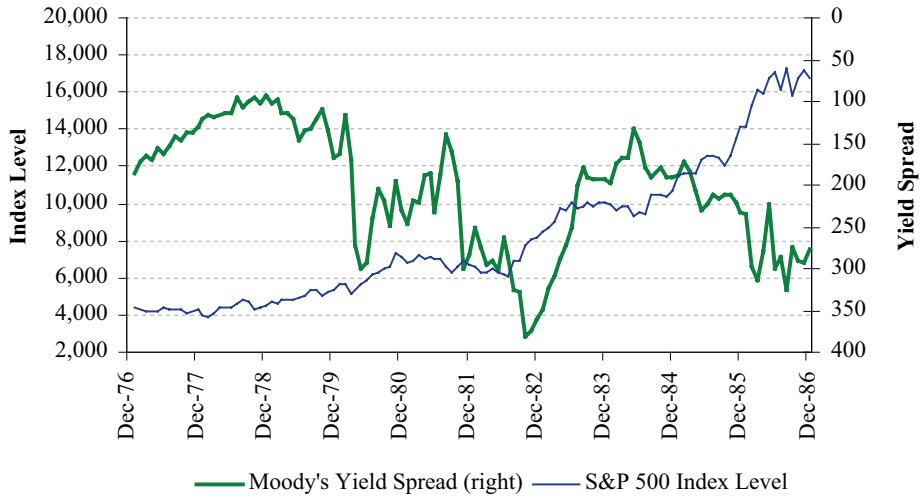
1957-1966



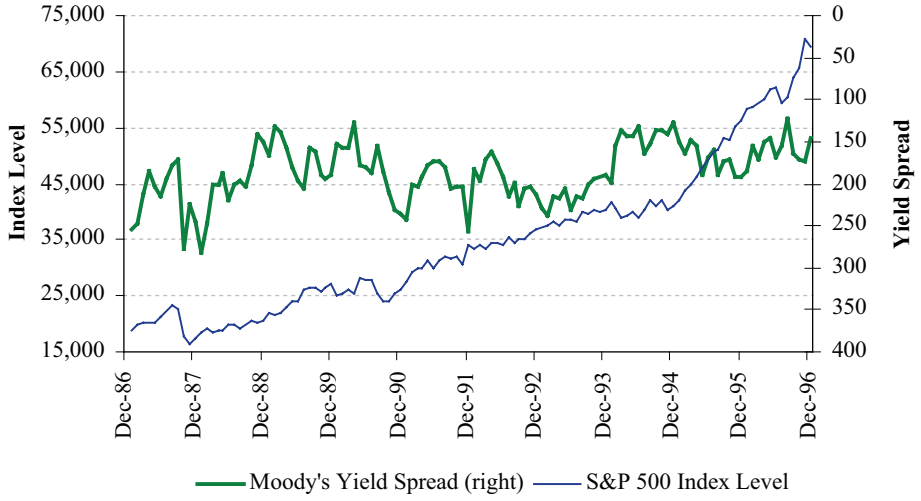
1967-1976



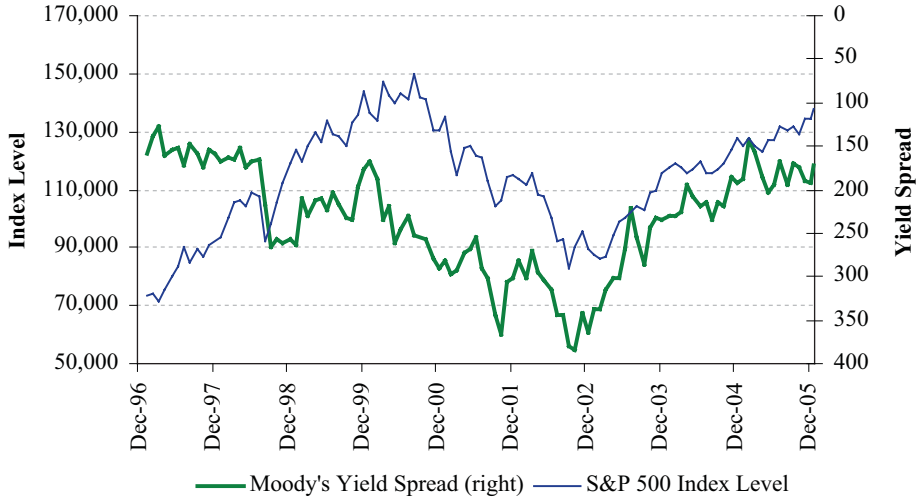
1977-1986



1987-1996



1997 – 2005 (as of 3/31/06)[23]



[23] 1997-2005 is a partial 10-year period.

Exhibit A-2: Falling Knife Generation by Year, 1990-2005

Year of Falling Knife Event	# of Falling Knives	Relative Return versus BIG Index			
		Year 1	Year 2	Year 3	3-Yr. Ann.
1990	2	31.22%	9.67%	-1.23%	12.22%
1991	2	3.57%	-12.53%	-4.09%	-4.62%
1992	16	-2.93%	-1.22%	-11.83%	-4.68%
1993	15	3.97%	-1.07%	3.16%	1.62%
1994	11	8.05%	5.03%	1.78%	4.84%
1995	9	3.47%	7.84%	1.26%	3.90%
1996	8	7.99%	-0.54%	-1.15%	1.87%
1997	27	-9.39%	22.58%	2.89%	4.11%
1998	185	5.41%	2.88%	-0.98%	2.61%
1999	57	-3.53%	20.03%	-0.53%	1.23%
2000	192	-0.68%	7.68%	3.30%	4.43%
2001	185	3.78%	14.85%	4.87%	4.99%
2002	542	5.44%	2.95%	-0.08%	3.60%
2003	134	8.41%	1.16%	n/a	n/a
2004	19	1.89%	n/a	n/a	n/a
2005	93	n/a	n/a	n/a	n/a

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Bond Index, as of 12/31/05

Exhibit A-3: Falling Knife Industry Generation by Year, 1990-2005

	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Info. Technology	Materials	Telecommunication Services	Utilities
1990	0	0	0	2	0	0	0	0	0	0
1991	0	0	0	2	0	0	0	0	0	0
1992	10	0	1	4	0	1	0	0	0	0
1993	3	0	3	3	0	4	0	0	1	1
1994	2	3	0	1	0	2	3	0	0	0
1995	5	0	0	3	0	0	1	0	0	0
1996	4	0	0	0	0	0	0	1	3	0
1997	2	0	0	2	1	3	0	5	5	9
1998	24	3	10	67	20	15	0	30	7	9
1999	13	13	1	7	6	7	0	8	2	0
2000	52	7	0	27	5	40	22	19	7	13
2001	53	10	5	27	1	27	21	15	5	21
2002	178	6	42	127	12	27	15	32	52	50
2003	53	21	2	9	3	12	1	15	5	12
2004	2	0	0	5	0	5	0	0	7	0
2005	83	4	1	2	0	1	0	2	0	0

Source: FactSet, The Brandes Institute; as of 12/31/05

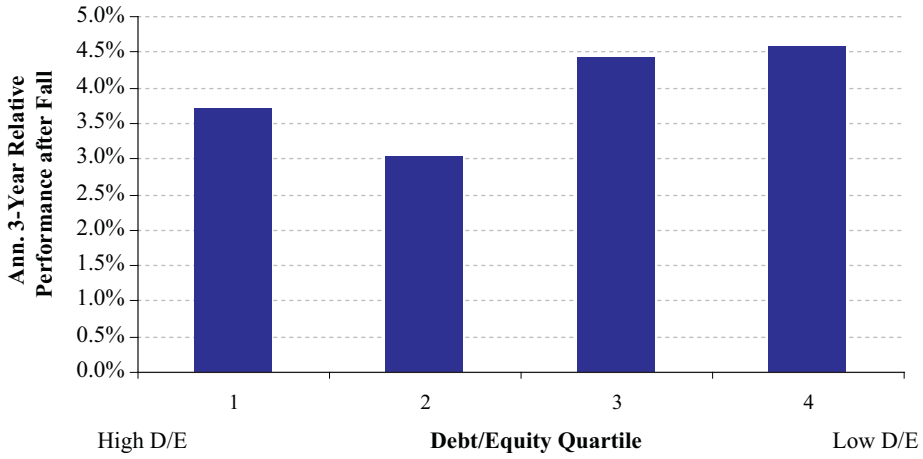
Note: The total number of knives in this distribution excludes two Yankee bond knives that have no sector classification under GICS.

Exhibit A-4: Yankee Bond Country Breakdown and Relative Performance (1990-2005)

Country	# of Falling Knives	Relative Return vs. Yankee Index		
		Year 1	Year 2	Year 3
Argentina	7	.93%	-12.59%	3.43%
Aruba	1	9.31%	7.67%	5.18%
Australia	3	.44%	1.16%	2.63%
Canada	64	.25%	2.83%	2.21%
Cayman Islands	21	5.27%	3.54%	4.13%
Chile	29	7.34%	7.19%	4.16%
France	2	1.60%	8.27%	8.49%
Hong Kong	5	3.38%	3.70%	2.07%
Ireland	2	6.74%	6.18%	3.57%
Japan	3	10.45%	6.38%	2.81%
Korea, Republic of	14	-10.42%	4.51%	5.42%
Luxembourg	3	-0.81%	2.42%	0.63%
Malaysia	3	-5.68%	9.31%	7.23%
Mexico	15	3.46%	3.59%	2.72%
Netherlands	16	6.88%	5.52%	3.29%
New Zealand	4	7.09%	4.45%	2.22%
Norway	1	11.69%	6.79%	4.39%
Spain	2	6.86%	1.47%	0.90%
Thailand	2	-2.96%	-2.94%	n/a
United Kingdom	11	6.30%	3.70%	4.53%
United States	14	-7.86%	7.39%	6.54%

Source: FactSet; The Brandes Institute; Citigroup U.S. Broad Investment Grade Corporate Sovereign-Provincial Yankee-Other Index, 2006
Note that U.S. Yankee bonds represent bonds issued by the non-U.S. subsidiaries of U.S. companies.

Exhibit A-5: Relative Performance vs. BIG Index by Debt/Equity Quartile, 1990-2005 (excluding Financials and Financial Subsidiaries of non-Financial Companies)



Source: Citigroup U.S. Broad Investment Grade Corporate Bond Index; FactSet; The Brandes Institute, as of 12/31/05

Endnotes

[i] Rolling periods represent a series of overlapping, smaller time periods within a single, longer-term time period. A hypothetical example is the 20-year time period from 12/31/82 through 12/31/02. This long-term period consists of 16 smaller 5-year "rolling" segments. The first segment is the 5-year period from 12/31/82 to 12/31/87. The next rolling segment is the 5-year period from 12/31/83 to 12/31/88, and so on.

The S&P 500 Index is an unmanaged index that consists of 500 stocks and is designed to form a representative sample of the United States stock market. This index often is used as a benchmark for U.S. equity portfolios and includes dividends and distributions, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The S&P/TSX Composite Index is an unmanaged index that tracks the performance of some of the largest and most widely held Canadian stocks listed on the Toronto Stock Exchange. It includes the reinvestment of income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup High Yield Market Index is an unmanaged index that tracks the performance of U.S. dollar-denominated, non-investment grade bonds from issuers domiciled in the United States and Canada only. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup U.S. Broad Investment Grade ("BIG") Corporate Bond Index (formerly the Salomon Smith Barney BIG Index) is an unmanaged index that tracks the performance of bonds issued in the U.S. investment-grade bond market and as such does not include U.S. Treasury, government-sponsored, mortgage, and asset-backed securities. It includes the reinvestment of income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup U.S. Broad Investment Grade Corporate Sovereign-Provincial Yankee-Other Index is an unmanaged index that tracks the performance of bonds issued in the U.S. investment-grade bond market denoted as Yankee bonds. Yankee bonds are denominated in U.S. dollars and issued in the United States by foreign banks, sovereigns, other government entities, and corporations whose parent companies reside outside the United States. These bonds are registered with the Securities and Exchange Commission. This index does not include sovereign issues. It does include the reinvestment of income, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup Fixed Income Indices, available via FactSet, are unmanaged indices that measure the total rate-of-return performance for various quality segments of bond markets. These indices include data on duration, quality ratings, yield, total returns, market value, coupon, average life, and performance. The indices are reconstituted each month.

The Citigroup Credit AAA-Rated Index is an unmanaged index that includes those bonds in the Citigroup U.S. BIG Index with a AAA rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's but rated Aaa by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup Credit AA-Rated Index is an unmanaged index that includes those bonds in the Citigroup U.S. BIG Index with a AA+, AA, or AA- rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's but rated Aa1, Aa2, or Aa3 by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup Credit A-Rated Index is an unmanaged index that includes those bonds in the Citigroup U.S. BIG Index with a A+, A, or A- rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's but rated A1, A2, or A3 by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage 0commissions, withholding taxes, or other expenses of investing.

The Citigroup Credit BBB-Rated Index is an unmanaged index that includes those bonds in the Citigroup U.S. BIG Index with a BBB+, BBB, or BBB- rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's but rated Baa1, Baa2, or Baa3 by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup High-Yield BB-Rated Index is an unmanaged index that includes those bonds in the High-Yield Market Index (and before January 1989, the High-Yield 7+ Year Index) with a BB+, BB, or BB- rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's but rated Ba1, Ba2, or Ba3 by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup High-Yield B-Rated Index is an unmanaged index that includes those bonds in the High-Yield Market Index (and before January 1989, the High-Yield 7+ Year Index) with a B+, B, or B- rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's, but rated B1, B2 or B3 by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Citigroup High-Yield CCC-Rated Index is an unmanaged index that includes those bonds in the High-Yield Market Index (and before January 1989, the High-Yield 7+ Year Index) with a CCC+ to C rating from Standard & Poor's. The index may include bonds not rated by Standard & Poor's, but rated Caa to C by Moody's. It includes the reinvestment of dividends and income but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.