



C A M B R I D G E A S S O C I A T E S L L C

U.S. MARKET COMMENTARY

THE CASE FOR INVESTMENT-GRADE CORPORATE BONDS

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Reconsidering the Portfolio Role of Investment-Grade Corporate Bonds

With virtually all asset classes reeling, financial markets have not been behaving in the expected fashion. This is especially true in the credit markets. Despite short-term rates that are the lowest in 60 years and massive government efforts to provide funds to the market, the credit spigot remains frozen, a phenomenon reflected in tightened lending conditions and high swap spreads.

Investment-grade corporate bonds, which typically offer somewhat narrow spreads over Treasuries, now trade at spreads far above anything we have seen since the Great Depression. High-quality corporates have historically performed relatively in line with Treasuries, with slightly more upside potential, but less downside protection, making Treasuries more appropriate for a deflation-hedging mandate. Relative to equities, corporate bonds have underperformed during up markets, making equities a superior vehicle for capturing strong returns in risk-embracing markets. As a result, we generally do not advocate holding corporate bonds in portfolios as a discrete strategy. However, current yields on U.S. corporate bonds raise the question of whether they might serve as a good *tactical* investment relative to equities, similar to our current high-yield bond recommendation.¹ In this comment we examine the investment-grade bond universe and conclude that current yields and spreads, together with investment-grade bonds' place in the capital structure relative to equities, make these bonds worthy of serious investment consideration.

An Overview of Investment-Grade Bonds

Recent Issuance

A record \$992.1 billion of U.S. investment-grade corporate bonds, with an average maturity of 8.2 years, was issued in 2007. While year-over-year debt issuance was down 16.5% through August 2008, investment-grade issuance is still on track to have its third-largest year ever. Not surprisingly, investment-grade bond issuance has held up far better than that of high-yield bonds, which is running at barely one-third of last year's level.

Market Characteristics

The outstanding universe of index-qualifying bonds is about \$2.5 trillion.² The index is somewhat concentrated in bonds of the largest issuers and sectors. Within the Merrill Lynch Corporate Bond Index, the largest share of debt (43.7%) is in A-rated bonds, followed by BBB-rated bonds (32.5%). AA-rated bonds

¹ See our October 2008 Market Commentary *High-Yield Bonds: Toxic or Tasty?*

² This is the amount outstanding rather than the current market value and is less than one might expect based on the above-cited figure for 2007 issuance. Merrill Lynch notes that its calculation of "Index-Qualifying" investment-grade corporate bonds excludes floating rate bonds, variable coupon securities, non-rated bonds, and smaller, less liquid issues. According to the Securities Industry and Financial Markets Association, 40% of the \$1.13 trillion corporate bonds issued in 2007 (this figure includes \$136 billion of high-yield bonds and excludes certificates of deposit and all issues with maturities of one year or less) were floating-rate instruments. The percentage of new floating rate debt has fallen sharply in 2008.

account for 19.0% of outstanding debt while AAA-rated bonds make up only 4.7% of index-quality debt securities. The index comprises 840 issuers (and 3,689 issues),³ with the top ten and top 50 issuers accounting for 22.1% and 45.4% of the index, respectively. As might be expected, higher-quality issuers account for proportionately larger amounts of index debt (e.g., the average AA-rated issuer accounts for 0.25% of the index versus 0.07% in the case of BBB-rated issuers).

Finance-related sectors, meanwhile, make up 41.0% of the index, with banks alone accounting for 22.9%. The next largest concentrations are in consumer staples (9.9%) and energy (9.1%). While the implications of such a large component of finance issues, some of which are now backed by the U.S. government, are significant, it is worth keeping in mind that finance-related sectors accounted for an even-larger 43.6% of the index in June 2007, when the current crisis began.

Default History

From 1983 through 2007 the annual default rate on North American investment-grade bonds averaged just 0.07%.⁴ In the overwhelming number of cases riskier firms have been downgraded well before defaulting and therefore have not been included in investment-grade bond products. However, that has not been the case in 2008, with high-profile firms, including multiple affiliates of Lehman Brothers and Washington Mutual, defaulting at a time when they maintained investment-grade ratings. As of September 30, 2008, the trailing one-year default rate for investment-grade companies in North America was 0.22%, far below the level reached in 2001 (roughly 0.8%), but still the second-highest mark on record since these data begin in 1983. The record default rate of 1.6% was reached in the late 1930s.⁵ While it is often difficult to compare analysts' default rate calculations due to the plethora of methodologies used, there appears to be no disagreement that today's spreads imply a huge decline in GDP and/or default rates many times worse than what the United States has experienced in the past.

Performance

Returns on investment-grade debt generally track those of Treasuries of similar maturity, but not those of equities or high-yield bonds (Table A). Like Treasuries, investment-grade bonds are much less volatile than equities or high-yield bonds (Table B). Still, prior to 2008 the calendar-year performance gap between investment-grade bonds and Treasuries (going back to 1976) was as high as 861 basis points (bps), although the largest annual gap after 1982 was 587 bps (Table C). Thus, while investment-grade bonds have offered long-term performance comparable to government debt, they do not provide the same degree of

³ For purposes of comparison, we noted that, based on data for market value and number of issues, the Barclays Capital Corporate Investment Grade Index is similar to but slightly smaller than the Merrill Lynch Corporate Bond Index.

⁴ Moody's does not break out U.S.-specific data, but U.S. firms would account for the overwhelming majority of such bonds.

⁵ This is a global figure, but one representative of the United States, given its high weight within the global bond universe. Given that investment-grade bonds have much longer maturities than one year, it is also worth noting that, according to analysts, the highest cumulative default rate ever recorded over a five-year period for investment-grade bonds is less than 5% (the peak was reached in the 1930s). Likewise, according to J.P. Morgan, the worst ten-year default rate on U.S. investment-grade debt since 1981 was 5.0% (1982–91).

safety as Treasuries during recessions or flights to quality. The current environment provides a good example: through November, the -11.7% year-to-date cumulative return of investment-grade bonds was closer to that of junk bonds (-31.6%) and leveraged loans (-25.9%) than that of Treasuries (10.7%) (Table D).

The Opportunity in Investment-Grade Bonds

Why have investment-grade bonds fared so much worse this year than U.S. Treasuries? While many investors have obviously sought refuge in the safest possible financial instruments, the rout in non-government credit also appears to be the result of forced or panic selling by leveraged investors (e.g., hedge funds). Such investors, which benefited from using leveraged low-cost financing to buy higher-yielding investment-grade debt, became significant players in recent years in this space, unlike a generation ago when pension funds and insurance companies were the major investors. A carry trade strategy made sense *so long as borrowing rates remained low, credit was available, and volatility was muted*.

These conditions no longer hold. Investment-grade bond returns so far this year are already far worse than any period on record; the next lowest return in the post-1976 index history was -3% in 1994. Indeed, September and October marked the worst and third-worst months ever for this asset class. Given the fate of Lehman Brothers and the apparent fragility of many firms, financial and otherwise, the market is right to be skeptical of the relevance of historical default rates to the current situation. However, as of December 5, the average price of investment-grade paper had fallen to less than 87 cents on the dollar, meaning that spreads reflected an expected default rate in the high teens or above (using conservative recovery rates in the 20% to 30% range).

If deleveraging and market dislocation have helped push prices below that justified by any fundamental change in the safety of corporate debt, the risk/return profile of this asset class looks much different than in years past. In fact, spreads on investment-grade bonds have blown out by a staggering 500% from their February 2007 lows (Table E). Spreads are far wider than they have been since the 1930s (Table F)⁶ and, as of November 30, ranged from 322 bps for AAA-rated paper to 728 bps for BBB-rated paper (Table G). Since the average historical spread of *high-yield* bonds over Treasuries (based on 22 years of data) is about 500 bps, investment-grade bonds now trade at a level historically associated with junk.

Meanwhile, nominal and real yields are above their historical averages and at their highest levels since 2000 and 2002, respectively (Table H). As of December 5, AAA-rated debt yielded 5.8% while BBB-rated paper yielded 10.2%. Yields relative to Treasuries are at their highest level in over 65 years and well over 2 standard deviations above their historical average (Table I).

⁶ While such comparisons offer a useful perspective, it should be noted that bonds of the 1930s and other periods prior to the 1970s are not strictly comparable with those of today. Yields and yield ratios shown in Tables F, H, and I are based on longer-term data that covers a set of bonds that is of higher quality and much smaller than those included in the Merrill Lynch or Barclays Capital bond indices and therefore are slightly lower than those used to create Tables G and J.

Corporate bonds look attractive from other perspectives as well. For example, spreads (but not absolute yield levels) compared to those on junk bonds are near record highs, although they are now falling (Table J). And whereas since 1990 investment-grade bond spreads have averaged only 24% of emerging market bond spreads (on a month-end basis), the ratio had risen to 79% as of November 30, 2008, with the Barclays Capital U.S. Corporate Bond Index offering a 559 bp spread over the ten-year U.S. Treasury note versus the 711 bps offered by the J.P. Morgan Emerging Markets Bond Index Plus. Meanwhile, the yield spread is now greater than the earnings yield on equities for the first time ever.

The Relative Opportunity

It also appears to be a favorable time in the economic cycle to invest in corporate debt. On average, investment-grade bonds have slightly underperformed equities during the two quarters preceding the 22 recessions the United States has experienced from 1902 to the present (Table K). However, *during* recessions investment-grade bonds have outperformed equities, on average. Indeed, investment-grade bonds have outperformed equities in six of the last seven recessions (including the current one) by an average annual cumulative return of 14.2% (outperformance over the full history is less dramatic). And while the United States is now officially 12 months into a recession, there do not appear to be any signs of an imminent recovery.

Interestingly, while investment-grade bonds have underperformed equities in 19 of 21 cases in the two quarters following a recession, usually by a substantial amount, this was not the case after either the 1990–91 or the 2001 recession. Nevertheless, given the prevalence of investment-grade bond underperformance in post-recession periods, correctly timing the exit of an investment-grade bond investment is important.

Although the data for high-yield issues only go back to 1987, investment-grade bonds have outperformed high-yield bonds during the 1990–91 and 2001 recessions and the current recession (as well as, on average, during the preceding two quarters). As with equities, investment-grade bonds have underperformed high-yield bonds during the two quarters following recessions and thereafter.⁷ As for leveraged loans, which have been a subject of investor interest, the data are unclear and go back only to 1992, but we believe that returns should track those of high-yield debt (whose issuers also tend to be the issuers of leveraged loans) more than those of investment-grade corporates.

The appeal of investment-grade bonds for taxable investors is less apparent given the relatively attractive yields on municipal bonds (6.16% at the end of November, which equates to 9.48% on a tax-equivalent basis, assuming a 35% federal tax rate). Municipal bonds have also had much lower historical default rates than investment-grade bonds. Still, taxable investors could certainly conclude (now or if there is a shift in relative yields) that investment-grade bonds might be a substitute for municipal bonds given the

⁷ Investment-grade bonds underperformed their high-yield counterparts in the six months after both the 1990–91 and 2001 recessions. However, as noted above, these were also the only instances over the last 106 years in which investment-grade bonds did not underperform equities immediately following a recession.

difficulties many municipalities are facing, the fact that the U.S. government is explicitly backing a large amount of corporate debt, and other unique features of the current crisis.

Comparative Return Expectations

Because the case for investment-grade corporate bonds rests upon their very attractive and almost unprecedented valuations, as well as their performance during a certain part of the economic cycle, an investment in this asset class would be a tactical bet. Accordingly, it is useful to compare the return expectations of investment-grade bonds to those of U.S. equities and high-yield bonds over the next two years. To simplify the analysis, we compare return expectations of all three investments in real terms given that bonds are essentially pricing in 0% inflation.⁸ Our analysis provides the following results:

- **Investment-Grade Corporate Bonds:** The top panel of Table L provides a matrix of expected annualized two-year returns under various default and recovery scenarios, assuming that yield spreads are unchanged and default losses occur at the beginning of each year. At an initial yield of 8.67% (the yield to maturity on the Merrill Lynch U.S. Corporate Master Index on November 30) the estimated annualized return would be 7.1% even if we assume annual bond defaults of 1.75% (above the record level reached during the 1930s) and a highly conservative 10% recovery rate. If instead defaults were 0%, essentially the average since 1983, the expected two-year annualized return would be 8.9%. Thus the range of returns is narrow in the absence of a change in yield, but it is of course unlikely that yields would remain constant. The bottom panel of Table L measures how changes in yield would affect bond prices. For example, if at the end of the two-year period yields were to back up to 10%, a level not reached in more than 18 years (the recent month-end peak of 9.3% was reached at the end of October), this would cause a price *decline* of 8.7%. In contrast, if credit markets were to improve and yields fell back to their median since 1984 of 7.3%, this would boost returns by an estimated 10.1 %.
- **High-Yield Bonds:** The Merrill Lynch High Yield Master II Index yielded 21.72% at the end of November. Using the same simplified assumptions as above, if defaults on high-yield bonds were to match the record annual rate of 15% and recovery rates were 20% (low by historical standards), the two-year annualized return would be approximately 7.8%. This scenario and a range of others are shown in the top panel of Table M. The narrowing of yield spreads to more normative levels, meanwhile, would provide a significant upside to expected returns. Thus, if yields compressed to 10.9%, the median since 1986, bond prices would appreciate by approximately 49.9%. However, a back up in yields, to say, 25%, would result in a price decline of roughly 10.8%.
- **U.S. Equities:** Expected returns for U.S. equities can be estimated based on expected earnings growth, dividend yield, and any change in valuation multiples. While attempting to estimate these variables over the next two years is fraught with peril, we can compare various earnings growth and

⁸ This is shown by the fact that the spreads between yields of five- and ten-year Treasuries and TIPS have been very low. The assumption of 0% inflation is not an expectation on our part, but rather a simplification given that bond market pricing implies that real and nominal returns are essentially the same.

price-earnings (P/E) ratio assumptions with current dividend yields to evaluate the range of real capital appreciation over a two-year period. Table N shows that if real earnings growth over the next two years is equal to the average since 1965 and real normalized P/E multiples⁹ expand slightly to their long-term average of 16.0, stocks would appreciate at an average annual rate of 4.6%. Assuming a 3% dividend yield, the expected annualized return for equities over the next two years would be 7.6%. Prices would *decline* by 12.4% if we assume both severe negative earnings growth equal to the bottom decile of two-year earnings growth since 1965 and that multiples remain constant. However, such a sharp decline in earnings would likely pressure multiples: a decline in multiples to 1 standard deviation below the historical average would result in an average annual price decline of 33.9%, leaving no room for dividends (which companies in such a scenario would be hard-pressed to maintain) to improve returns materially. In contrast, should earnings recover to historical average rates over the next two years and equities rally sharply, bringing valuation multiples to 1 standard deviation above the historical average, annualized price appreciation could be as high as 26.3%.

At current yields, we believe return expectations for investment-grade corporate bonds are competitive with those for U.S. equities, especially in light of our expectation that earnings will decline further, as the vast majority of earnings weakness thus far has been concentrated in financials. In addition, returns on high-quality corporates may be competitive with those on high-yield bonds, which we also believe are priced attractively, particularly on a risk-adjusted basis. Since investment-grade corporate bonds have significantly less downside risk than do either equities or high-yield bonds, they should outperform both equities and high-yield bonds if our expectation that market stresses will continue proves correct. This has been the historical experience, and also has a theoretical basis (in the case of equities)—investment-grade debt’s senior position in the capital structure should provide some downside protection relative to equities in the event of a continued deterioration in the corporate sector.

With Opportunity Comes Risk

While high yields have moved the expected returns of investment-grade bonds much closer to those of U.S. equities, the expected volatility remains below that of equities, suggesting higher risk-adjusted expected returns, but also a lower upside. Moreover, *even at current yields and spreads corporate bonds have a limited upside relative to equities and high-yield bonds* once credit conditions improve; while bonds will immediately benefit from any spread compression, equities may also be quick to discount an improved credit environment. As discussed earlier, U.S. corporate bonds almost always underperform equities (and

⁹ Unadjusted P/E ratios often appear understated at earnings cycle peaks, just as they overstate market valuations at troughs as earnings collapse, sending P/E ratios sharply higher. Real (inflation-adjusted) normalized P/E ratios attempt to adjust valuations for earnings cyclicalities, by averaging earnings over the earnings cycle and comparing real price levels to the ten-year average of real earnings per share.

high-yield bonds) following recessions. Indeed, in 19 of the 21 recessions dating back to 1902 investment-grade bonds underperformed equities *during the last three months of the recession itself*.¹⁰

Thus, timing may be critical. Even as investors are reaping the rewards of a bet on investment-grade bonds, equity and high-yield markets could be gearing up for a large and sustained rally that would leave complacent corporate bond investors in the dust. Still, investment-grade corporates remain attractive at current yields for investors willing to risk missing out on part or all of this upside return potential,¹¹ and perhaps even compelling for investors especially interested in reducing exposure to more volatile assets. Investors not willing to give up the upside potential of equities, but still interested in investing in investment-grade credits, might consider funding such a tactical investment from hedge fund mandates with high single-digit return/low standard deviation expectations.

In addition, the sharp rise in investment-grade spreads reflects concerns that corporate debt is a much more uncertain bet than has been the case historically. The free fall in housing, mounting layoffs by U.S. corporations in the face of slumping domestic and international demand, and selling pressures faced by leveraged investors could well mean record-high default rates and an extended period of depressed prices for this asset class. Given the fact that a substantial amount of corporate debt will mature over the next two years, corporations may find themselves trying to refinance at the worst possible time. If present conditions hold, they will not only face frozen credit markets, but also substantial competition from the U.S. government for capital. The recovery rate on defaulted debt, historically about 40% but less during times of economic stress, may also hit new lows. And of course, even debt carrying attractive nominal yields would be impacted adversely by a rise in interest rates or a significant rise in inflation, both of which are certainly concerns over the longer term.

Sizing and Implementing an Allocation to Investment-Grade Bonds

Should an investor decide to make an allocation to investment-grade bonds, the next question is the size of such a position and how to implement it. Sizing should depend on a number of factors, including the willingness of an investor to make tactical bets, the degree of conviction that investment-grade bonds will outperform the funding source, and the degree to which an investment portfolio has existing exposure to investment-grade debt. Such exposure is most likely to come from broad-mandate bond managers¹² or hedge fund managers that have moved into this space.

¹⁰ With respect to the two recessions for which there is data on returns of high-yield bonds, such bonds vastly outperformed their investment-grade counterparts in one instance (the last three months of the 1990–91 recession) while slightly underperforming at the end of the 2001 recession.

¹¹ While the same argument might be made with respect to high-yield bonds versus equities, the former historically have kept pace with the latter and actually exceeded equity returns following periods in which credit spreads are elevated. Today's spreads provide a significant margin of safety for high-yield investors.

¹² The Barclays Capital Aggregate Bond Index, the most common core bond manager benchmark, has a 17.1% allocation to investment-grade corporates, while the Barclays Capital Government/Credit Bond Index has approximately 33% exposure to this sector.

Putting money to work in the investment-grade space may be a challenge, however, at least for those investors interested in active management. Because we have not seen in our lifetime the combination of absolute and relative spread levels that currently exist there are few managers focusing on investment-grade corporates. The dearth of expert managers will likely be remedied as managers see new opportunities and respond to investor interest. Such managers may invest in a range of corporate bonds covering investment-grade, high-yield, and leveraged loans both within and outside the United States. As many of these products are only now being considered or developed by managers, it is not clear how this market will develop. While we are aware of few established implementation vehicles, we are actively meeting with managers to investigate the best available options.

Based on information we have collected thus far, separate accounts will require substantial investment minimums (\$20 million to \$25 million). Accordingly, the commingled fund route is likely the only option for most investors at present. And while passive management in the form of either an index product or an exchange-traded fund is certainly an option, active management may be a more attractive proposition for several reasons, including the above-noted lack of manager depth in the investment-grade-bond-only space. Credit quality bets within this sector are also potentially important: whereas the *average* spread between AAA- and BBB-rated paper over the last 20 years was just under 96 bps, there is now a 138 bp spread between AAA- and AA-rated paper alone (compared with a historical average spread of 8.5 bps). The spread between AAA- and BBB-rated paper has been over 345 bps since the beginning of November and was a record 442 bps as of December 5. Likewise, the relative prices of cash bonds and credit default swaps on the same names suggest possible mispricing within the investment-grade sector that may present opportunities. Finally, the fact that the U.S. government is now supporting a large amount of debt issued by financial institutions may also weigh in favor of active management; not only does this increase the likelihood of such debt paying off (which supports both active and passive strategies), it also suggests the potential value in the current environment of managers that not only have excellent credit analysis capabilities but are also savvy to the goings on of Washington. Thus, it would be reasonable to expect a far wider range of returns among managers than has been the case with respect to core and core plus managers.

Conclusion

Investment-grade bonds have traditionally been an afterthought, if that, in portfolio construction. Yet given today's economic environment and current yields and yield spreads, this is an asset class worthy of consideration. With yields of roughly 8.7%, such bonds offer generous compensation for very conservative estimates of defaults and recovery rates and also offer competitive expected returns relative to equities, particularly in risk-adjusted terms. Investment-grade corporate bonds also offer more protection than either equities or high-yield bonds/leveraged loans in the event of a prolonged deflationary contraction. The high absolute yield, meanwhile, offers far more protection than usual against inflationary conditions.

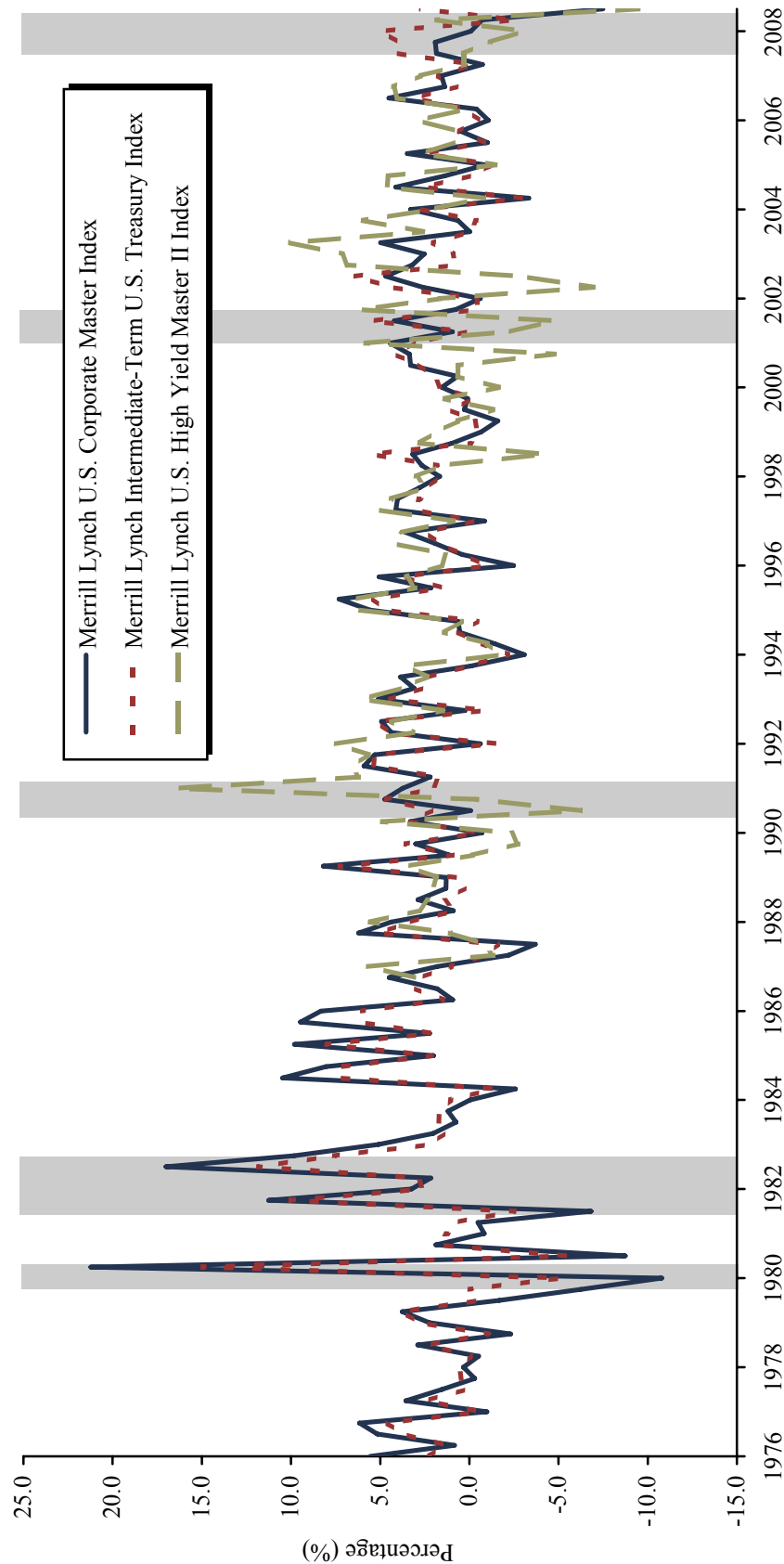
Once credit conditions improve, corporate bonds should be expected to underperform equities and high-yield bonds. Investors that have already experienced big losses in their equity portfolios and now make a significant tactical bet on investment-grade bonds could find themselves needing years or even decades to

catch up to peers should they get the exit timing wrong and equity markets experience a particularly strong rally. Still, as long as market conditions remain weak, with highly constrained credit markets, we expect investment-grade corporate bonds to continue to outperform equities. For investors unwilling to take the opportunity cost of underperforming once the market cycle turns, meanwhile, a tactical bet relative to defensively oriented hedge funds merits consideration.

Table A

QUARTERLY RETURNS OF U.S. INVESTMENT-GRADE BONDS, HIGH-YIELD BONDS AND TREASURIES

January 1, 1976 – September 30, 2008



Sources: Bloomberg L.P., Merrill Lynch & Co., and Thomson Datastream.

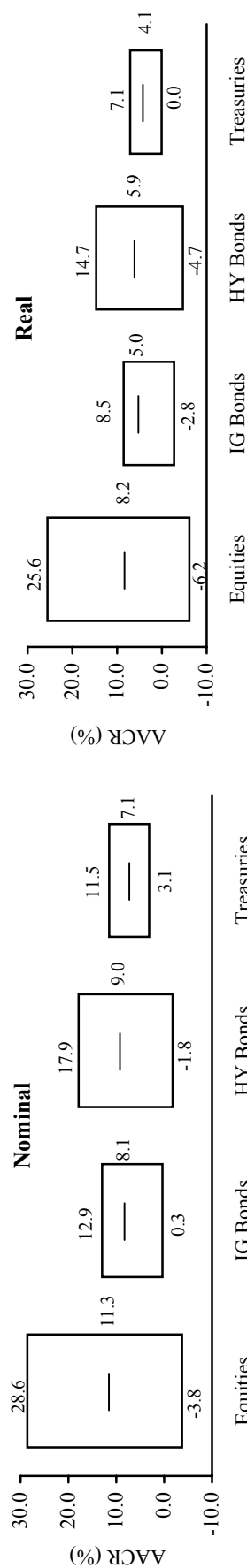
Note: Shaded areas indicate U.S. recessionary periods as defined by NBER.

Table B

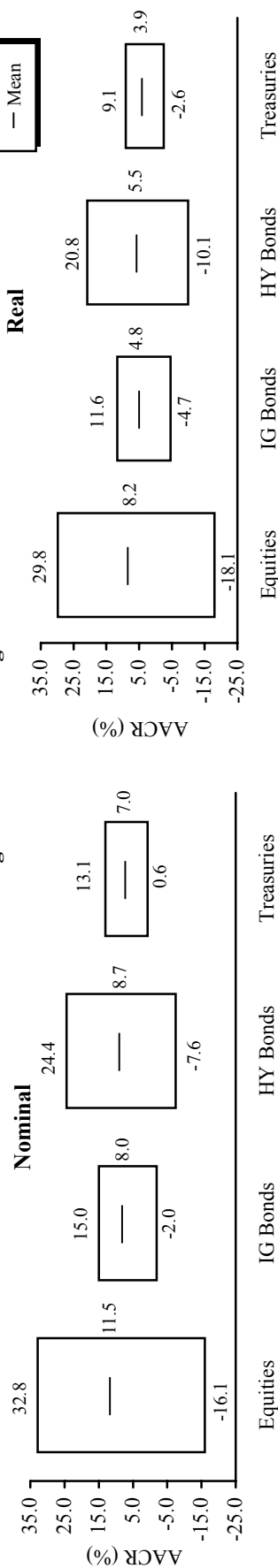
ROLLING AVERAGE ANNUAL COMPOUND RETURNS (%)

September 30, 1986 – November 30, 2008

Rolling Five-Year Average



Rolling Three-Year Average



Five-Year AACR (%)

	Nominal		Real	
	Equities	IG Bonds	IG Bonds	HY Bonds
High	28.6	12.9	25.6	8.5
Low	-3.8	0.3	-6.2	-2.8
Mean	11.3	8.1	8.2	5.0
Std Dev	8.6	2.2	8.4	1.9

Three-Year AACR (%)

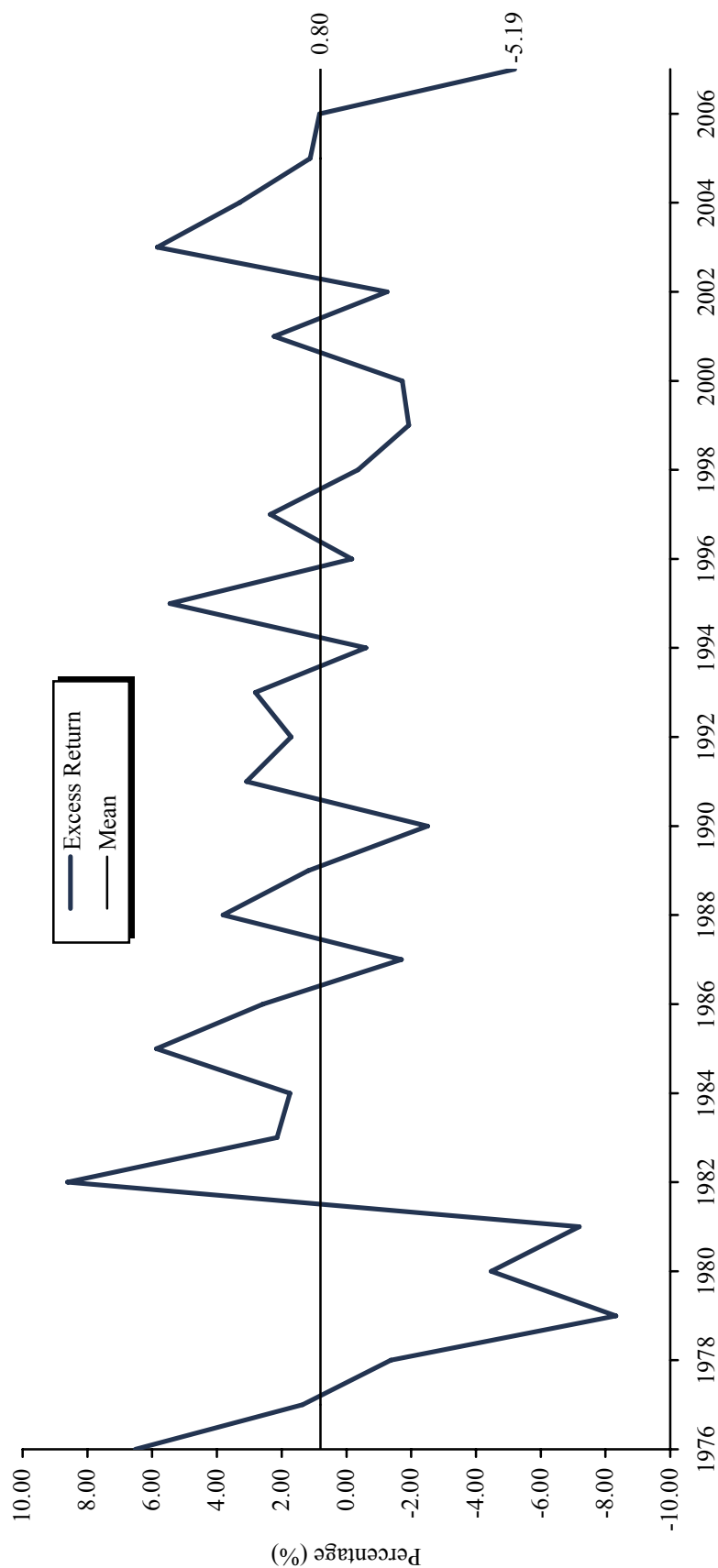
	Nominal		Real	
	Equities	IG Bonds	IG Bonds	HY Bonds
High	32.8	15.0	29.8	11.6
Low	-16.1	-2.0	-18.1	-4.7
Mean	11.5	8.0	8.2	4.8
Std Dev	10.8	3.0	10.6	2.9

Sources: Merrill Lynch & Co., Thomson Datastream, and U.S. Department of Labor - Bureau of Labor Statistics.

Table C

ANNUAL EXCESS RETURN OF U.S. INVESTMENT-GRADE BONDS VERSUS U.S. TREASURIES

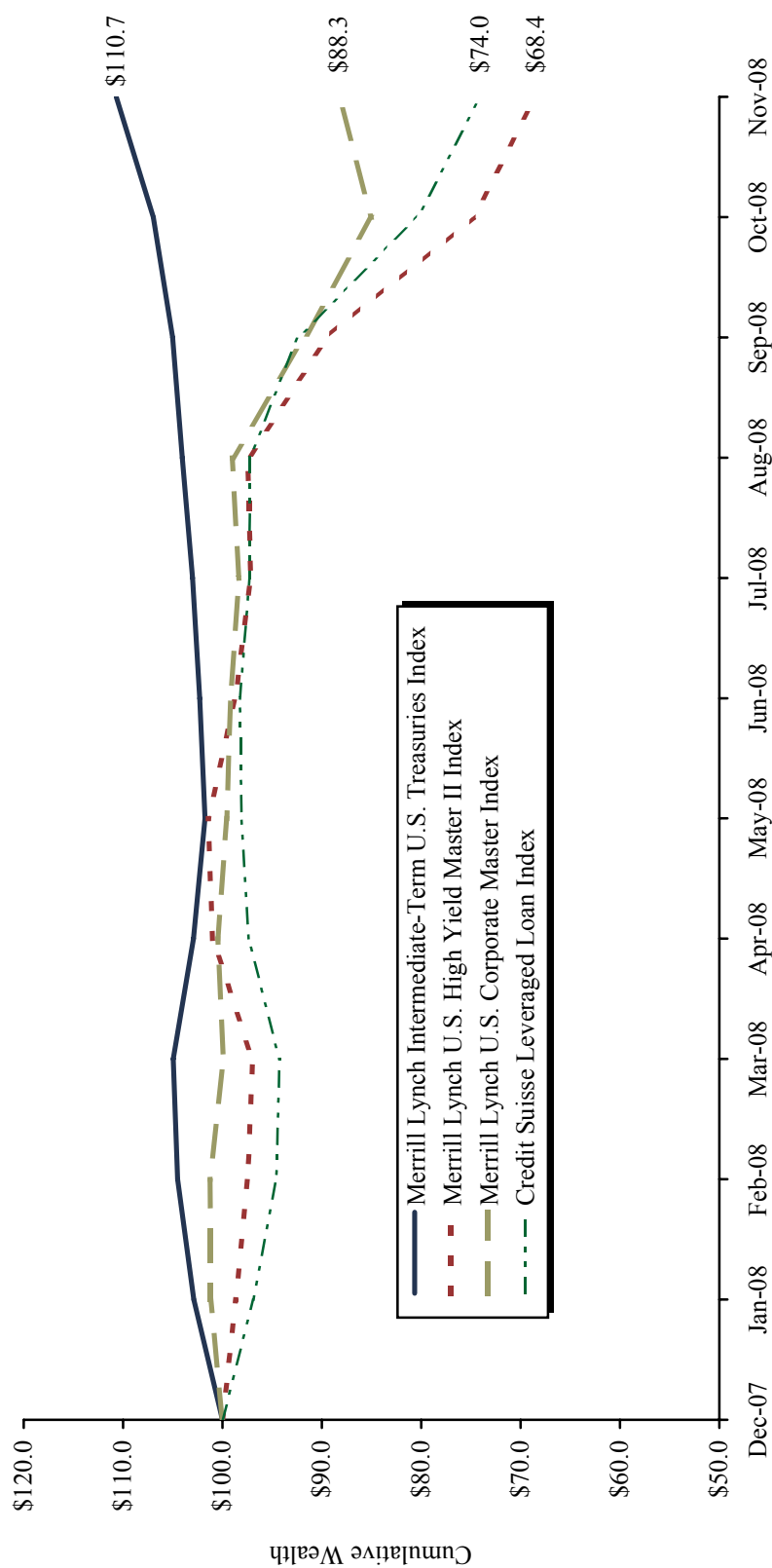
January 1, 1976 – December 31, 2007



Source: Merrill Lynch & Co.

Note: Investment-grade bonds are represented by the Merrill Lynch Corporate Master Index.

Table D

CUMULATIVE WEALTH OF U.S. INVESTMENT-GRADE, HIGH-YIELD AND TREASURY BONDS AND BANK LOANS**January 1, 2008 – November 30, 2008**

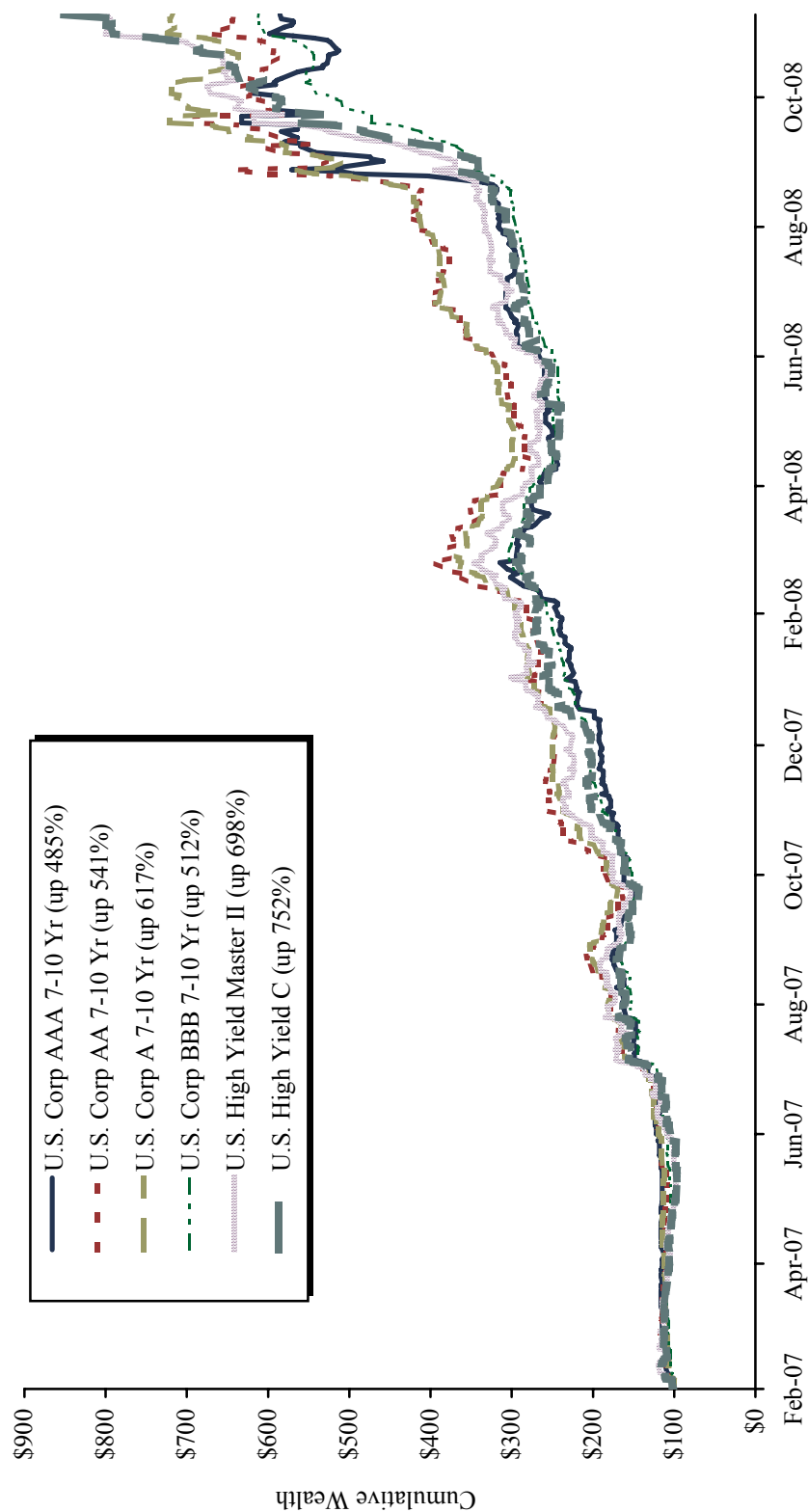
Sources: Bloomberg L.P., Credit Suisse, Merrill Lynch & Co, and Thomson Datastream.

Note: Index levels rebased to 100 as of December 31, 2007.

Table E

CHANGE IN U.S. INVESTMENT-GRADE AND HIGH-YIELD BOND SPREADS

February 22, 2007 – November 30, 2008



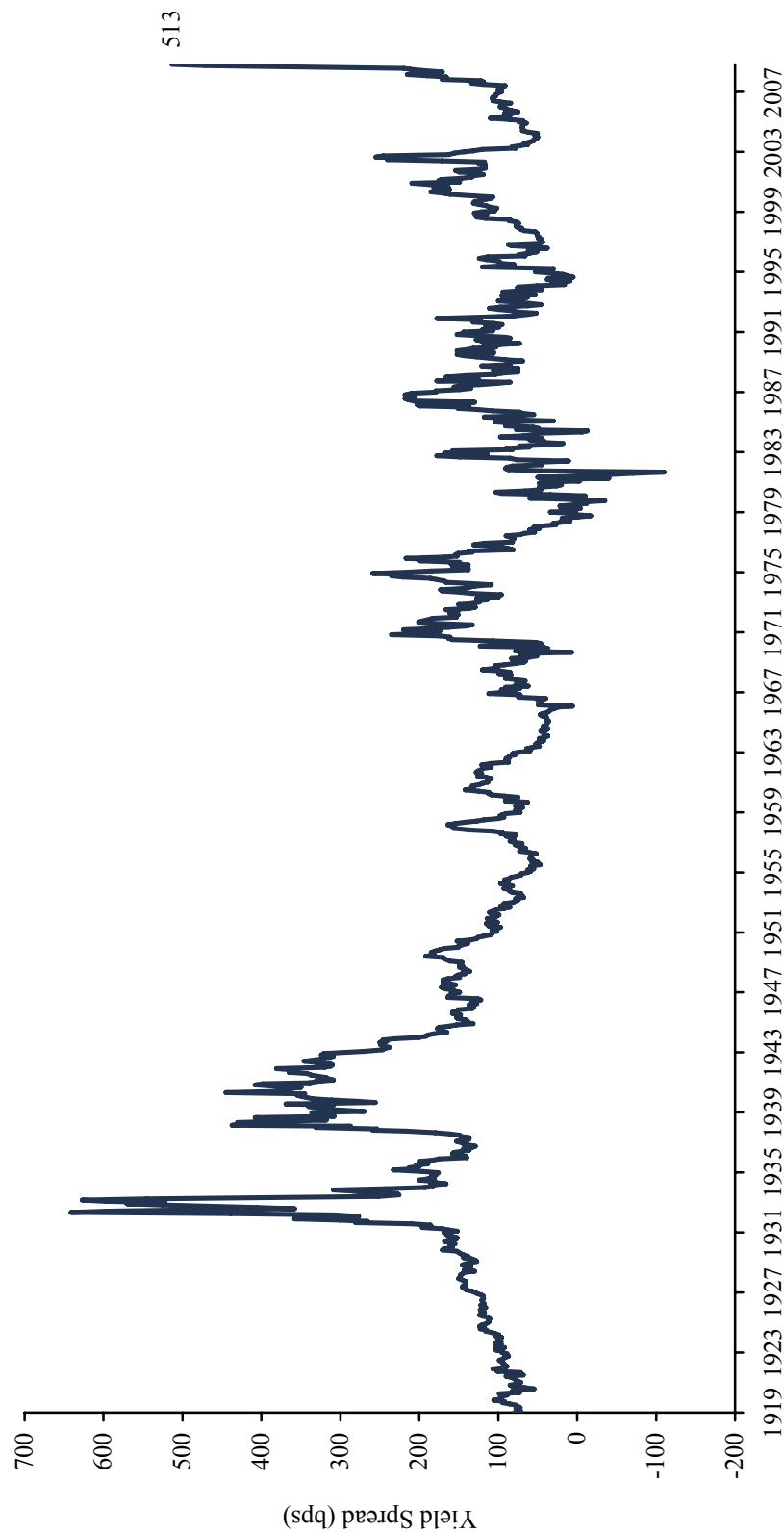
Source: Merrill Lynch & Co.

Notes: Spreads shown are option adjusted. Index values rebased to 100 on February 22, 2008.

Table F

YIELD SPREADS OF U.S. INVESTMENT-GRADE BONDS OVER U.S. TREASURIES

January 31, 1919 – November 30, 2008



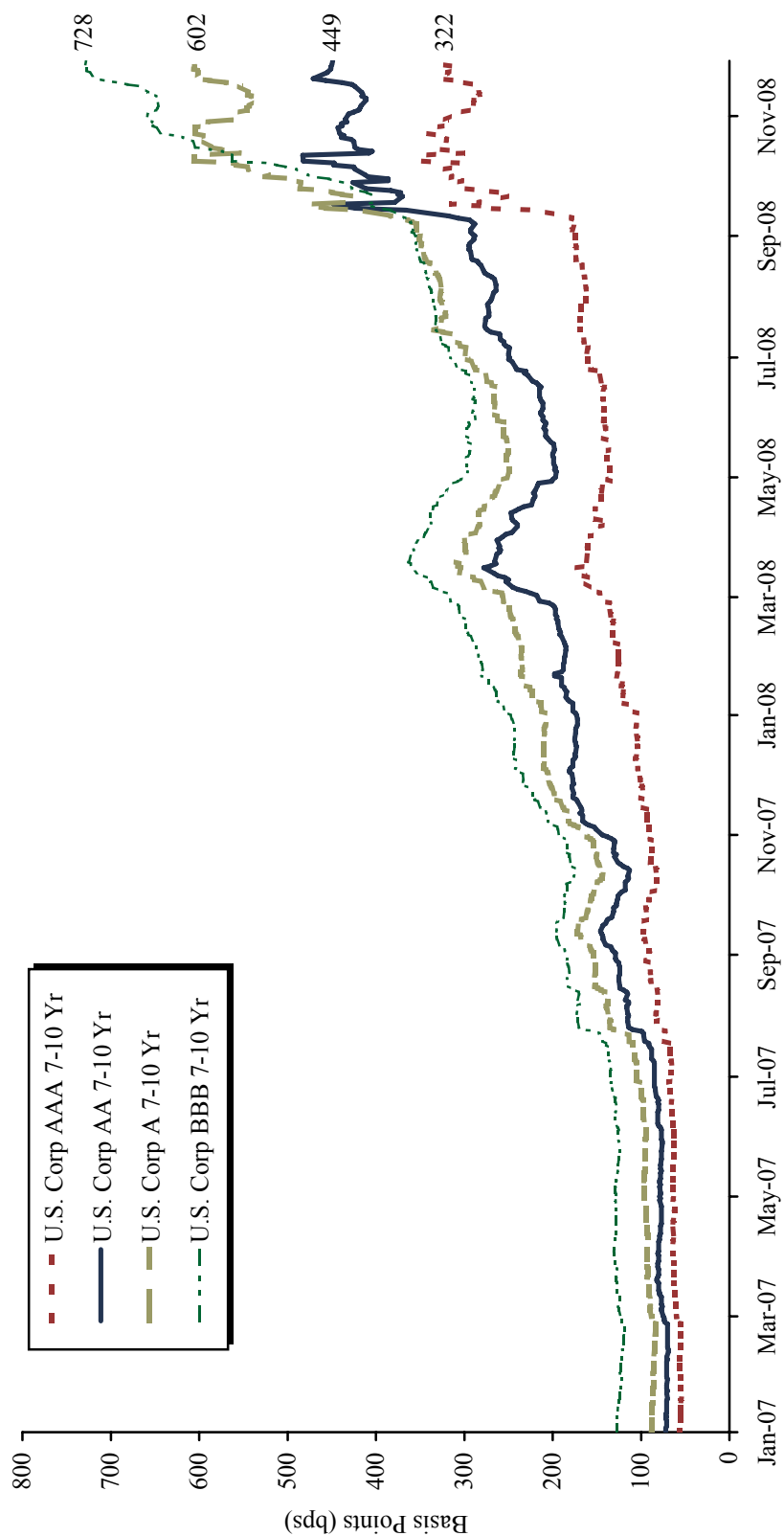
Source: Global Financial Data, Inc.

Notes: Corporate bond yields are represented by the Dow Jones Corporate Bond Index and Treasury yields are represented by a ten-year constant maturity Treasury bond. Graph uses monthly data.

Table G

OPTION-ADJUSTED SPREADS FOR U.S. CORPORATE BONDS OVER U.S. TREASURIES

January 1, 2007 – November 30, 2008



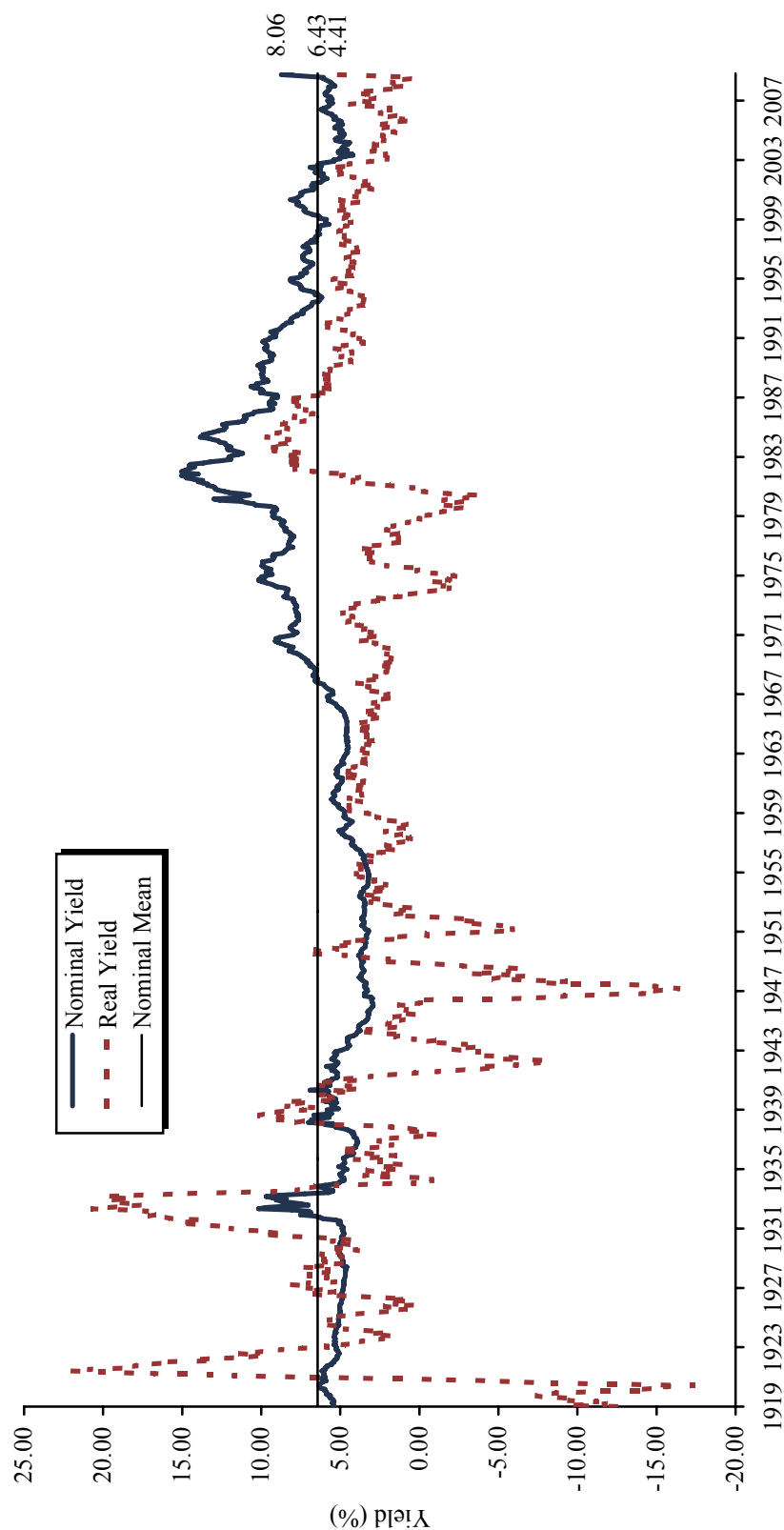
Source: Merrill Lynch & Co.

Note: Graph uses monthly data.

Table H

ABSOLUTE YIELDS OF U.S. INVESTMENT-GRADE BONDS ON A REAL AND NOMINAL BASIS

January 31, 1919 – November 30, 2008



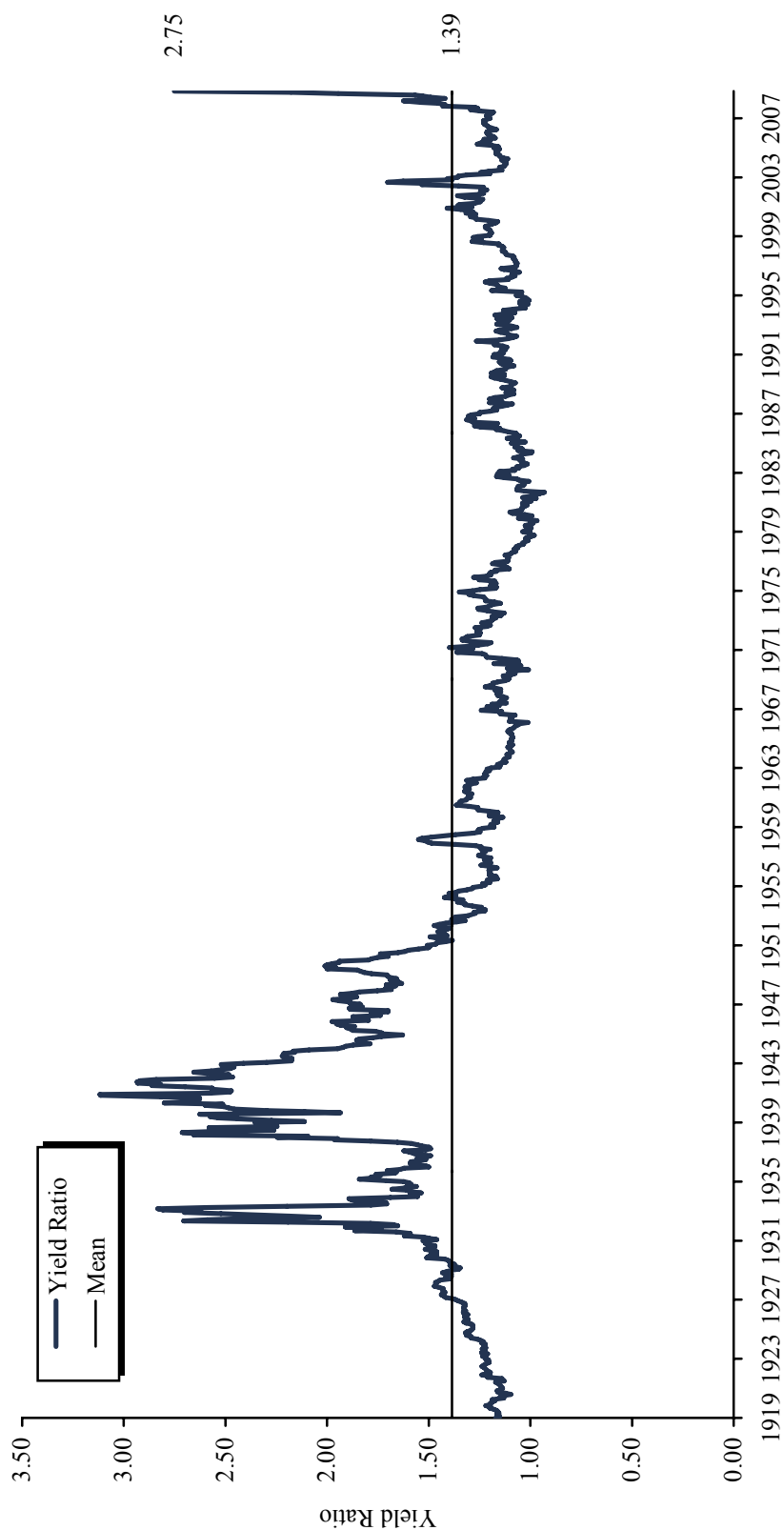
Sources: Global Financial Data, Inc. and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Corporate bond yields are represented by the Dow Jones Corporate Bond Index. Real yields are calculated by subtracting the rolling 12-month CPI-U from the nominal yields. CPI-U data are through October 31, 2008. Graph uses monthly data.

Table I

YIELDS OF U.S. INVESTMENT-GRADE BONDS RELATIVE TO U.S. TREASURIES

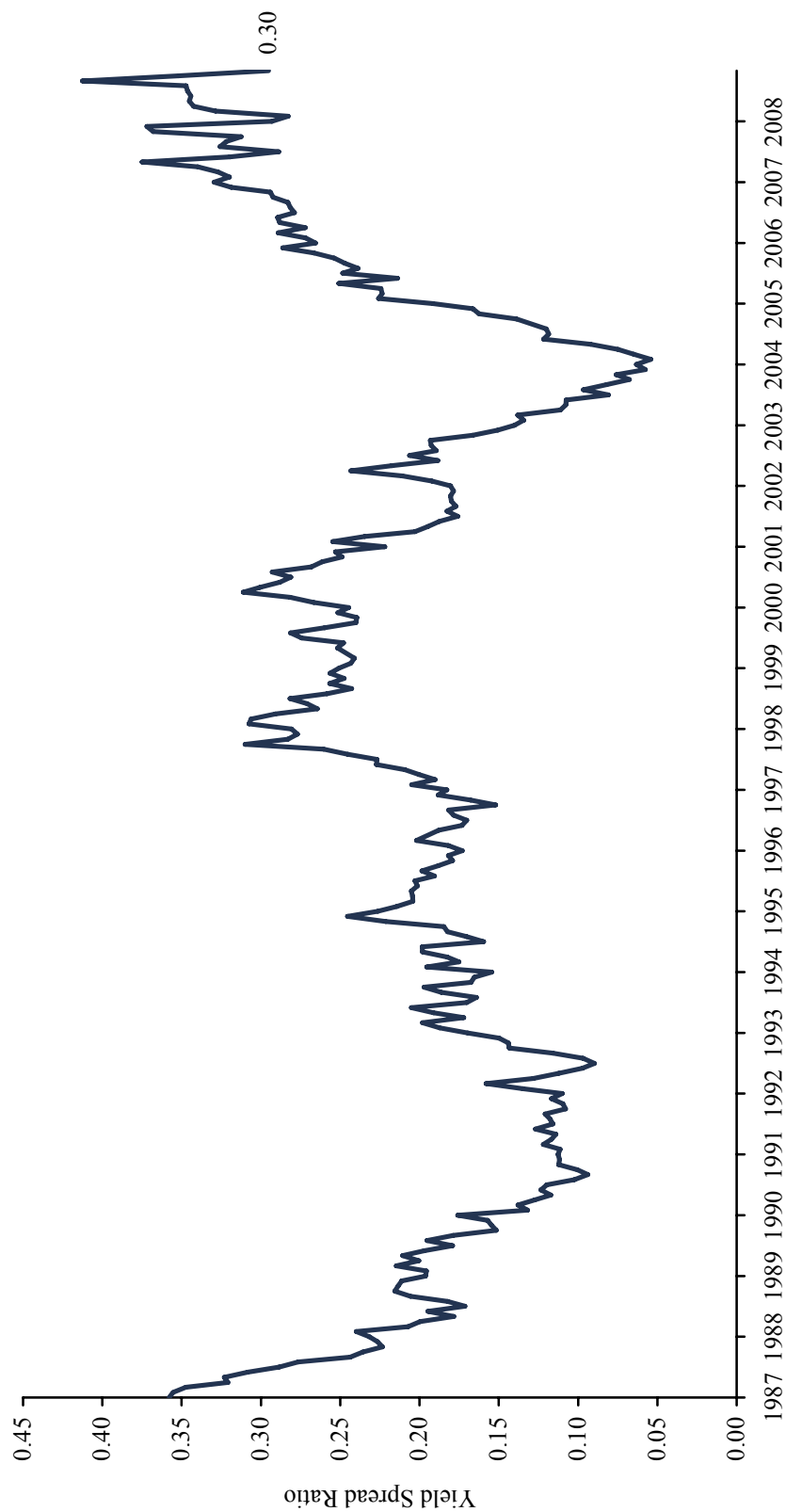
January 31, 1919 – November 30, 2008



Source: Global Financial Data, Inc.

Notes: Corporate bond yields are represented by the Dow Jones Corporate Bond Index and Treasury yields are represented by a ten-year constant maturity Treasury bond. Graph uses monthly data.

Table J

YIELD SPREADS OF U.S. INVESTMENT-GRADE BONDS RELATIVE TO YIELD SPREADS OF HIGH-YIELD BONDS**January 31, 1987 – November 30, 2008**

Source: Barclays Capital.

Note: Bond yields are represented by the Barclays Capital U.S. Corporate Index and the Barclays Capital U.S. Corporate High Yield Index.

Table K

RELATIVE PERFORMANCE OF INVESTMENT-GRADE BONDS AND EQUITIES DURING ECONOMIC CYCLES

1902–2008

Expansion Peak	Recession Trough	Duration of Recession (Months)	Performance 2 Quarters Prior to Recession		Performance During Recession		Performance 2 Quarters After Recession		Subsequent Performance	
			IG Credit	S&P 500	IG Credit	S&P 500	IG Credit	S&P 500	IG Credit	S&P 500
Sep-30-1902	Aug-31-1904	23.0	0.9	9.9	8.0	-13.9	4.4	27.9	5.6	19.9
May-31-1907	Jun-30-1908	13.0	-0.5	-16.6	4.1	0.2	5.3	21.0	3.2	12.9
Jan-31-1910	Jan-31-1912	23.9	1.9	3.5	9.0	-0.3	1.9	7.7	N/A	N/A
Jan-31-1913	Dec-31-1914	22.9	1.6	-0.8	6.8	-12.5	2.3	12.3	5.9	9.0
Aug-31-1918	Mar-31-1919	7.0	0.2	6.9	5.7	10.1	1.1	13.5	N/A	N/A
Jan-31-1920	Jul-31-1921	17.9	-2.2	-5.4	8.9	-17.5	12.2	15.9	7.9	23.4
May-31-1923	Jul-31-1924	14.0	0.9	2.6	9.1	13.7	3.1	17.6	9.5	17.7
Oct-31-1926	Nov-30-1927	13.0	2.8	13.9	7.4	40.6	1.2	17.8	2.5	31.5
Aug-31-1929	Mar-31-1933	42.9	-0.6	25.9	18.6	-77.4	9.2	71.4	34.1	98.2
May-31-1937	Jun-30-1938	13.0	0.0	-3.8	5.5	-23.6	4.2	17.0	22.1	36.0
Feb-28-1945	Oct-31-1945	8.0	3.9	14.3	1.5	19.8	3.0	14.8	1.9	-1.4
Nov-30-1948	Oct-31-1949	11.0	0.7	-9.1	5.6	15.7	1.3	16.6	1.0	74.3
Jul-31-1953	May-31-1954	10.0	-0.7	-3.5	7.7	23.6	1.3	20.1	-4.0	37.9
Aug-31-1957	Apr-30-1958	7.9	-4.2	6.5	10.4	-1.2	-4.5	20.3	-1.9	15.6
Apr-30-1960	Feb-28-1961	10.0	3.7	-3.9	6.9	20.1	-1.2	8.9	9.2	83.5
Dec-31-1969	Nov-30-1970	11.0	-7.3	-4.2	14.1	-1.9	3.7	16.1	19.5	11.8
Nov-30-1973	Mar-31-1975	15.9	1.7	-7.0	0.7	-7.8	0.2	2.7	39.2	48.5
Jan-31-1980	Jul-31-1980	6.0	-15.2	13.0	10.3	9.6	-7.0	9.1	N/A	N/A
Jul-31-1981	Nov-30-1982	16.0	-5.3	3.6	49.0	14.2	7.3	19.9	129.6	160.9
Jul-31-1990	Mar-31-1991	8.0	4.9	10.2	7.8	8.0	9.0	5.1	96.8	350.4
Mar-31-2001	Nov-30-2001	8.0	10.7	-18.8	6.7	-0.9	2.8	-5.7	37.7	54.5
Dec-31-2007			4.6	-1.4	-5.9	-37.7				
Average		14.4	0.1	1.6	9.7	0.9	2.9	16.7	23.3	60.3
Post-1944 Average		10.2	-0.2	0.0	11.0	9.0	1.4	11.6	32.9	83.6
AACR					7.7	-3.0			5.6	12.7
Post-1944 AACR					12.3	10.1			5.8	12.5

Sources: Global Financial Data, Inc., NBER: *Business Cycle Expansions and Contractions*, Standard & Poor's, and Thomson Datastream.

Notes: Investment-grade (IG) credit is made up of the S&P High-Grade Corp Bond Yield Index from 1902 through 1968, the Citigroup High Grade Corporate Bond Total Rate of Return Index from 1969 through 1979, and the Citigroup High Grade AAA-AA Corporate Bond Index from 1980 to the present. The performance figures for the current recession are as of November 30, 2008, but are not included in the average and AACR calculations. "Subsequent Performance" refers to the period beginning two quarters after a recession trough and ending two quarters prior to the following expansion peak. "N/A" refers to periods in which there were 12 months or less between a recession trough and the subsequent expansion peak; as such the periods are already accounted for in the "Performance 2 Quarters After Recession" and "Performance 2 Quarters Prior to Recession" columns. Average returns and AACRs for "Performance During Recession" and "Subsequent Performance" are based on periods of varying length.

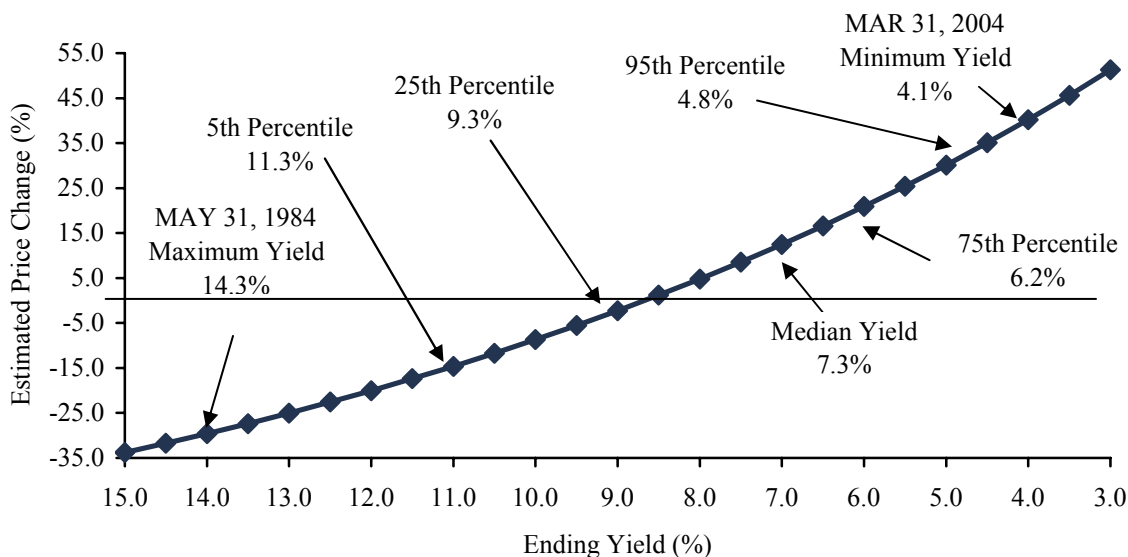
Table L

INVESTMENT-GRADE BOND ESTIMATED RETURNS AND PRICE CHANGES**Estimated Two-Year Annualized Returns with an Initial Yield of 8.67%**

		Annualized Default Rate				
		0.0%	0.3%	1.0%	1.5%	1.8%
Recovery Rate	50.0%	8.9	8.7	8.3	8.0	7.9
	40.0%	8.9	8.7	8.2	7.9	7.7
	30.0%	8.9	8.7	8.1	7.7	7.5
	20.0%	8.9	8.6	8.0	7.5	7.3
	10.0%	8.9	8.6	7.9	7.4	7.1

Sources: Cambridge Associates LLC, adapted from an Oaktree Capital Management model.

Note: Assumes yields are unchanged, default losses happen at the beginning of each year, and both transaction costs and management fees are zero.

Estimated Price Change at Various Ending Yields for a Bond with an Initial Yield of 8.67%

Sources: Cambridge Associates LLC and Merrill Lynch & Co.

Notes: Price change estimates were calculated assuming a noncallable bond maturing in ten years with a 6.2% annual coupon, currently priced at 84 cents on the dollar to yield 8.67%. Maximum, minimum, and percentile yields represent the range of historical monthly yields to maturity of the Merrill Lynch U.S. Corporate Master Index from May 31, 1984, to November 30, 2008.

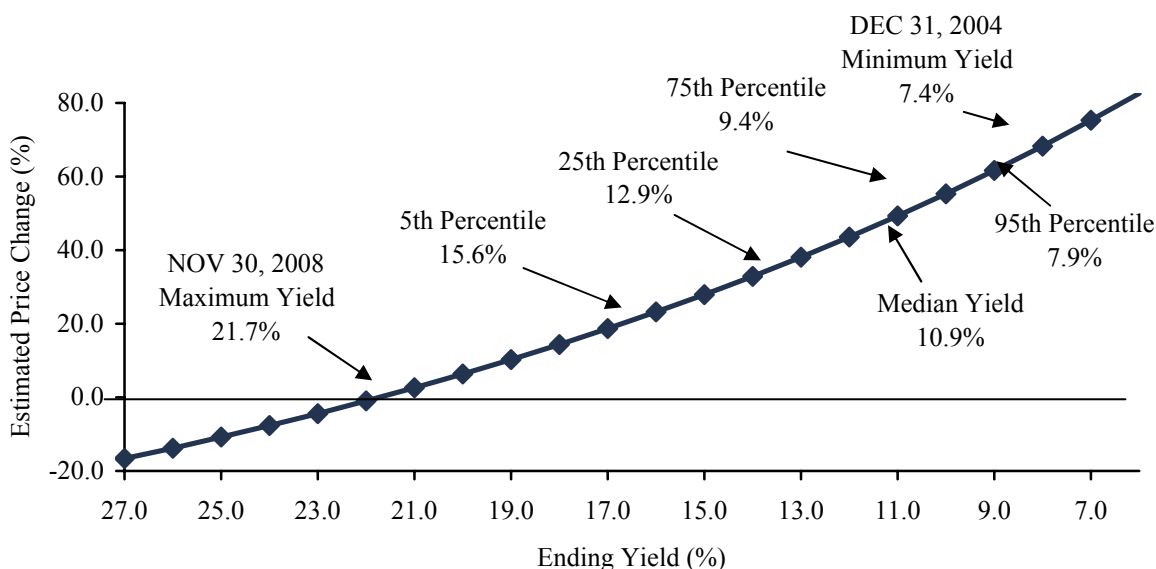
Table M

HIGH-YIELD BOND ESTIMATED RETURNS AND PRICE CHANGES**Estimated Two-Year Annualized Returns with an Initial Yield of 21.72%**

		Annualized Default Rate				
		6.0%	9.0%	12.0%	15.0%	18.0%
Recovery Rate	50.0%	18.9	16.8	14.8	12.8	10.8
	40.0%	18.2	15.8	13.5	11.1	8.8
	30.0%	17.5	14.8	12.1	9.5	6.8
	20.0%	16.9	13.8	10.8	7.8	4.8
	10.0%	16.2	12.8	9.5	6.1	2.8

Sources: Cambridge Associates LLC, adapted from an Oaktree Capital Management model.

Note: Assumes yields are unchanged, default losses happen at the beginning of each year, and both transaction costs and management fees are zero.

Estimated Price Change at Various Ending Yields for a Bond with an Initial Yield of 21.72%

Sources: Cambridge Associates LLC and Merrill Lynch & Co.

Notes: Price change estimates were calculated assuming a noncallable bond maturing in five years with an 8.1% annual coupon, currently priced at 60 cents on the dollar to yield 21.72%. Maximum, minimum, and percentile yields represent the range of historical monthly yields to maturity of the Merrill Lynch High Yield Master II Index from September 30, 1986, to November 30, 2008.

Table N

HOW MUCH WOULD THE S&P 500 APPRECIATE UNDER THE FOLLOWING EARNINGS GROWTH AND P/E ASSUMPTIONS?

Real Two-Year Appreciation Scenarios as of November 30, 2008

		Negative Growth -12.4%	Zero Growth 0.0%	AACG ¹ (1965–2007) 1.8%	Forward Estimate 4.4%
		<u>Two-Year Average Annual Compound Price Appreciation (%)</u>			
Current Normalized Real P/E Ratio	15.2	-12.4	0.0	1.8	4.4
Average (3/31/1910 – 10/31/2008)	16.0	-10.1	2.7	4.6	7.2
Average Plus 1 Standard Deviation	23.4	8.6	24.1	26.3	29.5
Average Minus 1 Standard Deviation	8.7	-33.9	-24.5	-23.1	-21.2
Current Trailing 12-Month P/E	19.3	-12.4	0.0	1.8	4.4
Average (3/31/1960 – 10/31/2008)	17.6	-16.2	-4.3	-2.5	-0.1
Average Plus 1 Standard Deviation	24.6	-1.1	13.0	15.0	17.9
Average Minus 1 Standard Deviation	10.7	-34.7	-25.5	-24.1	-22.2

Sample Interpretation:

This exhibit illustrates the expected average annual price change for the S&P 500 given a particular earnings growth assumption and price-earnings (P/E) ratio. For example, if earnings grew by 4.4% over the next two years (current I/B/E/S consensus estimate), and the normalized real P/E ratio of 15.2 remains 15.2 at the end of the period, then the price of the S&P 500 would increase by 4.4% annually, over the next two years, as it would be influenced only by earnings growth. In this example, if the normalized real P/E ratio were to expand to its long-term average of 16.0, the annualized price return would expand to 7.2%.

Sources: Calculated from data provided by AltaVista Independent Research, Inc., FactSet Research Systems, Puglisi & Co., Standard & Poor's, Standard & Poor's Compustat, U.S. Department of Labor - Bureau of Labor Statistics, and *The Wall Street Journal*.

Notes: Based on November 30, 2008, S&P 500 price of \$896, preliminary S&P 500 earnings per share of \$47 and CPI-U data as of October 31, 2008. The real P/E ratio using normalized earnings is the real price divided by the trailing ten-year average of real earnings. Negative growth is the bottom 10th percentile of historical two-year compound real earnings growth. Likewise, the average earnings growth rate is the average of historical two-year compound real earnings growth. P/E ratio data are based on earnings estimates provided by Standard & Poor's.

¹ AACG represents the average annual compound growth rate.