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The determinants of option adjusted delta credit spreads: A comparative analysis on US, UK and the Eurozone

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The determinants of option adjusted delta credit spreads: A comparative analysis on US, UK and the Eurozone

Abstract

We analyse the determinants of the variation of option adjusted credit spreads (OASs) on a unique database which enlarges the traditional scope of the analysis to more disaggregated indexes (combining industry, grade and maturity levels), new variables (volumes of sales and purchases of institutional investors) and a complete set of markets (beside US, UK and the Eurozone). With our extended set of regressors we explain almost half of the variability of OASs and we find evidence of the significant impact of institutional investors' purchases and sales on corporate bond risk. We also find that US business cycle indicators significantly affect the variability of OASs in the UK and in the Eurozone.

1. Introduction

The empirical analysis on the determinants of bond returns has greatly benefited in the last decades from the progressively enhanced availability of data. In the first empirical papers in this field, Fama and French (1989, 1993) evaluate the relationship between aggregate stock and bond returns. Cornell and Green (1991) and Kwan (1996) analyse the relationship between the two markets at aggregate and firm level. Their main results are that low grade bond returns are relatively more correlated with stock returns, while high grade bond returns with government bond returns.

More recent empirical analyses have changed their focus from bond yields to changes in the yield differential between corporate and government returns at the same maturity (delta credit spreads). The advantage of credit spreads is that they measure the excess return required by investors for the additional risk involved in holding corporate instead of government bonds. In this perspective, delta credit spreads represent a good proxy of the dynamics of corporate credit risk.[1] The sources of risk affecting credit spreads are generally considered to be at least five: i) default risk of bond issuers; ii) risk perception by market investors iii) observed and expected dynamics of financial volatility; iv) uncertainty about default timing; v) uncertainty about the recovery value, or the value reimbursed to bondholders at maturity. Business cycle is obviously an important driver for many of these risks.

The empirical literature on the determinants of delta credit spreads is still at its infancy and includes not many contributions. Pedrosa and Roll (1998) provide a first descriptive analysis of delta credit spreads for fixed bond indexes, classified for grade, industry and maturity. Collin-Dufresne, Goldstein and Martin (2001) explain around 25 percent of variability of delta credit spreads of Lehman Brothers US bond investment grade indexes. The authors find that regression residuals are highly cross-correlated and their principal component analysis shows that spread

[1] This argument is consistent with pratictioners' behaviour if we consider that investment bank proprietary desks use to be long on corporate bonds and short on government bonds when they want to assume credit risk, but not interest rate risk.

variability is largely explained by a principal component, which they interpret as generated by local demand and supply shocks. Elton, Gruber, Agrawal and Mann (2001) explain corporate bond returns mainly in terms of systematic nondiversifiable risk premium and, after that, default risk premium and fiscal components. Using the three-factor risk model of Fama and French (1995), they explain up to 30 percent of the variability of the spreads not explained by the default risk.[2] Huang and Kong (2003) use nine Merrill Lynch investment grade and high yield US indexes and explain up to 30 percent of investment grade and 60 percent of high yield credit spreads. Schaefer and Strebulaev (2004) in a general framework show that structural credit risk models, even if are poor predictor of corporate bond prices, can be good at predicting the *sensitivity* of bond returns to changes in equity value[3]. Ericsson, Reneby, Wang (2006) analyze US corporate bonds and CDS spreads, highlighting the importance of omitted risk factors. Comparing actual with theoretical spreads, they find that CDS do not underestimate spreads as corporate bonds; the latter should then include in their premia non-default risk factors as illiquidity. De Jong and Driessen (2005) show that liquidity risk is a priced factor for the expected returns on corporate bonds, explaining a risk premium between 0.45% and 1% for long term investment grade and speculative grade bond expected returns, respectively. Boss and Scheicher (2002) make one of the first attempts on analyzing Euro corporate spreads. They use 2 Euro indexes, Industrial and Financial, and swap data. Their finding is that mainly interest rate variables explain spread changes, and, in a lesser extent, stock market variables. Avramov, Jostova and Philipov (2005) analyse US corporate bonds, using aggregate and firm level variables as regressors. They find that individual volatility and price-to-book ratio play a role in explaining credit spreads of corporate bonds. Longstaff et al (2005), using CDS and corporate bonds, find that the majority of corporate spread is due to default risk, while the residual is time-varying and correlated to bond-specific issues and macroeconomic measures of

[2] Elton, Gruber, Agrawal and Mann (2001) goal is to explain the determinants of risk premium in corporate bonds. Their conclusion is that large part of it is determined by systematic risk as in equities.

[3] In this way, they study not only the sign but the size of the estimated coefficients, and if these are consistent with the theory; their finding can be useful for hedging purposes of corporate debt. Moreover, they find that bond prices are related to other factors, as Fama-French SMB factor.

bond market liquidity. These results contrast with other works (among the others, Elton et al, 2001; Huang and Huang, 2003) that report that default risk accounts for only a fraction of corporate bond spreads.

Not all recent works focus on credit spread changes, preferring to investigate levels instead of differences. Campbell and Taskler (2003) and Cremers et al (2005), among the others, choose to analyze corporate yield levels. However, differences are harder to explain than levels, and therefore a regression on the former should provide a more stringent test. Ericsson et al (2004), using CDS premia both in levels and differences, find that leverage, volatility and interest rates are important determinants of CDS premia, explaining 60% of variability for levels, but only 23% for spread changes. We will focus, therefore, on corporate spread changes.

The goal of this paper is to extend the analysis on corporate spread changes for the first time to more disaggregated indexes (combining industry, grade and maturity levels), new variables (volumes of sales and purchases of institutional investors; monthly data on downgrades and defaults) and a complete set of markets (besides US, UK and the Eurozone), focusing in the meantime on the interlinkages between different markets. At the same time, we intend to test whether sales and purchases of institutional investors have an important role in these markets and a relevant impact on corporate credit risk. The significance of this variable would support the hypothesis that their sales/purchases signal to the market additional information, not incorporated in other regressors, such as stock performance, or in business cycle indicators.

The paper is divided into six sections (including introduction and conclusions). In the second section we discuss credit spread data and illustrate theoretical rationales justifying the inclusion of various regressors proxying different underlying components. In the third section we describe characteristics of our database, presenting descriptive statistics on delta credit spreads in the three markets for selected industry, rating and maturity breakdowns; moreover, we describe and analyze the various covariates used in the paper. In the fourth section we present our econometric findings

and in the fifth section we comment results from robustness checks on our main empirical findings. The last section concludes.

2. The determinants of credit spreads

Theory on credit spreads relates to two distinct approaches, the structural approach of Merton (1974) and subsequent works[4], and the reduced form approach. The last and more recent path (among the others, Lando, 1998; Duffee, 1999; Duffie, Singleton, 1999; Duffie, Lando, 2001; Collin-Dufresne, Goldstein, 2001) relies on the concept of a default intensity, an affine process that behaves in the simplest formulation as a Poisson process. The default event is unpredictable, not guided by observed economic variables, and modeled along much of the same technical lines of stochastic term structure models.

The structural approach, instead, using the contingent claim analysis (CCA), identifies theoretical determinants of credit spreads; we use this approach as the background of our analysis. The firm structure is the base of bond valuation. With firm value modeled as a geometric Brownian motion, the bond value can be shown to be equal to a risk free bond minus a put option on firm's assets. Consequently, using the CCA, the credit spread is shown to be a function of leverage (or distance to default) and volatility. Among the numerous successive contributions to Merton seminal work, Longstaff and Schwartz (1995) introduce stochastic interest rates in the model.

Most of the variables used in the paper are linked with the structural approach of Merton (1974) and subsequent contributions. Asset volatility and distance to default are proxied for our purposes by equity volatility and volatility skew or smile; this second variable in particular accounts for large negative jumps of equity value. We use interest rate variables because, as discussed in Longstaff and Schwartz (1995), spot rate influences the risk neutral drift of a firm's value.

[4] Among the many, Geske (1977), Black and Cox (1976), Longstaff and Schwartz (1995), Zhou (1997), Collin-Dufresne, Goldstein (2001).

Moreover, we use equity returns because they measure the value of firm asset and indirectly influence the probability of failure; macroeconomic indicators are instead used as business cycle measures. In fact, business cycle can influence expected recovery rates (Collin-Dufresne, Goldstein, Martin, 2001; Duffie and Singleton, 2003), and, even with constant default probability, can have an impact on credit spreads, via the Loss Given Default (LGD).

Other variables, instead, are not linked to the structural approach, but, following the approach of many other papers (among the others, Collin-Dufresne, Goldstein, Martin, 2001), are added to the analysis to control for the presence of omitted factors. In our work, these are default rates and transition matrices, liquidity variables and institutional investors flow data. Default rates and transition matrices are added to check the market reaction to downgrade news and to test the signal of a worsening of aggregate credit risk. Moreover, liquidity has been shown by some studies to be an important determinant of credit spreads (among the others, Driessen, 2005; De Jong and Driessen, 2005; Longstaff et al, 2005). In particular, De Jong and Driessen (2005) show that liquidity risk is a priced factor for the expected returns on corporate bonds. In this respect, we included different market liquidity variables. The last variable is the aggregate buy and sell flow of corporate bonds registered by Lehman Brothers with institutional clients. These data on institutional investors, other than providing an indirect measure of liquidity in the market, can signal to the market additional information.

Even if the structural approach predicts non-linear relationship between variables, most of the literature on this area use linear regression analysis. We follow this approach, using linear regression in our work. Among the others, Collin-Dufresne, Goldstein, Martin (2001) use some of the variables used in this paper as theoretical determinants of corporate bond spreads in a structural approach (Merton, 1974). They use changes in 10-year yield, slope, stock returns, implied volatility, slope of the volatility smile and leverage as explanatory variables. They add other variables, as liquidity variables, SMB and HML factors among the others, to eventually capture other omitted

factors, even if they are not strictly linked with the structural approach. They also perform a simulation to demonstrate that enforcing a linear regression analysis, even if theory predicts a non-linear relationship, does not influence the results. Campbell and Taskler (2003) do a similar linear analysis but using levels instead of changes of bond spreads. Cremers, Driessen, Maenhout, Weinbaum (2005) choose, like the others, linear regressions, focusing on implied volatility. Ericsson et al (2004) use CDS premia, both in levels and differences, with linear regressions. They find that leverage, volatility and interest rates are important determinants of CDS premia, explaining 60% of variability for levels, but only 23% for spread changes.

2.1 Corporate bond spreads and CDS

Some empirical works (among the others, Zhu, 2004) use CDS prices instead of bond prices, because of the supposed more quality embedded in this kind of data. Notwithstanding, one has to be careful using CDS data, if it is not taken into account the basis, i.e. the difference between CDS and corporate bond spreads. The basis can be linked to the presence of covenants in the bonds (Mahanti et al, 2007), and to the delivery option embedded in CDS (Jankowitsch et al, 2006), even over liquidity premium (Cossin, Lu, 2005). Jankowitsch et al (2006) find that, correcting for the delivery option[5], in a reduced form approach, eliminates the mispricing between CDS and corporate bonds, while they find no significant evidence, after the adjustment, for the influence of liquidity proxies. Cossin and Lu (2005) find that the pricing differences between corporate bonds and CDS can be attributed to cheapest-to-deliver option, market segmentation, and a time-dependent liquidity premium. Levin et al (2005) show that market frictions can cause divergence in the basis, and that idiosyncratic causes have the relevant part in explaining the differences.

[5] Subsequent to a default, the protection buyer in a CDS contract has the option to deliver the cheapest of a group of bonds (and even loans) linked to the issuer, receiving from the counterparty the nominal face value. This can be arranged also by simply exchanging money and without giving the securities (cash settlement vs physical settlement), depending on the provisions of the contract. The value of the cheapest-to-deliver option is anyway unaffected.

Moreover, while in the long run the CDS spread should be equal to the corporate bond spread[6], this is not always true. In particular, CDS spreads can reflect also temporary market conditions and frictions in the arbitrage mechanism, given that they are used primarily for hedging purposes, mostly by investment banks. On the other side, corporate bonds are held primarily by final investors, such as institutional investors, and therefore tend to reflect more accurately "fundamental value". Dötz (2007), continuing the study of Blanco et al (2005), shows that, while CDS markets have normally an information input slightly superior to bonds for the price discovery process, the opposite is true during turbulence of markets, when bond markets dominate the process. Mahanti et al (2007), using a measure of "latent liquidity" (defined as the weighted average turnover of funds holding the bond), find that bonds with higher latent liquidity are more expensive relative to their CDS contracts, and also that several firm-level variables related to credit risk[7] affect negatively the basis, implying CDS spreads do not fully capture credit risk in corporate bonds.

Looking at this evidence, one could prefer to use corporate bond data if a reliable database is available; this is particularly true if the object of the analysis is to focus on fundamental relationships between corporate bonds and other variables. Given the high quality of our database, explained in detail in the next paragraph, we therefore choose to focus on corporate bonds spreads.

3. The database

Our dependent variable is represented by *option-adjusted spreads* (OASs), calculated for a set of global corporate (investment grade and high yield) bond indexes provided by Merrill Lynch. We choose option adjusted spreads because many corporate bonds are callable or have call options which allow issuers to repurchase them at convenient time in order to refinance their debt at lower

[6] All things being equal, first of all maturity, and, as mentioned before, taking into account seniority, covenants, etc.
[7] Leverage; tangible assets as a measure of recovery rates; short term interest coverage, measured with the ratio of current assets to current liabilities

interest rates. OASs therefore have the advantage of insulating changes in credit risk from changes in the value of the options attached to corporate bonds.[8]

Our dataset is more extended than most of those traditionally used in the literature and explores for the first time the dynamics of corporate bond indexes in the UK and EU markets[9] in an extensive manner (see Table 1 for details). An additional advantage is that it is provided by an investment bank which provides its information (and its fixed income indexes) to the market. This gives her an incentive for quality and accuracy, which is superior to that of market makers which are not directly index providers.[10] This argument is taken seriously by Collin-Dufresne, Goldstein and Martin (2001) which exclude from their Lehman Brothers sample those bonds which are not part of those directly provided to the market as indexes by Lehman Brothers itself. The same approach to preserve data quality is followed by Elton et al. (2001) and Duffee (1999).

A final advantage of our dataset is that it is composed only of quoted prices and does not include "matrix prices"[11] or matrix interpolation of missing observations with adjoining data, as it occurs in the widely used Lehman Brothers Fixed Income Database used in most empirical analyses (Sarig and Warga, 1989; Collin, Dufresne, Goldstein and Martin, 2001; Elton, Gruber, Agrawal and Mann, 2001). This underlines the reliability of our database.

[8] Computation of OAS is common practice in the marketplace, and it is a standard methodology of insulating the embedded value of eventual call option of the bond. The OAS is not only computed by the investment banks providing indexes to institutional investors, but also by Bloomberg for almost all the bonds in the market. For this reason, the data used in the paper can be thought of as double-checked and are reliable for the analysis. Moreover, the option value is zero for a non-callable bond, and this is the case for the majority of Investment Grade bonds in our sample.

[9] Boss and Scheicher (2002) make one of the first attempt on analysing Euro (but non UK) corporate spreads. They use however only 2 indexes, while our dataset comprehends 118 indexes for the Euro area. Moreover, they have a limited set of explanatory variables.

[10] Corporate bond markets are far more illiquid than government bond markets. Transaction costs on corporates may reach 1 or 2 percent of nominal value in the case of high yield bonds, while they are normally not greater than 0.10-0.15 percent on governments (for long term bonds; they can be much less for short term bonds). These bid-ask spreads are valid for institutions, and for normal market sizes, that can vary from 2-3 millions of euro for high yield bonds, up to 30-50 millions for governments. Of course these numbers are subject to market conditions and can vary depending on the relative liquidity of the specific bond, so that they can be referred to only as indicative costs.

[11] Quoted prices are "quoted" directly by the trader (so, they are *real* prices). Instead, matrix prices are generated as a sort of interpolation of other prices. This is done to eventually give a price to some bonds (the scope can be ranging from pricing a bank's or client's portfolio, or for risk management purposes, when the series have not all the data). This "matrix" problem arises in the Lehman database (also called Warga database), which has been extensively used in the past; to overcome the problem, researchers normally excluded from the database matrix prices.

3.1. Descriptive statistics on OAS

Bond indexes of our database cover three areas: United States (207 indexes), United Kingdom (125 indexes) and the European Union (118 indexes). The observation period goes from January 1997 to November 2003. We therefore dispose of 83 monthly observations for each index. Data availability varies across areas. EU series, in particular, are recorded for a slightly shorter period starting from January 1999.

The US dataset includes 87 investment grade (IG) indexes (from AAA to BBB rating) and 120 high yield (HY) indexes (from BB to C rating). The UK dataset includes 119 investment grade and 6 high yield indexes, while the EU database has 108 investment grade and 10 high yield indexes. Rating classification is available also for macroindustries (Financials, Industrials, and, for the US, Utilities). Maturities are classified according to the following buckets 1-3[12], 3-5, 5-7, 7-10, 10+ years (plus 10-15 and 15+ for the US and the UK only). Maturity indexes are available also for different ratings and for macroindustries.

Industry level classification includes i) Banking, Brokerage, Finance & Investment, and Insurance among Financials; ii) Basic Industry, Capital Goods, Auto Group, Consumer Cyclical, Consumer Non-Cyclical, Energy, Media, Real Estate, Services Cyclical, Services Non-Cyclical, Telecommunications, Technology & Electronics among Industrials.

All indexes are rebalanced in the last day of the month to account for entries, exits or transition of individual bonds to different rating or maturity classes. To avoid that these changes affect our dependent variables, OASs are calculated as differences between the first day of the month (in which the rebalancing has already occurred) and the day before the revision which follows.

[12] Bonds with residual maturity below one year are excluded by Merrill Lynch from the universe of assets considered when building the indexes.

Descriptive statistics for a synthesis of our fixed bond indexes are reported in Table A1 in the Appendix. Indexes are ranked by rating, maturity and industry classifications, the latter available for both IG and HY bonds only for US.[13]

These statistics show that OAS volatility is monotonically increasing in credit risk, while it is quite stable along the maturity curve. The maximum change of the total US IG index is of 45 bps, while it is smaller, and around 20/30 bps, for the UK and the Eurozone. IG industries with the highest delta credit spread volatilities are Auto and Telecommunications in the United States, Capital Goods and Telecom in the UK and Technology & Electronics in the Euro area.

As expected, HY indexes have much higher volatility than IG indexes (the HY B-rating index volatility is twelve times higher than that of the AAA index in the US) with a maximum of monthly changes for the aggregate HY index of 211 bps. The Euro area total HY index is more volatile than both UK and US ones. When we move from the next to last (B) to the last (CCC-C) rating group, volatility almost doubles in the US and UK and gets three times higher in the Euro area. Air Transportation, Insurance and Telecom are the highest volatility HY indexes in the US (up to a maximum monthly change of more than 1200 bps).[14] The presence of the first two sectors among those with highest volatility may be clearly related to the effects of the terrorist attack of September 11 on financial markets.

Skewness, kurtosis and Jarque-Bera tests show that our OAS series are nonnormal and have excess kurtosis exactly as stock return series. First order autocorrelation coefficients and Box-Pierce diagnostics reveal the presence of a certain degree of autocorrelation in these series.

3.2 Interest rate variables

[13] We select for descriptive analysis 87 out of 207, 36 of 125 and 35 out of 118 indexes for US, UK and Eurozone markets respectively. Extended descriptive results for rating group/maturity and the industry/maturity classifications are available upon request.

[14] HY Merrill Lynch indexes do have an industry breakdown in the US, but not in the UK and Eurozone, due to the different development of HY bonds in the three financial markets. Just consider that in the US the HY index includes on average 1270 bonds against 31 and 94 in the UK and in the Eurozone area respectively. Data on US yield sectors are reported in Table A2 in the Appendix.

Interest rate changes are considered among the main determinants of credit spreads. Longstaff and Schwartz (1995), in particular, show that spot rate influences the risk neutral drift of a firm's value.

Empirical literature on term structure stochastic models identifies two components explaining most of the time variability of risk free returns.[15] Ex-post, these components are highly correlated (in decreasing order) with the level of interest rate and the slope of the yield curve[16]. These variables are then natural candidates for being included as regressors in empirical estimates.

The level is generally represented by the return of a 10 or 5-year benchmark or of a government bond index. The slope of the yield curve may be represented by the spread between two different maturities or two representative indexes including all bonds between two different maturities (i.e. 1-3 and 7-10). We will follow both approaches. Individual government bond data are from Bloomberg, while those on government indexes from J.P.Morgan.

Some models include return volatility as an additional explanatory variable to levels or yield curve slopes (see, among others, Longstaff and Schwartz, 1995). We follow this path by using Bloomberg monthly data on the implicit volatility[17] options on bond futures, where the underlying asset of these futures is represented by bonds at the most significant maturities (such as 5, 10 or 30 years in the US, UK, and Germany).[18] As it is well known, implicit volatility is forward looking and expresses better than historical volatility current investors' expectations on the volatility itself. Despite it, since options on bond futures are mainly developed in the US, we collect also historical volatility to compare results on different markets. Historical volatility refers to benchmark government bonds from Bloomberg and J. P. Morgan data. Our variable is the monthly change of the monthly historical and implied volatility calculated on daily prices.

[15] Around 90%, and up to 95% when convexity of the curve is added as a third factor.
[16] Collin-Dufresne, Goldstein, Martin (2001), when considering yield curve slope, argument that it can represent the expected path of future short rates.
[17] Even if treasury bonds returns have been shown in the previous empirical literature not to be strongly correlated with volatility, credit spreads could nonetheless be affected by volatility, and not only of the assets, as suggested by Merton's work (i.e. equity volatility for empirical reasons), but also of the underlying risk free interest rates (bonds volatility). In fact, investors could demand a premium in the markets to hold a corporate bond, that is mainly valued on a spread basis, if the underlying risk free rate is more volatile.
[18] The 10-year Bund is the reference future in the Euro area.

We measure from J.P.Morgan data the implicit volatility of OTC (*over-the-counter*) options such as swap options, which represent the most liquid and widely used hedging instrument in the bond market. The swap rate is a "*refreshed AA credit quality rate*"[19], and therefore is a benchmark rate for the corporate market and its volatility should be fundamental for bond valuation.

Finally, we build with J.P.Morgan data the skewness of options on bond futures, given by the difference in the implicit volatility between "deep out-of-the-money" (deep OTM) and "at-the-money"[20] (ATM) options. The skewness (or *skew*) is a measure of market expectations on the degree of risk of significant and large future changes in interest rates. This is because *the difference between the implicit volatility (and, consequently, the cost) of OTM with respect to that of ATM options gets larger when expectations on larger interest rate movements are formed in the market*. An increase in the "skew" implies higher costs of contingent hedging against significant interest rate changes[21]. We compute the variable by using implicit volatility for OTM call options on bond futures with one, two, three and four strikes out-of-the-money[22]. The skew is the difference in basis points between OTM and ATM call options.

A final variable considered in the analysis is the implicit volatility of options at long maturities (or vega). The normal maturity for options on interest rates (one up to six months) implies a higher influence of the underlying asset on the option value. With maturities from 5 up to 15 years, exchanged in the swaptions market, changes in the value of the underlying asset have a relatively lower impact while much higher is the effect of changes in absolute volatility. This kind of options is in fact mainly used to hedge on future expected interest rate volatility. Our variable is

[19] The credit risk difference between an AA corporate bond and a generic swap rate (which is an AA by definition, being based on the Libor rate) depends on the fact that the latter has no downgrade risk, since we assume that the rating is constant in any *resetting*. The parallel with a corporate index is clear: corporate indexes, when defined according to the rating grade, have a "*refreshed credit quality*". Consider though that an individual bond rating may vary before rebalancing given that the bond will be excluded from the index only at the end of the month.

[20] In swaptions "moneyness" is clearly evaluated on swap forward rates. Hence, an at-the-money option is an option defined on the at-the-money forward rate with maturity equal to the option maturity.

[21] We used call options on futures, in order to capture the risk of future decrements in interest rates. From a corporate perspective, the risk can be thought of as having launched bonds (and paying interest) in the market at higher rates than those prevailing in the future path.

[22] The change in basis points is different according to the future and the underlying bond maturity. The change in basis points for a point (or strike) change will be larger for a bond with longer duration.

the J.P.Morgan implicit volatility of swaptions on 5-year forward interest rates with 5-year maturity (5-year 5-year forward), and on 15-year forward interest rates with 15-year maturity (15-year 15-year forward).

3.3 Stock market variables

The effect of stock market variables on credit spreads is predicted by structural models (Merton, 1974) which illustrate how positive stock returns increase the value of firm asset and reduce the probability of failure. The same structural models predict the positive effect of firm asset volatility on credit spread.

We proxy this variable with historical volatility of stock market indexes and with implicit volatility of options on the main stock market indexes. Moreover, we also include among potential regressors the skew of implicit volatilities (the difference between implicit volatilities of OTM and ATM put options). The rationale is that an increase in this specific skew measure implies an increase in the perception of risk ("jump risk") generated by large *negative* movements of stock prices (Collin-Dufresne, Goldstein, Martin, 2001). Given that a corporate bond is equivalent to a risk free bond minus the value of a put option on firm asset (Merton, 1974), the skew is expected to be positively correlated with credit spreads [23]. We calculate the skew as: $skew = \sigma(strike) - \sigma(ATM)$ where σ is the implicit volatility and the OTM option strike is 20 percent below the ATM option strike[24]. We calculate the skew for the most liquid maturities and try alternatively the one month and three month ones. As additional relevant stock market variable we include the orthogonal risk factor SMB built by Fama and French (1995) as a proxy of specific

[23] Since the put option is on the index and not on the individual stock, the observed empirical relationship may be weaker than the theoretical one. The same reasoning goes for stock index returns or for its implied volatility. Listed options are always defined on more liquid and representative large capitalisation indexes (such as the Standard & Poor's 100), while corporate bond indexes have generally higher coverage of the universe of bonds traded in the market. This is another factor which inevitably weakens the links between theoretical framework and empirical analysis. Cremers et al. (2004), in this perspect, using implied volatility levels and the volatility skew starting from individual stock option data, find that aggregate (stock index) implied vol and skew has less economic impact than individual data.

[24] We also tried to use a strike price 5 percent or 10 percent below the ATM strike. We finally decided to use 20 percent level both because it better measures *jump risk*, and because we did not want collinearity problems with simple ATM implied volatility, that was used as a regressor.

small size risk. Given that this variable is constructed as a differential in stock performance of small vs large firms, it can therefore be linked to a spread reduction in corporate bonds (and so, to a positive return), in the same manner as the SMB factor in the Fama-French approach is connected to an increase in stock returns[25].

3.4 Macroeconomic indicators

Since credit spreads measure excess risk of corporate with respect to government bonds they are obviously expected to be negatively correlated with the business cycle (see, among others, Van Horne, 2001; Duffie and Singleton, 2003). Business cycle can influence expected recovery rates (Collin-Dufresne, Goldstein, Martin, 2001; Duffie and Singleton, 2003), and, even with constant default probability, can have an impact on credit spreads.

To evaluate this effect we use Conference Board leading, coincident and lagging indicators. The leading indicator is the weighted average of 10 indexes;[26] the coincident indicator is an average of 4 indexes[27] and measures the current state of the economy, while the lagging indicator is an average of 7 indexes.[28] Even though these indicators have some of the components included in our estimates as individual variables, they are weakly correlated with such components and have a different meaning. We therefore include them in our analysis.[29]

For the UK area we use leading and coincident Conference Board indicators. As in the US these indicators are averages of (respectively 9 and 4) individual components.[30]

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[25] In a parallel way, we also constructed the HML factor of Fama and French (1995), based on market to book ratio. Both SMB and HML factors are constructed with the relevant stock market index constituents, different for the three areas.

[26] The "leading" indicator is a weighted average of: Average Work Week, Jobless Claims, Consumer Orders, Stock Prices, Vendor Performance, Capital Orders, Building Permits, Consumer Expectations, Money Supply, Interest Rates.

[27] The "coincident" indicator is a weighted average of: Nonfarm Payroll, Personal Income, Industrial Production, Trade Sales.

[28] The "lagging" indicator is a weighted average of: Average Duration, Inventory/Sales ratio, Labor Cost per Unit ratio, Prime Rate, Loans, Credit/Income ratio, CPI of Services.

[29] The same approach is followed by Huang and Kong (2003).

[30] The UK "leading" indicator is a weighted average of: Order Book, Output Volume, Consumer Confidence, House Starts, Interest Index, FTSE Index, New Orders, Productivity, Corporate Op. Surplus. The UK "coincident" indicator is a weighted average of: Employment Index, Industrial Production, Retail Sales, Household Disposable Income.

For the Euro area we use the Handesblatt leading indicator,[31] the"Economic Sentiment Indicator" (ESI) and the "business climate indicator" of the European Commission[32].

3.5 Default rates and transition matrices

Default rates and information on downgrades/upgrades operated by rating agencies are another group of variables which may significantly affect OASs. From a theoretical point of view, the event of bankrupcty of a given firm may affect credit spread indexes, if the event is not anticipated by the market and is interpreted as a signal of a worsening of aggregate credit risk. In this perspective failures of a company in a given industry should affect more credit spread indexes of the same industry and a downgrade of a large representative firm may have stronger impact than that of small firms. Default rates and downgrades are generally anticyclical (see, among others, Duffie and Singleton, 2003).

To test the effect of these variables we use Moody's default rates, divided for IG and HY in the US, UK and Europe rating transition matrices[33] for different areas, on a monthly basis. Default rates represent the share of firms (IG or HY in the US, UK or Eurozone) who went default among those observed by Moody's. Transition matrices indicate the frequencies of firms falling into different rating classes in a given period, given the rating class of the beginning of the period.

We exploit the unique advantage of having these data on a monthly basis to build a monthly downgrade ratio calculated as: $down = \frac{downgrades}{all}$ where the denominator is represented by the relevant group of corporations observed by Moody's in a given geographical area or aggregate asset class. We therefore have three indicators for any areas (IG, HY and total).

[31] The leading indicator is built using Handesblatt information and is a weighted average of: Industrial Confidence, Consumer Confidence, Industrial Production, Monetary Aggregates, Harmonized Inflation, Curve.

[32] The Economic Sentiment Indicator is a weighted average of: Industrial Confidence, Consumer Confidence, Construction Confidence, Retail Trade Confidence. The Service Confidence, an indicator as well of the European Commission, is not part of the ESI.

[33] This matrix is generally called *transition probability matrix*. *Strictu sensu* the definition is not correct since we have historical transition frequences and not ex ante transition probabilities.

3.6 Liquidity variables

Liquidity effects are expected to be higly relevant on credit risk changes in a typically illiquid OTC market such as that of corporate bonds (Driessen, 2005; De Jong and Driessen, 2005; Longstaff et al, 2005)). In particular, De Jong and Driessen (2005) show that liquidity risk is a priced factor for the expected returns on corporate bonds. Bid-offer spreads would represent the exact measure of transaction costs, but this variable is not available, not only for academic research, but also in investment banks databases, such as those of Lehman Brothers and Merrill Lynch, which conventionally quote bond bid prices in their indexes.

A typical proxy which can be used is government bond bid-offer spreads, and, possibly, those of the more illiquid non – benchmark government bonds.

Furthermore, it is well known that, in presence of an increased perception of market risk, "*flight-to-quality*" effects may increase the spread between benchmark or "*on-the-run*" and "*off-the-run*" (or ex benchmark) government bonds.[34]. We therefore build series of these spreads for the US, the UK and Germany[35] on 10 to 30 year maturities.[36]

Another liquidity indicator, typically considered in the literature, is the swap spread, or the spread between government bond and the swap rate; the assumption is that a reduced liquidity in the swap market necessarily implies a parallel and amplified effect in the corporate bond market (Collin et al. 2001). In reality, the swap market has become increasingly more liquid so that changes in the swap spread are unlikely to measure significant liquidity effects. Moreover, the swap spread is a measure of the excess return of a generic AA financial corporate bond over the government bond. This is because it is built on the Libor rate, which is generally applied to an AA grade (banking sector) issuer. Since the index is *resetted* every half year or every year, it can be viewed as a

[34] Benchmark ("*on-the-run*") bonds typically have a longer time to maturity and, consequently, a higher theoretical yield to maturity than "*off-the-run*" bonds. With flight to quality the yield curve may invert (in that point), with a *liquidity premium* which justifies, for the "*on-the-run*" bond, a *yield to maturity* lower than that of the "*off-the-run*" bond.

[35] As already mentioned before, German bonds are generally taken as a reference from investors for the Euro area.

[36] Consider that liquidity and change in the perception of risk may coincide, as higher perception of risk generates flight to quality effects which induce investors to move from less liquid to more liquid bonds.

"*refreshed credit quality*" yield, and therefore as intrinsically less risky than an AA corporate bond which may suffer from a deterioration of credit quality in time. Hence, the swap spread is a downward biased proxy of the risk differential between a high grade corporate bond and a government bond. To analyse this effect we collect from Bloomberg swap spread monthly changes in basis points for 5, 10 and 30 year maturities in the US, UK, and in the Euro area.[37]

3.7 The role of institutional investors

The last proxy of liquidity considered is represented by buy and sell flows on corporate bonds recorded by Lehman Brothers from 1998. These data measure quantities (in billions of dollars) on monthly basis of purchases and sales made by institutional investors with Lehman Brothers. Even though the variable refers only to the US market, and only to volumes intermediated by Lehman Brothers as market maker, it represents a significant share of total volumes given the investment bank's leadership in the fixed income market.

Martell (2003) uses as a regressor inflow data in equity and bond funds as measured by ICI (Investor Company Institute). Neverthless, inflows are not actual institutional investors trading data, and do not benefit from the distinction between buy and sell sign[38], and between investment grade and high yield corporate bonds flows. His focus is anyway different, relying on the analysis of US dollar denominated bonds, both corporates and foreign sovereign, trying to find links and common factors between the two different markets, whereas our study is on US, UK and Euro (IG and HY) corporate debt markets.

We introduce this variable to test whether institutional investors with their sales/purchases signal to the market additional information, not incorporated in other regressors such as stock

[37] The swap spread for the Eurozone is built by using German government bonds.

[38] Inflows can turn or not in actual buying, depending on the asset manager's view. Moreover, leaving aside equity fund inflows, that are not very in line with the analysis, inflows in generic bond mutual funds, without distinction in corporate/sovereign, or IG/HY, are not very informative. Instead, actual transaction data, with the distinction in IG/HY corporate bond flows, can be thought of as a variable much closer to the supply/demand shocks that great part of the literature identifies as an important factor, starting from Collin-Dufresne P., Goldstein R., Martin S. (2001).

performance or in business cycle indicators; in particular, an increase in purchases (sells) could be a signal of reduced (increased) perception of risk, and therefore have negative (positive) impact on the spreads.

4 Empirical findings on separate estimates

In the previous section we provided rationales for the inclusion of all the variables described in the estimates. The number of these variables, though, is too high and some of them proxy for the same underlying factors. Hence, the joint inclusion of all of them in the estimates may create serious problems of multicollinearity. We therefore decide to divide the empirical analysis in two steps.

In order to evaluate the significance of different variables we perform separate estimates for each subgroup of variables as a first step using as a dependent variable corporate bond indexes of different subgroups classified by rating, maturity and industry. In Table 1B we report synthetically the number of times (in percent) the variable is significant in these estimates. In a second step we perform an estimate with a selected group of indicators which have been shown to be significant at least 20 percent of times in the separate estimates. We select as regressors: among interest rate variables, the 5 years yield and the spread between US and UK (or Euro) bond yields[39]; among stock market variables, the return on the relevant index, the implied volatility on the index, and the SMB factor[40]; among the business cycle indicators, the US leading indicator[41]; among the liquidity indicators, the swap spread[42]. We also use for US estimates the institutional investors data[43].

[39] We find equivalent results using J.P. Morgan bond index returns and bond yield variation, and we therefore choose to use the latter. Moreover, we find yield curve, and both implied (including skew and vega) and historical yield volatility not very powerful in explaining credit spread changes.
[40] We instead exclude HML factor and skew.
[41] The US Leading Indicator proves to be much more reliable even for UK and the Euro area, respect to "local" indicators, showing the linkage of credit spreads to the US economy.
[42] The spread between on-the-run and off-the-run government bonds is significant in UK and in the Euro area, but not in the US; given it has a very small coefficient, however, we exclude it from the regressor set. We also exclude bid-ask spread variations.

We finally check the robustness of our results repeating the estimates for different subsample splits, performing structural break tests, and with higher (weekly) data frequency. We also use Principal Component Analysis in order to check the validity of our choices over the available variables.

Given the autocorrelation and nonnormality of OAS evidenced by descriptive statistics presented in the Appendix we use heteroskedasticity and autocorrelation robust Newey-West (1987) standard errors. The optimal selection of the truncation lag is achieved by following the automatic selection approach followed by Newey and West (1994).

4.1 Empirical findings on the final selected specification for the US area

In this section we outline an empirical specification in which a selected number of the described regressors is included. Following Huang and Kong (2003), we select them from a larger set to perform a parsimonious estimate.

The chosen specification for US delta credit spread is the following:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 (russ2)_t + \beta_3 \Delta(riv)_t + \beta_4 (smb)_t + \\ &+ \beta_5 \Delta(lead)_t + \beta_6 \Delta(swsp5)_t + \beta_7 \Delta(hy_b)_t + \beta_8 \Delta(hy_s)_t + \varepsilon_t \end{aligned} \tag{1.1}$$

where *DCS* (Delta Credit Spread) is the change of the option adjusted credit spread, *5y* is the 5-year Treasury bond yield, *russ2* is the return of the Russel 2000, *riv* is the implicit volatility of the options on the Russell 2000, *smb* is the Fama-French Small-minus-Big factor, *lead* is the Leading Indicator del Conference Board, *swsp5* is the spread between swap and yield of 5-year government bond, *hy_b* (*hy_s*) are total HY US bond purchases (sales) of Lehman Brothers professional investors. [44]

[43] We exclude instead the downgrade and the default ratios. They are significant only in the Euro area, but from inspection of the data this result comes from a unique default not expected in the market (Ahold, October 2002). This result confirns the fact that credit spreads on average are sensitive only to unexpected and relevant credit events.

[44] We also add in a robustness check lagged values of the regressors in our specification and find that results are robust to their inclusion, being not statistically significant.

Our results, presented in Table 2A, show that this set of regressors explains a significant part of credit spread variability. The adjusted R^2 ranges from 52.33% for the overall IG index to the 56.89% for the HY index. The index with the highest R^2 is the 5-7 years High Yield (61.67%). All of the selected variables maintain significant explanatory power when jointly considered. The change in the interest rate level (5y) is statistically significant for almost all indexes. An increase in the yield of the 5-year Treasury bond of 10 basis points generates a reduction of the spreads of 1 bp (8 bps) for the aggregate Investment Grade (High Yield) index, consistently with our previous estimates in which only interest rate variables were included. Telecommunications and Auto are the industry indexes that are more sensitive to this variable.

Stock returns (*russ2*) are statistically significant along the rating curve, with the exception of the AAA and AA corporates. This result confirms that riskier bonds are more dependent from stock returns. For a 10% positive return of the Russell 2000, we observe a reduction of the spreads ranging from 3 bps for the A rating index to 24 bps for the B rating, up to 42 for the CCC-C rating index. Among macroindustries the coefficient is the highest for industrials, and, among single industries, for cyclical industries such as Auto, Telecom and Tech industries. As expected, coefficient magnitude is higher for Consumer Cyclicals and Services Cyclicals with respect to the corresponding non cyclicals (Consumer Non-Cyclicals, Services Non-Cyclicals).

Stock market implicit volatility (*riv*) has a stronger impact on riskier bond indexes, confirming their relatively higher dependence from expectations on stock market variability. T-stats are significant for BBB and CCC-C indexes. Coefficient magnitudes show that a one percent increase of the implicit volatility widens spreads of almost one basis point for the BBB index and up to 6 bps for the CCC-C index. The most sensitive macroindustry (industry) is Industrials (Telecom). The High Yield telecom bond index exhibits[45] the highest reaction to the same one percent change of the implicit volatility, with an increase in the spread of almost 10 bps. The Small-minus-Big risk factor has significant effects, which are increasing along the rating curve, up to a maximum of a 10 bps

[45] Results for US high yield sectors are reported in Table A2 in the Appendix.

reduction of the credit spread for a one percent variation of the regressor. The variable is significant also for industry specific indexes, with the exception of Banking and Telecommunication.[46]

The Conference Board Leading Indicator (lead) becomes weakly significant in presence of all other regressors. We must consider, though, that it is a composite indicator of different variables, some of them present in the estimates. As expected, its impact is higher on cyclical than on non cyclical industries, as it is possible to observe directly in the comparison between its effect on Consumer Cyclicals (78 bps) and Consumer Non-Cyclicals (39 bps).

The change of swap spreads (*swsp5*) is statistically significant with an effect which is inversely related to the rating curve. A 10 bps increase of swap spreads generates an increase in the dependent variable ranging from 2 bps of the AAA index, to 8 bps of the BB, up to 26 bps of the CCC-C index. The impact of a change of the same magnitude in the regressor is quite stable across IG industries, with a widening of the credit spread of around 3-4 bps on Financials, Industrials and Utilities.

Regressors measuring purchases and sales of High Yield bonds from institutional investors are highly significant. A flow of 100 million dollar[47] purchase (sale) generates a reduction (increase) of credit spreads of around 2 bps on the aggregate IG index. Telecommunications is the most sensitive industry with an effect of around 5 bps. This result confirms that institutional investors trades signal to the market information not already captured by other controls included in the estimates (expectations on future volatility, stock market performance including expectations on future earnings, etc.).

Results from US regression show that regressors explain a significant part of credit spread variability. The main determinants are interest rate changes, stock returns and volatility, SMB factor, swap spreads and flows of institutional investors. In particular, results confirm the expected exposure of HY bonds to stock variables (returns, implied volatility, SMB factor). Moreover, while

[46] An interpretation of this result is that these two indexes are composed by larger companies and therefore are less subject to small size risk.
[47] Data on buy or sell flows (Table 2A) are measured in billions of dollars.

Industrial bonds seem very much exposed to stock market factors, the same cannot be said for Financial and Utility bonds.

4.2 Empirical findings on the final selected specification for the UK area

For the UK area we choose the following specification:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 \Delta(sp5y)_t + \beta_3 (ftse_all)_t + \beta_4 \Delta(ftse_iv)_t + \\ &+ \beta_5 (smb)_t + \beta_6 \Delta(lead_us)_t + \beta_7 \Delta(swsp10)_t + \varepsilon_t \end{aligned} \quad (1.2)$$

where *5y* is the 5-year UK Treasury yield, *sp_5y* is the spread between the 5-year US and UK government bond, *ftse_all* is the return of the Ftse All Share index, *ftse_iv* is the implicit volatility of options on the Ftse 100, *smb* is the Fama-French Small-minus-Big factor, *lead_us* is the Leading Indicator of the US Conference Board, *swsp10* is the spread between the swap rate and the 10-year government bond yield[48].

Our results, presented in Table 2B, show that goodness of fit is lower than in the US estimate. R^2 are around 40% and 44%, respectively, for the aggregate Investment Grade and High Yield indexes. The highest R^2 is 49% for the IG 5-7 year index. Differently from the US specification, not all the selected variables, which were highly significant in the specific estimates, maintain their significance when jointly included in the regression. Interest rate variables, such as the 5-year level and the spread with the US Treasury bond, are sheldom significant. The Footsie stock return is significant for the aggregate HY index, but not for the aggregate IG index[49]. In the first case a 10% positive stock return generates a reduction of the High Yield credit spread of 60 bps. The implicit volatility is also not significant, with the exception of the HY BB index, where an increase of 1 percent in the variable generates a 2.5 bps increase in the spreads. The SMB factor is strongly significant for some indexes and weakly significant for others. The stronger impact is on the B

[48] The 10-year replaces the 5-year swap spread in the UK area for lack of data.
[49] The CCC-C index makes an exception with non significant regressors (except for the Leading Indicator) and a very low R-square. Consider though that the index is made of only 4 bonds on average and is therefore highly illiquid and hardly representative. As a comparison, the corresponding US index is made by 208 bonds.

index, where an increase of 1 percent in the variable generates a 6.5 bps increase in the spreads. The US Leading indicator, a proxy of the impact of US business cycle on the UK market, has strong impact on Industrials, and, within industrials, on Capital Goods, where a change of one point in the indicator generates a reduction of the OAS of 8 bps. Its impact is also decreasing in the quality of credit rating. Changes in the swap spreads are significant for IG indexes, but not for HY indexes. Their impact is quite stable across different ratings and macroindustries (.5 bp increase in the spread for a positive change of 1 bp).

Results from UK regression show that regressors explain a good part of credit spread changes, but in a lower manner that in the US. The main finding, analysing this area, is the impact of the US business cycle, proxied by the Leading indicator, on UK credit spreads.

4.3 Empirical findings on the final selected specification for the Euro area

For the Euro area we choose the following specification:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 \Delta(sp5y)_t + \beta_3 (eustox)_t + \beta_4 \Delta(dax_iv)_t + \\ &+ \beta_5 (smb)_t + \beta_6 \Delta(lead_us)_t + \beta_7 \Delta(swsp5)_t + \varepsilon_t \end{aligned} \qquad (1.3)$$

where *5y* is the yield on the 5-year German government bond, *sp_5y* the spread between the 5-year US and German government bond, *eustox* is the return of the Eurostoxx index, *dax_iv* is the implicit volatility of the options on Dax, *smb* is the Fama-French Small-minus-Big factor, *lead_us* is the Leading Indicator of the US Conference Board, *swsp5* is the spread between the swap rate and the 5-year German government bond yield.

Empirical findings are reported on Table 2C. R^2 varies according to the selected dependent variable ranging from 50.62% for the aggregate IG index, to 40.64% for the aggregate HY and reaching its peak (61.76%) for the HY BB index. The change of government bond yields is significant only in a few cases, while the spread with US Treasury bonds has higher explanatory

power for IG indexes. Its highest impact is on Industrials where a rise of the US-German spread of 10 bps generates a 1.5 bps increase in credit spreads of. Among individual industries, the most sensitive to this variable are cyclical ones such as Auto, Consumer Cyclicals, and Services Cyclicals. Stock market variables are significant for HY, but not for IG indexes. A 10% positive stock return of the Eurostoxx index generates a credit spread reduction of around 6 bps for the BB index and of 16 bps for the CCC-C index. An increase of one percent in the implicit volatility on Dax (*daxiv*) generates a widening of credit spreads of 3 bps for the BB index and of around 10 bps for the CCC-C index. On the other hand, a positive one percent change of the Small-minus-Big factor generates a reduction of credit spreads of the HY index of around 11 bps. The US Conference Board Leading Indicator (*lead us*) has significant effects on Investment Grade indexes. The effect of an increase of one point in the indicator is decreasing in the quality of credit rating, ranging from 1 bp for the AAA to around 20 bps for the BBB. The impact on macroindustries is higher on Industrials (around 10 bps) and, as expected, lower on Financials (2.5 bps) and Utilities (2 bps). Telecommunications and Technology & Electronics are the industries which are most sensitive to this variable (respectively 17 and 16 bps). The swap spread is significant for IG corporate indexes up to the A rating. The impact is almost constant along the yield and rating curve, and across macroindustries.

Results from EMU regression show that also in this area our variables do a good job in explaining credit spread variability. The significance of the estimates is closer to the US results, in this sense, and all the main determinants are confirmed. Moreover, it is worth noting the influence that US economy has on the Euro area, proxied by the interest rate spread between the two economic areas, and the US Leading indicator.

4.4 Comparisons of our findings across the three markets and with the recent literature

For a more direct comparison of results across macroareas we restimate the model (Tables 3A-3B) for the same time interval starting from January 1999 which is the first date in which information on Eurozone markets is available. Limits in this comparison are that indexes in

different macroareas have not the same degree of representativeness[50] and regressors are obviously not exactly correspondent with each other (i.e. stock indexes may have different scope and coverage).

A comparative inspection of estimates shows that goodness of fit is higher in the US than in the UK area. The result may be affected by the difference in representativeness between the two indexes.

The effect of a change in the level of interest rates (and spread against US for UK and Eurozone area) of 10 bps generates a change in credit spreads of around 1 bp for IG indexes, and around 7 and 8 bps for High Yield US and Eurozone indexes. The effect is not statistically significant in the UK area. An interesting and comparable result is the effects of stock returns. A ten percent change in the stock index is significant on IG indexes only in the US, where it generates a reduction of the spreads of around 4 bps[51]. The interesting point is that *the effect of stock returns on HY indexes is significant in any of the three areas but the magnitude is widely diversified* (22 bps in the US, 45 bps in the UK and 73 bps in the Eurozone area). We argue that this finding cannot be solely explained in terms of heterogeneity in variables measured across different markets since the comparisons of other effects such as that of implicit volatility on stock index options on HY indexes are substantially equivalent in the three areas. Hence, differences in bankruptcy codes may matter. In this respect the higher OAS reaction in the Eurozone vis-à-vis the UK appears fully consistent with recent findings of Davydenko and Franks (2008) who compare bankruptcy codes in the UK, Germany and France. The authors find that creditor rights and recovery rates in bankruptcy are highest in the UK, lowest in France and intermediate in Germany. This depends, among other things, from the fact that in France creditor's approval is not required in reorganization plans and state and employees claims come before those of creditors. The above mentioned ranking of countries is consistent with La Porta et al.'s (1998) scores for creditors' rights and not in contrast with our

[50] Index representativeness is highly heterogeneous across different markets. The IG index includes 3789, 1159 and 478 bonds respectively in the US, Eurozone and UK area. The equivalent numbers for the HY index are 1270, 94 and 31.
[51] UK and Eurozone estimates have coefficients of the same magnitude but t-stats are not significant.

findings. Furthermore, the fact that the magnitude of the stock returns on the US HY index is even smaller than in the UK is, in turn consistent with the fact that *"reorganisation systems like Chapter 11 may "act as a safe haven for distressed firms during adverse macroeconomic conditions, enabling some of them to recover and perhaps be acquired, thus attenuating the impact of macroeconomic instability on bankruptcy hazard*" (Bhattachaje et al. 2004). To sum up, financial distress is less likely to lead to bankruptcy in the US, while, when it leads to it UK legislation backs bondholders' interests more than what happens in Germany and France. A one percent increase in the implicit volatility enlarges BB indexes credit spreads of 2.7, 2.5 and 3 basis points in the US, UK and Eurozone areas respectively.[52] Cremers et al. (2004) use implied volatility levels and the volatility skew starting from individual stock option data, in order to check the importance of volatility and jump risk on corporate spreads. In a comparation with CGM (2001) results, they find that aggregate (stock index) implied vol and skew has less economic impact than individual data. Our results confirm that general stock market volatility has a limited (but still significant) effect on credit spreads. On the other hand, jump risk (i.e. the risk of jumping to default or near-default), measured by volatility skew, is a variable that, by definition, is more linked to individual issuer than to general market. It is not so unreasonable, so, that our estimates did not find a significant relationship between volatility skew and index credit spreads.

A one percent change in the SMB factor reduces the BBB index credit spread of 1.7 bps in the US, and 1.3 in the UK[53]. The effect of the US Leading Indicator (the same variable for all markets) is also comparable in all areas generating a reduction of credit spreads with an increasing effect along the credit curve of IG indexes confirming the sensitivity of UK and Eurozone financial markets to the US business cycle. Swap spreads (on the 5-year maturity for the US and Eurozone, and on the 10-year maturity for the UK[54]) have a comparable effect in the three areas. A 10 bps

[52] Implicit volatility is significant also for IG US indexes, where a one percent increase widens spreads of 0.5 bps.
[53] It is significant for the HY Eurozone index with a coefficient of 11 bps.
[54] The 10-year replaces the 5-year swap spread in the UK area for lack of data.

increase in the swap spread generates a widening of credit spreads of around 4 bps in the three markets.

Comparing our results with those in the recent literature, we can highlight some more points. Boss and Scheicher (2002) use 2 Euro indexes, Industrial and Financial, with 3 years of weekly data[55], and swap data. Their finding is that mainly interest rate variables explain spread changes, and, in a lesser extent, stock market variables. Their analysis does not have the distinction between IG and HY, or by sector or rating. Moreover, they have a far limited set of explanatory variables (for example, they miss institutional investors data and implied volatility data). This paucity of data (especially the lack of HY data) can be one of reason of not having stock market variables as strongly significant factors in their regressions in the Euro area[56].

Avramov, Jostova and Philipov (2005) analyse US corporate bonds, using aggregate and firm level variables as regressors. Their data set include IG, HY and unrated firms, classified by spreads. They find that individual volatility and price-to-book ratio play a role in explaining credit spreads of corporate bonds, especially for low rated firms; moreover, Fed monetary policy is significant only for high grade bonds. Their analysis, however, is limited to US bonds, does not have a distinction by sectors, and, importantly, do not consider embedded options in the bonds[57]. Our analysis is, instead, based on indexes. This approach on one hand excludes the use of some variables, as firm level variables such stock or volatility, causing the expected explained variation to decrease; on the other hand, however, can be important to disentangle some important relationship regarding "clusters" as credit ratings and sectors, among others. Lastly, using credit indexes has the important consequence that every month, with the rebalancing, every index has a "constant quality" in terms

[55] Noteworthy, using weekly data they introduce in this way a change of month bias (composition of indexes changes at the end of every month).

[56] They do not analyze any direct relationship between Euro and US markets, but they only statically compare their results with an estimate on a US industrial credit index, not checking if US data can be a significant factor for Euro markets.

[57] Our dataset is based on option adjusted spreads that take into account the presence of options (typically call options) in the bonds. Option value, as the right for the issuer to call the bonds, change over time, both when there is change of monetary policy (via interest rate level) and when the firm's credit worthiness improves, with consequent credit spread reduction. Not taking into account optionality can result in a distortion of results. Moreover, classifying by spread unrated bonds, especially when there are embedded options, can be much more problematic for the analysis.

of rating and maturity. In this way, we can limit the "rolldown" effect for the maturity (credit spreads tend to reduce as maturity approaches), and rating migration for the dependent variables; both these effects could introduce some bias in the analysis. Moreover, our dataset include some variables, as institutional investors flows, that do play a role in explaining corporate spreads.

Ericsson et al (2004), using CDS premia, find that leverage, volatility and interest rates are important determinants of CDS premia, but they can explain only 23% of variability for spread changes. This could be partly attributed to their database, that is non-syncronous.

Finally, the analysis outlines a result (completely) new to empirical literature on comporate spreads, i.e. the presence of common determinants of credit spread changes between US and Euro zone. Regarding interest rates, european long term yields tend to covariate with US bonds; using the spread between the two areas as a regressor, we insulated the effect in the analysis. Even if ECB did not change rates in this period, interest rate term structure is a function, between other things, of expected growth and inflation, and US cycle seems to have a great impact on the Euro zone. This is confirmed, on the other hand, by the results regarding US leading indicators, which are shown to exhert an important influence on european credit spreads.

5. Robustness check

We perform some robustness checks on our results: i) Chow tests to control for structural breaks; ii) reestimation of the model with higher frequency data; iii) inclusion of lagged variables; iv) Principal Component Analysis.

We first divide the sample in each of the three areas into two subperiods[58] and perform a Chow test to check for structural stability of the model.[59] The absence of structural breaks is rejected at the five percent significance level for 6 indexes in the US estimates[60], (US Corp AAA

[58] Subperiod estimates are omitted for reasons of space and are available from the authors upon request.

[59] We use sample halves as breakpoints in each geographical market. Consequently, the last month of the first subsample is May 2000 for the US, November 2000 for the UK and June 2000 for the Eurozone.

[60] Huang and Kong (2003) reject the null of no structural break for two (AA-AAA 15+ Yrs) out of nine considered indexes.

15+ Yrs, U.S Industrial Corp AAA, US HY Containers, US HY Restaurants, US HY Textiles/Apparel, HY US B 10+ Yrs) for one index in the Eurozone estimates (European Currency High Yield BB Rated) and for no indexes in the UK estimates.

Given the high number of indexes considered[61] the number of cases in which the null is rejected is extremely low: less than 3% in the US, 1% for the Eurozone area and nil for the UK. This result emphasizes the substantial stability of parameters in our estimates.

We perform the second robustness chek by repeating our estimate on higher frequency series (weekly instead of monthly data). We calculated weekly changes using Wednesday data in order to avoid end of week distortions generated by low volumes or insufficient liquidity.[62]

The choice of using higher frequency data has some costs. The first is that, in a limited number of cases, the change is not measured by an index with the same constituents. This is the case when two adjoining Wednesdays belong to two different months.

The other problem is the loss of all those regressors which cannot be measured on weekly basis. We therefore cannot use the Conference Board indicator, the Fama and French risk factor, and volumes of HY sales or purchases from institutional investors. For this reason, we reintroduce in our estimates also other regressors which we did not considered in our final estimates. These are the slope of the yield curve and interest rate volatility. Furthermore, we do not have implicit volatility of options on the Russell 2000, on the Bund future and on the Gilt. We replace them respectively with the implicit volatility of the options on the Standard & Poor's 100, and with swap options on 10-year euro and sterling.

The final specification of the determinant of OAS on weekly basis on the US is:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 \Delta(2_10)_t + \beta_3 \Delta(ty1)_t + \beta_4 (russ2)_t + \\ &+ \beta_5 \Delta(sp100iv)_t + \beta_6 \Delta(swsp5)_t + \varepsilon_t \end{aligned} \tag{1.4}$$

[61] 207 US, 125 UK and 118 EU indexes.
[62] When wednesday is an holiday we measure the change by using thursday data.

where *5y* is the 5-year Treasury yield, *2_10* is the spread between 10 and 2-year Treasury yield, *ty1* is the implicit volatility (in basis points) of the options on the 10-year Treasury bond future, *russ2* is the return of the Russell 2000, *sp100iv* is the implicit volatility of the options on the Standard & Poor's 100, *swsp5* is the spread between the swap rate and the 5-year government bond yield. Estimates results (Table 4A) show that R^2 are smaller and some t-stat less significant (with respect to monthly frequency estimates) as expected given the loss of important regressors[63] and, presumably, the use of OAS changes across the end of month rebalancing of indexes. Nonetheless, our R^2s range from 24 percent of the total IG index, to 44 percent of the total HY index. The highest value is 50 percent for the HY 5-7 Yrs index. Interest rate levels, stock returns, swap spread, and implicit volatility on rates for HY bonds are all significant and their coefficient are of magnitudes comparable with those obtained in monthly estimates[64], confirming robustness of our estimates to changes in frequency.

The specification of the determinant of OASs in the UK market on weekly data is:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 \Delta(sp5y)_t + \beta_3 \Delta(2_10)_t + \beta_4 \Delta(swo10)_t + \\ &+ \beta_5 (ftsesm)_t + \beta_6 \Delta(ftseiv)_t + \beta_7 \Delta(swsp10)_t + \varepsilon_t \end{aligned} \qquad (1.5)$$

where *5y* is the 5-year UK Treasury yield, *sp_5y* is the spread between the 5-year US and UK government bond, *2_10* is the spread between 10 and 2-year UK Treasury yield, *swo10* is the implicit volatility of swap options on the 10-year rate, *ftse_sm* is the return of the Ftse Small Cap index, *ftse_iv* is the implicit volatility of the options on Ftse 100, *swsp10* is the spread between the swap rate and the 10-year government bond yield. Table 4B shows R^2s ranging from 20% to 29% for, respectively, the overall IG and HY indexes. Interest rates, stock returns, implicit volatility and

[63] These are sales and purchases of HY bonds from institutional investors, the Leading indicator and implicit volatility on Russel 2000, which was more significant than S&P100 implicit volatility in monthly estimates. This last evidence can be linked to the fact that Russell 2000 represents more closely the investment universe in corporate bonds, both IG and HY, given that comprehends small and medium sized companies. In fact, Russell 2000 Index is comprised of the smallest 2000 companies in the Russell 3000 (general) Index.

[64] As an example estimates of the impact on the overall IG US index of interest rate levels, stock return and swap spread exhibit coefficients respectively of -.10, -.43 and .33 in monthly estimates and of -.10, -.32 and .29 in weekly estimates.

swap spreads are statistically significant. Their coefficient magnitude is comparable with that of monthly data, confirming the robustness of monthly data results.

The specification of the determinant of OASs in the Eurozone market on weekly data is:

$$\begin{aligned} DCS_t &= \alpha + \beta_1 \Delta(5y)_t + \beta_2 (sp5y)_t + \beta_3 \Delta(2_10)_t + \beta_4 \Delta(swo10)_t + \\ &+ \beta_5 (eustox)_t + \beta_6 \Delta(daxiv)_t + \beta_7 \Delta(swsp5)_t + \varepsilon_t \end{aligned} \tag{1.6}$$

where *5y* is the 5-year Bund, *sp_5y* is the spread between the 5-year US and German government bond, *2_10* is the 10-year- 2-year spread between German bonds, *swo10* is the implicit volatility of swap options on the 10-year rate, *eustox* is the return of the Eurostoxx index, *daxiv* is the implicit volatility of options on the Dax index, *swsp5* is the spread between the swap rate and the yield of the five year government bond. Table 4C shows that our R^2 s range from 0.41 of the IG index and 0.19 of the HY index. Interest rate level and spread, stock returns, stock volatility and swap spread are statistically significant and with coefficients which are comparable with those from our monthly estimates.

As already mentioned, we have also added lagged variables of the regressors, and found that results are robust to their inclusion; coefficients are low, and moreover they are not statistically significant. This result can be explained by the fact that data are mainly constructed as variations, and have monthly frequency. Given that financial markets tend to react quickly and adjust to new information, this could be interpreted as a piece of evidence of market efficiency, and it also seems quite plausible[65].

Finally, in order to check the parsimonious specifications used in the estimation, compared to all the available variables in our database, we perform a Principal Component Analysis (PCA) on the estimation errors of the regressions. Our aim is to check if in the covariance matrix of the time-series regression residuals there exists an unidentified common factor that explains a significant

[65] The use of all contemporaneous variables could leave the door open to the eventual problem of endogeneity. None of the empirical works in this area anyway tackles this issue, and empirical determinants of credit spreads, using either levels or variations, are used at the same time intervals of bonds. Given the kind of analysis and the huge database under investigation, in fact, the use of techniques such as systems of equations or an instrumental variable approach are quite hard to implement. Anyway, the relative bigger dimensions of risk-free markets and equity markets compared to corporate bond markets could be an argument over which one could suppose a limited (if any) problem of this type.

portion of the variation of the errors. We cannot use the regression errors of all the indexes, given that we would have the same bond in more indexes, say in rating A index and Financial index for a bond of these characteristics. Along the lines of Collin-Dufresne, Goldstein, Martin (2001), we insulate different dimensions to order the indexes to use in the analysis, to avoid double-counting of constituent bonds. For the three areas, we take indexes each distinct by rating and maturity[66]. In this way, we have 24 indexes available for US and UK, and 19 indexes for the Euro area[67].

The results, reported in Table 5A, show that for the three areas the first component accounts for 40 - 43% of the unexplained variance; between 13% and 16% of the variation is instead due to the second component. The first principal component has diverse weights in all the three analyses, and there also appear negative weights in UK and in the Euro area. Collin-Dufresne, Goldstein, Martin (2001) report a first principal component explaining 75% of the variation in their regression errors, with similar weights in the eigenvector, resulting in a equal weighted portfolio along bond groups; they conclude that this is evidence of a large systematic factor not captured by the regressors. By the contrast, our analysis shows a much lower variation explained by the first component, and diverse weights in the eigenvectors. The PCA seems therefore to underpin that no clear systematic component lies in the regression residuals.

To double-check our results, we undertake a principal component analysis also on delta credit spreads, to evaluate by comparison how much of the variation is explained by the regressors used in the analysis. The results, reported in Table 5B, show that the first principal component accounts for 73 - 75% of the variation in all the areas, whereas the second component explains between 9% and 15%. Moreover, the weights of the first eigenvectors are similar, resulting in an equally-weighted portfolio, and no negative weights are reported. By comparison with the PCA conducted on the

[66] Collin-Dufresne, Goldstein, Martin (2001), in order to do a principal component analysis using corporate bonds, construct 15 diffents bins of regression residuals, distinct by different rating and maturity, or by leverage and maturity; afterwards, they take the average residual for each bin, and extract the principal components of the covariance matrix. Ericsson et al (2004) use PCA on regression residuals of both levels and differences regressions on CDS, analysing the correlation matrix of the errors. Given the particular structure of their data, they concentrate first on the 15 companies with the highest numbers of observations, and then they order the data along leverage in 5 bins.

[67] The indexes in US and UK are distinct by maturity in 6 groups (1-3, 3-5, 5-7, 7-10, 10-15, 15+), and by rating in 4 groups (AAA, AA, A, BBB), with a total number of 24 indexes. In the Euro area, the maturity groups are instead 5 (1-3, 3-5, 5-7, 7-10, 10+), and the index BBB, 10+ is not available; therefore we have 19 indexes.

residuals, we can see that a large part of the variation is captured by the regressors used in the analysis.

The analysis on the three markets commented in this section seems to show that significance of determinants of delta credit spreads is quite robust to changes in data frequency, sample period, and inclusion of lagged variables. Moreover, principal component analysis shows that there is no evidence of clear systematic factor left in the residuals, and that regressors capture large part of the variation.

6. Conclusions

We analyse the determinants of the variation of option adjusted credit spreads (OASs) on a unique database which enlarges the scope of the analysis of the current empirical literature to more disaggregated indexes (combining industry, grade and maturity levels), new variables (volumes of sales and purchases of institutional investors; monthly downgrades and default frequencies) and a complete set of markets (beside US, UK and the Eurozone). Our results explain a higher portion of credit spread variability (adjusted R squared up to 61 percent for the US, 49 percent for the UK and 61 percent for the Euro area) than recent literature empirical findings which focus on the US market only.[68]

The variables which are more significant are the same across the three markets (changes in interest rates, changes in the swap spread, stock market returns, implicit volatility of stock index options, leading indicators of the business cycle and purchases and sales of HY from institutional investors for the US market). The significance of a variable which has never been considered in the literature (purchases and sales of HY from institutional investors) seems to confirm that trading decisions of institutional investors bring into the market information which is not captured into stock market performance, implicit volatility and other regressors considered in the estimates.

[68] For example, Collin-Dufresne, Goldstein, Martin (2001) explain between 20% and 30% of credit spread variabilitty of US industrial bonds between July 1988 and December 1997, and up to 40% when they use lagged variables in levels. Elton, Gruber, Agrawal, Mann (2001) explain up to 30 percent of the spread unexplained by default premium and tax distortions with a three factor Fama and French (1995) model for Industrials bonds, concluding that large part of the risk is systematic, exactly as in the stock market.

Our results confirm that HY indexes and cyclical industries (such as Automotive, Consumer Cyclicals, Services Cyclicals, e high tech) are much more sensitive to stock market and business cycle variables than, respectively, IG indexes and industry non cyclical indexes.

Comparability across different markets shows that DCSs determinants have effects which are quite similar in magnitude in the three areas, in spite of the inevitable heterogeneity in regressors and in representativeness of bond indexes. A relevant exception is the largely higher significance of stock returns on HY bonds in the Eurozone than in the US area. We suggest that differences in bankruptcy regulation across different markets may affect this result. Another relevant cross-market result is the effect of US leading indicator on UK and Eurozone OAS, and the spread between US Treasury and Gilt or Bund, confirming the sensitiveness of the two European markets to the US business cycle.

Finally, the lack of significance of Moody's monthly default rates[69] suggests that these data do not add on average significant information to that already incorporated in the credit spreads.

[69] Or, alternatively, the percentage of downgrades on the total sample.

Table 1A. The option adjusted credit spread database

	US	UK	Eurozone
Total number of indexes	207	125	118
	Investment Grade indexes		
Total number of indexes available	87	119	108
Ratings split	AAA, AA, A, BBB	AAA, AA, A, BBB	AAA, AA, A, BBB
Maturity split	1-3, 3-5, 5-7, 7-10, 10-15, 15+	1-3, 3-5, 5-7, 7-10, 10-15, 15+	1-3, 3-5, 5-7, 7-10, 10+
Ratings / maturity split	Available	Available	Available
Macroindustries split (Financial, Industrials, Utilities)	Available	Available	Available
Macroindustries/rating split	Yes	Yes (for Financials , Industrials)	Yes (for Financials , Industrials)
Macroindustries/maturity split	Yes	Yes (for Financials , Industrials)	Yes (for Financials , Industrials)
Industry split within macroindustries	Yes (for Financials , Industrials)	Yes (for Financials , Industrials)	Yes (for Financials , Industrials)
	High Yield indexes		
	120	6	10
Ratings split	BB, B, CCC-C	BB, B, CCC-C	BB, B, CCC-C
Maturity split	1-3, 3-5, 5-7, 7-10, 10-15, 15+*	no	no
Industries split	Yes	no	no
Period	1/1997 – 11/ 2003	1/1998 – 11/ 2003	1/1999 – 11/ 2003

Table 1B Synthesis of results on the significance of individual indicators in separate estimates

	US	US	UK	UK	Eurozone	Eurozone
	Pos. sign	Neg. Sign	Pos. sign	Neg. Sign	Pos. sign	Neg. Sign
Interest rates						
5-year US Treasury bond yield		96				
Difference between the 10y and the 2y Treasury bond yield		2				
Implicit volatility of the options on the 10-year Treasury bond future	11					
Implicit volatility of the options on the 30 year US bond future		1				
Implicit volatility of the options on the 5-year US bond future	3					
Skew US Treasury	2					
Implicit volatility of swaptions on 5-year ahead interest rate with 5-year maturity (for respective areas)	2			1	2	2
Yield on the 5-year German government bond						54
Spread between the 5-year US and German govt bond						85
Difference between the 30y and the 2y German govt bond					4	
Implicit volatility of the options on the 10-year German government bond					2	
Skew bund					3	
Yield of the 5-year Gilt (UK)				96		
Spread between the 5-year US and UK govt bond				74		
Difference between the 10y and the 2y UK govt bond				8		
Gilt options implicit volatility			2			
Skew gilt			1	1		
Business cycle						
US Lagging indicator	6		36			1
US Leading indicator		90		90		93
US Coincident indicator	43		18		31	
Eurozone Business Climate						8
Eurozone Economic serntiment indicator						
Eurozone Handesblatt leding indicator					4	
UK Leading indicator				23		
UK Coincident indicator			16			
Stock market						
Monthly stock returns of the Russel 2000		76				
Implicit volatility of options on Russel 2000	29					
Fama-French Size risk factor (for respective areas)		62		83		78
Fama-French HML risk factor (for respective areas)		6	3	2	8	
Skew (difference between implicit volatility of OTM and ATM options) US		13				
Return of the Eurostoxx index						90
Implicit volatility of the options on Dax					41	
Skew (difference between implicit volatility of OTM and ATM options) Eurozone						2
Stock return of the Footsie All index				74		
Implicit volatility of options on the Ftse 100				3		
Skew (difference between implicit volatility of OTM and ATM options) UK				2		
Liquidity						
Spread between swap and yield of 5-year US government bond	88					
Spread between on the run and off-the-run (30 year) US government bond		7				
Bid-offer spread on the 30 year US treasury bond						
Spread between swap and yield of 5-year German Bund					86	
Spread between on the run and off-the-run (10-years) Bund					54	
Bid-offer spread on the 10-year benchmark (Eurozone)					3	
spread between swap and yield of 10-year Uk Gilt			94			
Spread between on the run and off-benchmark (10-years) UK government bond			34			
Bid-offer spread on the 10 year Uk Gilt				3		
Institutional investors and rating agencies						
Hy US bond purchases of institutional investors		43				
Hy US bond sales of institutional investors	25					
% of defaulted HY bonds (US)		3				
Ratio of downgraded bonds (US)	4	1				
% of defaulted HY bonds (Eurozone)					61	16
Ratio of downgraded bonds (Eurozone)					12	
% of defaulted HY bonds (UK)				26		
Ratio of downgraded bonds (UK)				4		

Legend for tables 2A-4C

Tables 2A-2C

Dependent variables are monthly changes of Option Adjusted Spreads of Merrill Lynch Corporate indexes. Each change is calculated before monthly rebalancing in order to ensure invariance of index constituents for a given spread change. Indexes are divided for rating, maturity and industries. Data are measured in basis points. Each table reports estimated coefficients, t-stats and adjusted R-squared. T-stats are calculated by using Heteroskedasticity and Autocorrelation Consistent Covariances with the Newey-West covariance matrix estimator (truncation lag is set to three).

Table 2A reports findings for the US market for a sample period ranging from 1/1997 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2(russ2)_t + \beta_3\Delta(riv)_t + \beta_4(smb)_t + \beta_5\Delta(lead)_t + \beta_6\Delta(swsp5)_t + \beta_7\Delta(hy_b)_t + \beta_8\Delta(hy_s)_t + \varepsilon_t$$

where *DCS* (Delta Credit Spread) is the change of the option adjusted credit spread, *5y* is the 5-year Treasury bond yield, *russ2* is the return of the Russel 2000, *riv* is the implicit volatility of the options on the Russell 2000, *smb* is the Fama-French Small-minus-Big factor, *lead* is the Leading Indicator del Conference Board, *swsp5* is the spread between swap and yield of 5-year government bond, *hy_b* (*hy_s*) are total HY US bond purchases (sales) of Lehman Brothers professional investors.

Table 2B reports findings for the UK market for a sample period ranging from 1/1998 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(sp5y)_t + \beta_3(ftse_all)_t + \beta_4\Delta(ftse_iv)_t + \beta_5(smb)_t + \beta_6\Delta(lead_us)_t + \beta_7\Delta(swsp10)_t + \varepsilon_t$$

where *5y* is the 5-year UK Treasury yield, *sp_5y* is the spread between the 5-year US and UK government bond, *ftse_all* is the return of the Ftse All Share index, *ftse_iv* is the implicit volatility of options on the Ftse 100, *smb* is the Fama-French Small-minus-Big factor, *lead_us* is the Leading Indicator of the US Conference Board, *swsp10* is the spread between the swap rate and the 10-year government bond yield.

Table 2C reports findings for the Eurozone market for a sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(sp5y)_t + \beta_3(eustox)_t + \beta_4\Delta(dax_iv)_t + \beta_5(smb)_t + \beta_6\Delta(lead_us)_t + \beta_7\Delta(swsp5)_t + \varepsilon_t$$

where *5y* is the yield on the 5-year German government bond, *sp_5y* the spread between the 5-year US and German government bond, *eustox* is the return of the Eurostoxx index, *dax_iv* is the implicit volatility of the options on Dax, *smb* is the Fama-French Small-minus-Big factor, *lead_us* is the Leading Indicator of the US Conference Board, *swsp10* is the spread between the swap rate and the 10-year government bond yield.

Tables 3A-3B

Table 3A reports findings for the US market for a (restricted) sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2(russ2)_t + \beta_3\Delta(riv)_t + \beta_4(smb)_t + \beta_5\Delta(lead)_t + \beta_6\Delta(swsp5)_t + \beta_7\Delta(hy_b)_t + \beta_8\Delta(hy_s)_t + \varepsilon_t$$

variables are the same as those from Table 2A

Table 3B reports findings for the UK market for a (restricted) sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(sp5y)_t + \beta_3(ftse_all)_t + \beta_4\Delta(ftse_iv)_t + \beta_5(smb)_t + \beta_6\Delta(lead_us)_t + \beta_7\Delta(swsp10)_t + \varepsilon_t$$

variables are the same as those from Table 2B

Tables 4A-4C

Dependent variables are weekly changes of Option Adjusted Spreads of Merrill Lynch Corporate indexes. Weekly data are calculated between two adjoining Wednesdays. We select as regressors all those included in estimates on monthly data which are available at weekly fequency. Indexes are divided for rating, maturity and industries. Data are measured in basis points. Each table reports estimated coefficients, t-stats and adjusted R-squared. T-stats are calculated by using Heteroskedasticity and Autocorrelation Consistent Covariances with the Newey-West covariance matrix estimator (truncation lag is set to four).

Table 4A reports findings for the US market for a sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(2_10)_t + \beta_3\Delta(ty1)_t + \beta_4(russ2)_t + \beta_5\Delta(sp100iv)_t + \beta_6\Delta(swsp5)_t + \varepsilon_t$$

where 5y is the 5-year Treasury yield, 2_10 is the spread between 10 and 2-year Treasury yield, ty1 is the implicit volatility (in basis points) of the options on the 10-year Treasury bond future, russ2 is the return of the Russell 2000, sp100iv is the implicit volatility of the options on the Standard & Poor's 100, swsp5 is the spread between the swap rate and the 5-year government bond yield.

Table 4B reports findings for the UK market for a sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(sp5y)_t + \beta_3\Delta(2_10)_t + \beta_4\Delta(swo10)_t + \beta_5(ftsesm)_t + \beta_6\Delta(ftseiv)_t + \beta_7\Delta(swsp10)_t + \varepsilon_t$$

where 5y is the 5-year UK Treasury yield, sp_5y is the spread between the 5-year US and German government bond, 2_10 is the spread between 10 and 2-year Treasury yield, swo10 is the implicit volatility of swap options on the 10-year rate, ftse_sm is the return of the Ftse Small Cap index, ftse_iv is the implicit volatility of the options on Ftse 100, swsp10 spread between the swap rate and the 10-year government bond yield.

Table 4C reports findings for the Eurozone market for a sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1\Delta(5y)_t + \beta_2\Delta(sp5y)_t + \beta_3\Delta(2_10)_t + \beta_4\Delta(swo10)_t + \beta_5(eustox)_t + \beta_6\Delta(daxiv)_t + \beta_7\Delta(swsp5)_t + \varepsilon_t$$

where 5y is the 5-year Bund, sp_5y is the spread between the 5-year US and German government bond, 2_10 is the 10-year- 2-year spread on the Bund, swo10 is the implicit volatility of swap options on the 10-year rate, eustox is the return of the Eurostoxx index, daxiv is the implicit volatility of options on the Dax index, swsp5 is the spread between the swap rate and the yield of the five year government bond.

Table 2A: the determinants of option adjusted credit spread changes for US bond indexes (sample 1/1997 – 11/2003; 83 observations).

	alfa	5y	russ2	riv	smb	Lead	swsp5	hy_b	hy_s	t(alfa)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US Corporate	2.02	-0.10	-0.43	0.56	-1.01	-5.07	0.33	-17.31	19.25	1.10	-2.58	-2.49	2.28	-2.52	-1.78	2.95	-2.56	3.05	**52.33%**
US Corp AAA	-0.75	-0.07	-0.17	0.21	-0.09	0.13	0.23	-7.92	7.36	-0.91	-3.50	-1.55	1.08	-0.46	0.07	3.82	-2.74	2.69	50.54%
US Corp AA	0.04	-0.04	-0.17	0.35	-0.37	-3.39	0.29	-9.49	9.53	0.03	-1.86	-1.35	1.65	-1.39	-1.73	4.67	-2.48	3.11	47.37%
US Corp A	1.28	-0.08	-0.30	0.45	-0.83	-4.62	0.31	-10.86	14.02	0.86	-2.45	-2.15	1.64	-2.58	-1.78	3.34	-2.17	3.01	48.56%
US Corp BBB	4.18	-0.13	-0.75	0.80	-1.70	-6.09	0.37	-26.89	29.37	1.49	-2.37	-2.82	2.39	-2.73	-1.47	2.00	-2.24	2.60	50.01%
US Corp 1-3 Yrs	3.82	-0.12	-0.34	0.46	-1.56	-2.76	0.18	-23.25	26.03	1.48	-2.96	-1.68	1.53	-2.71	-0.86	1.14	-2.60	3.01	36.96%
US Corp 3-5 Yrs	2.01	-0.10	-0.44	0.34	-1.10	-4.19	0.33	-15.54	21.56	0.91	-2.60	-2.24	1.23	-2.56	-1.57	2.71	-1.99	2.80	46.91%
US Corp 5-7 Yrs	1.76	-0.09	-0.46	0.68	-1.12	-4.96	0.34	-14.47	17.93	0.86	-2.47	-2.28	2.51	-2.86	-1.60	2.63	-2.20	2.83	50.08%
US Corp 7-10 Yrs	1.63	-0.12	-0.50	0.62	-0.67	-4.91	0.39	-17.30	17.68	0.99	-2.76	-2.68	2.34	-1.74	-1.49	3.76	-2.65	3.12	55.98%
US Corp 10-15 Yrs	1.84	-0.02	-0.56	0.41	-0.92	-2.36	0.29	-19.27	19.21	1.13	-0.39	-2.47	1.45	-2.03	-0.76	2.94	-2.71	2.94	43.45%
US Corp 15+ Yrs	1.05	-0.06	-0.47	0.77	-0.90	-7.59	0.39	-15.39	14.30	0.70	-1.43	-2.35	3.58	-1.67	-2.03	3.49	-2.70	2.81	55.88%
US Financial Corp	0.98	-0.10	-0.28	0.39	-0.87	-5.42	0.39	-11.84	15.76	0.49	-2.66	-1.62	1.10	-2.04	-1.74	3.22	-1.99	2.59	**40.54%**
US Corp Banking	-1.08	-0.06	-0.11	0.36	-0.23	-5.16	0.35	-7.96	8.79	-0.89	-2.15	-0.84	1.79	-0.90	-1.90	4.41	-2.02	2.99	43.19%
US Corp Brokerage	-0.69	-0.10	-0.06	0.52	-0.40	-7.06	0.44	-11.62	12.59	-0.44	-2.26	-0.24	2.04	-1.24	-2.51	5.14	-2.27	3.43	42.30%
US Corp Finance & Investment	3.11	-0.17	-0.45	0.23	-1.65	-4.50	0.48	-17.55	26.10	1.03	-2.70	-2.13	0.38	-2.01	-0.93	2.31	-1.80	2.14	30.47%
US Corp Insurance	3.06	0.06	-0.94	1.11	-1.12	-6.40	-0.20	-0.23	4.26	0.93	0.65	-1.79	1.53	-1.77	-1.50	-0.61	-0.03	0.97	8.37%
US Industrial Corp	2.61	-0.08	-0.54	0.78	-1.13	-6.12	0.29	-20.21	20.17	1.27	-1.84	-2.99	3.81	-2.07	-1.86	2.25	-2.64	2.96	**50.36%**
US Corp Auto Group	3.89	-0.22	-0.71	1.00	-2.08	-10.36	0.43	-18.08	25.84	0.98	-2.24	-2.62	1.28	-2.29	-1.52	1.51	-1.22	2.06	27.99%
US Corp Basic Industry	1.56	-0.06	-0.43	0.62	-1.10	-3.56	0.14	-9.50	11.37	1.04	-1.88	-2.52	2.28	-2.82	-1.16	1.00	-1.09	1.37	38.23%
US Corp Consumer Cyclicals	3.28	-0.07	-0.48	1.11	-2.07	-7.82	0.27	-9.86	11.54	1.23	-1.06	-2.36	3.94	-2.05	-1.78	1.53	-1.31	2.07	38.61%
US Corp Capital Goods	2.22	-0.03	-0.38	0.56	-0.81	-6.66	0.14	-9.56	14.22	1.27	-0.82	-2.40	2.60	-1.45	-1.75	1.01	-1.07	1.94	31.97%
US Corp Consumer Non-Cyclical	0.46	0.02	-0.36	0.37	-0.80	-3.94	0.19	-4.27	4.92	0.43	0.74	-2.61	2.04	-2.07	-1.95	2.49	-1.22	1.81	39.05%
US Corp Energy	1.78	-0.13	-0.54	0.31	-0.77	2.86	0.36	-19.66	18.77	0.78	-3.11	-1.91	0.82	-1.73	0.68	2.77	-2.09	2.05	42.31%
US Corp Media	-1.25	-0.16	-0.73	0.71	-0.97	-2.48	0.75	-43.44	40.22	-0.36	-1.89	-2.00	1.95	-1.55	-0.44	3.14	-1.86	1.79	40.44%
US Corp Real Estate	-0.79	-0.09	-0.02	0.54	-0.62	-4.42	0.16	-3.71	3.28	-0.38	-1.74	-0.06	2.11	-1.13	-1.67	0.97	-0.71	0.89	12.08%
US Corp Services Cyclical	8.77	0.01	-0.81	1.34	-2.31	-11.51	-0.05	-13.44	13.59	2.54	0.25	-2.42	1.90	-2.90	-2.71	-0.20	-1.06	1.22	26.94%
US Corp Services Non-Cyclical	1.91	0.01	-0.74	-0.85	-2.21	-0.13	-0.16	-15.05	11.31	0.56	0.12	-1.65	-0.65	-1.91	-0.02	-0.42	-1.46	1.21	13.52%
US Corp Telecommunications	2.48	-0.20	-0.62	1.49	-0.55	-13.13	0.48	-49.95	48.09	0.47	-1.74	-1.76	2.54	-0.39	-1.44	1.16	-1.89	1.98	23.35%
US Corp Technology & Electronics	8.26	-0.09	-0.65	0.55	-1.81	-6.79	0.44	-16.27	15.90	2.00	-1.35	-2.15	2.00	-2.43	-1.20	1.95	-1.21	1.43	31.80%
US Utility Corp	4.07	-0.17	-0.44	-0.13	-1.65	2.64	0.31	-29.54	39.02	1.11	-2.16	-1.02	-0.22	-1.83	0.42	1.40	-1.37	1.59	**23.81%**
US High Yield Index	9.93	-0.81	-2.46	3.24	-3.50	-13.93	1.71	-29.74	21.09	1.12	-4.49	-2.83	2.30	-1.57	-0.83	3.61	-1.23	1.13	**56.89%**
US HY BB	6.38	-0.65	-2.02	2.72	-2.19	-9.24	0.88	-33.54	25.92	1.16	-4.82	-2.99	2.22	-1.22	-0.74	2.38	-1.54	1.61	51.75%
US HY B	12.17	-0.92	-2.45	3.20	-3.60	-17.70	2.26	-24.57	19.45	1.08	-3.96	-2.52	2.13	-1.40	-0.89	3.96	-0.90	0.94	57.39%
US HY CCC and Lower	24.85	-1.12	-4.23	6.34	-10.90	-24.82	2.65	-13.50	-12.60	1.21	-3.44	-2.22	2.51	-3.23	-0.78	2.43	-0.25	-0.29	44.70%
HY US 1-3 Yrs	10.09	-0.85	-2.20	10.61	-4.16	-23.06	2.04	-138.2	95.19	0.60	-3.22	-1.05	2.78	-0.85	-0.87	1.86	-1.84	1.55	20.64%
HY US 3-5 Yrs	10.15	-0.88	-2.31	3.43	-4.38	-18.03	1.45	-41.12	19.90	1.09	-5.62	-2.49	2.19	-2.20	-1.29	3.13	-1.54	0.80	57.35%
HY US 5-7 Yrs	8.96	-0.93	-2.03	2.75	-4.58	-9.16	1.51	-8.83	6.24	1.06	-5.24	-2.44	2.05	-2.98	-0.55	3.39	-0.42	0.42	61.67%
HY US 7-10 Yrs	9.51	-0.77	-2.47	3.13	-2.42	-11.02	1.67	-19.92	15.13	1.16	-3.80	-2.82	2.19	-1.05	-0.63	3.45	-0.99	1.01	55.05%
HY US 10-15 Yrs	3.62	-0.50	-1.91	1.95	-2.38	-10.13	0.27	-33.50	19.89	0.52	-4.21	-2.95	1.84	-1.79	-0.89	0.86	-1.36	1.16	49.10%
HY US 15+ Yrs	-4.83	-0.55	-0.97	1.72	-0.74	-11.35	1.05	-54.95	36.00	-1.07	-4.11	-1.93	1.84	-0.35	-0.85	2.89	-1.96	2.03	40.18%
HY US Large Cap	12.42	-0.89	-1.39	2.20	-4.61	0.30	2.32	-28.37	22.92	1.32	-5.30	-0.81	0.79	-1.55	0.02	3.51	-0.99	1.16	20.92%
HY US Small Cap	15.23	-0.93	0.01	0.49	-10.36	-1.97	1.98	-29.68	25.36	1.32	-4.76	0.01	0.16	-2.63	-0.09	1.94	-0.79	0.79	5.07%

Table 2B: the determinants of option adjusted credit spread changes for UK bond indexes (sample 1/1998 – 11/2003; 71 observations).

	alfa	5y	sp 5y	ftse all	ftseiv	smb	lead_us	swsp10	t(alfa)	t(5y)	t(sp 5y)	t(ftse all)	t(ftseiv)	t(smb)	t(lead_us)	t(swsp10)	R2
Sterling Corporate Index	**0.72**	**0.01**	**-0.02**	**-0.36**	**0.05**	**-0.66**	**-3.71**	**0.52**	**0.88**	**0.03**	**-0.60**	**-1.46**	**0.10**	**-1.73**	**-1.93**	**4.97**	**40.02%**
Sterling Corp AAA	0.40	0.02	0.01	-0.02	0.09	-0.48	-1.50	0.52	0.63	0.71	0.48	-0.08	0.37	-1.59	-1.02	5.97	38.20%
Sterling Corp AA	0.43	0.02	0.01	-0.25	0.06	-0.57	-2.92	0.57	0.69	0.68	-0.16	-1.28	0.17	-1.57	-1.89	6.43	44.68%
Sterling Corp A	0.85	-0.01	-0.03	-0.44	0.11	-0.59	-4.45	0.51	0.80	-0.18	-0.79	-1.53	0.33	-1.24	-1.80	3.80	31.71%
Sterling Corp BBB	1.39	-0.09	-0.09	-0.54	-0.09	-1.02	-6.03	0.47	1.03	-1.56	-1.45	-1.14	-0.41	-1.99	-1.93	2.92	39.04%
Sterling Corp 1-3 Yrs	0.06	-0.01	-0.03	-0.18	0.26	-1.00	-0.30	0.21	0.07	-0.41	-1.31	-0.71	1.37	-3.41	-0.17	2.54	25.58%
Sterling Corp 3-5 Yrs	1.66	-0.03	-0.06	-0.49	0.17	-0.96	-2.31	0.33	1.94	-0.91	-1.46	-1.91	0.71	-3.41	-0.99	2.86	42.89%
Sterling Corp 5-7 Yrs	2.02	-0.04	-0.05	-0.30	-0.12	-0.67	-8.13	0.54	1.85	-0.90	-1.22	-0.96	-0.58	-1.43	-3.49	4.72	48.89%
Sterling Corp 7-10 Yrs	0.92	-0.03	-0.03	-0.37	-0.01	-0.76	-5.01	0.62	0.99	-0.74	-0.85	-1.21	-0.14	-1.58	-2.17	5.61	44.43%
Sterling Corp 10-15 Yrs	1.01	0.02	-0.03	-0.41	0.04	-0.64	-4.91	0.61	0.82	0.36	-0.56	-1.34	0.08	-1.17	-1.84	4.38	28.27%
Sterling Corp 15+ Yrs	0.35	0.04	0.01	-0.38	0.08	-0.42	-3.95	0.66	0.31	0.89	0.03	-1.29	0.22	-0.74	-1.53	4.39	27.16%
Sterling Corp Financials Index	**0.34**	**0.01**	**-0.03**	**-0.37**	**-0.02**	**-0.72**	**-3.69**	**0.50**	**0.48**	**0.28**	**-0.85**	**-1.59**	**-0.29**	**-1.71**	**-2.14**	**5.28**	**38.64%**
Sterling Corp Banking	-0.17	0.02	0.01	-0.32	-0.09	-0.55	-3.49	0.55	-0.26	0.40	-0.14	-1.62	-0.68	-1.25	-2.08	5.55	38.17%
Sterling Corp Brokerage	0.01	-0.01	-0.05	-0.08	-0.04	-1.85	-0.45	0.42	0.01	-0.12	-1.10	-0.26	-0.25	-4.64	-0.16	4.15	25.62%
Sterling Corp Finance & Investment	1.75	-0.01	-0.10	-0.36	0.38	-1.82	-0.88	0.40	1.14	-0.23	-2.11	-0.96	1.72	-2.34	-0.31	3.76	27.26%
Sterling Corp Insurance	2.87	0.01	-0.06	-0.39	-0.09	-0.20	-11.92	0.52	1.54	0.11	-0.77	-0.71	-0.36	-0.26	-2.37	2.73	21.95%
Sterling Corp Industrials Index	**1.14**	**-0.04**	**-0.06**	**-0.51**	**0.16**	**-0.65**	**-5.54**	**0.46**	**1.13**	**-1.00**	**-1.21**	**-1.55**	**0.51**	**-1.78**	**-2.25**	**3.32**	**42.50%**
Sterling Corp Basic Industry	3.05	-0.14	-0.15	-0.07	-0.17	-1.42	-3.14	0.20	1.85	-1.52	-1.92	-0.17	-0.46	-2.69	-0.92	0.97	24.38%
Sterling Corp Consumer Cyclicals	0.61	-0.02	-0.07	-0.33	0.11	-0.63	-5.65	0.50	0.49	-0.57	-1.20	-1.06	0.32	-2.01	-2.10	3.80	39.50%
Sterling Corp Capital Goods	3.11	-0.06	-0.09	-1.36	0.19	-1.79	-8.15	0.26	1.23	-0.82	-1.23	-2.02	0.48	-1.69	-1.85	0.99	33.27%
Sterling Corp Consumer Non-cyclicals	0.69	0.01	0.01	-0.33	0.07	-0.41	-5.05	0.56	0.76	0.34	0.18	-1.15	0.22	-1.04	-2.17	4.12	41.63%
Sterling Corp Energy	0.09	0.02	-0.01	-0.23	0.17	-1.00	-0.92	0.51	0.13	0.56	-0.36	-0.85	0.72	-2.98	-0.43	3.76	31.51%
Sterling Corp Media	1.82	-0.14	-0.05	-0.92	0.17	-1.20	-6.33	0.47	1.00	-1.15	-0.46	-2.18	0.34	-1.79	-1.06	2.05	32.00%
Sterling Corp Real Estate	1.75	0.01	-0.02	0.03	0.03	-0.52	-7.04	0.48	1.45	0.01	-0.58	0.09	0.04	-1.13	-2.51	3.43	20.17%
Sterling Corp Services Cyclical	0.84	-0.05	-0.08	-0.31	0.17	-0.33	-5.03	0.46	0.57	-0.71	-1.04	-0.89	0.50	-0.58	-1.52	2.33	21.24%
Sterling Corp Services Non-Cyclical	-3.20	0.08	-0.19	-0.53	0.21	0.01	-3.71	-0.09	-1.33	0.86	-2.08	-0.99	0.48	0.01	-0.69	-0.20	6.83%
Sterling Corp Telecommunications	0.57	-0.04	-0.12	-1.06	0.31	-0.50	-6.28	0.49	0.21	-0.55	-1.61	-2.02	0.67	-0.69	-1.39	2.73	23.06%
Sterling Corp Utilities Index	**0.42**	**0.02**	**0.01**	**-0.49**	**0.11**	**-0.65**	**-2.37**	**0.62**	**0.32**	**0.47**	**0.19**	**-1.53**	**0.36**	**-1.40**	**-0.79**	**3.59**	**29.16%**
Sterling Corp All Stocks (include not-rated)	**0.84**	**0.01**	**-0.03**	**-0.28**	**0.07**	**-0.61**	**-3.26**	**0.51**	**1.00**	**0.06**	**-0.77**	**-1.13**	**0.23**	**-1.64**	**-1.66**	**5.02**	**36.21%**
Sterling All Stocks U.K. Issuers	0.76	0.01	-0.02	-0.27	0.06	-0.49	-3.37	0.54	0.87	0.34	-0.50	-1.09	0.16	-1.17	-1.73	4.93	33.58%
Sterling All Stocks Non-U.K. Issuers	1.02	-0.02	-0.04	-0.34	0.10	-0.92	-3.78	0.42	1.13	-0.47	-1.17	-1.27	0.36	-2.63	-1.74	5.10	39.07%
Sterling Large Cap Corp Index	**0.58**	**0.01**	**-0.03**	**-0.43**	**-0.02**	**-0.65**	**-4.30**	**0.57**	**0.72**	**0.03**	**-0.73**	**-1.62**	**-0.18**	**-1.50**	**-1.98**	**5.30**	**45.11%**
Sterling High Yield Index	**5.38**	**-0.38**	**-0.19**	**-6.04**	**1.99**	**-4.17**	**-14.99**	**1.03**	**0.83**	**-1.67**	**-0.64**	**-3.72**	**1.59**	**-1.62**	**-0.87**	**1.48**	**44.44%**
Sterling High Yield BB	-5.05	-0.56	-0.50	-4.85	2.51	-2.97	12.99	0.40	-1.01	-2.69	-1.61	-3.31	2.46	-1.06	0.75	0.56	38.79%
Sterling High Yield B	8.90	-0.28	-0.06	-6.16	1.96	-6.66	-10.65	0.46	0.82	-0.80	-0.16	-2.87	1.24	-1.92	-0.46	0.43	24.10%
Sterling High Yield CCC-C	3.04	-1.08	0.49	-1.41	-1.96	1.90	-100.11	1.35	0.19	-1.17	0.53	-0.28	-0.34	0.20	-1.92	0.44	3.25%

Table 2C: the determinants of option adjusted credit spread changes for EU bond indexes (sample 1/99- 11/2003; 59 observations)**.**

	alfa	5y	sp 5y	eustox	daxiv	smb	lead us	swsp5	t(alfa)	t(5y)	t(sp 5y)	t(eustox)	t(daxiv)	t(smb)	t(lead us)	t(swsp5)	R2
EMU Corporate Index	**0.15**	**-0.03**	**-0.10**	**-0.23**	**0.17**	**-0.12**	**-5.35**	**0.37**	**0.18**	**-1.05**	**-2.46**	**-0.91**	**1.37**	**-0.23**	**-2.58**	**2.67**	**50.62%**
EMU Corp AAA	-0.23	-0.02	-0.01	-0.07	0.00	-0.23	-1.02	0.24	-0.53	-1.09	-0.96	-1.47	-0.27	-1.18	-1.60	3.64	33.87%
EMU Corp AA	-0.27	-0.02	-0.03	-0.10	-0.04	-0.25	-1.32	0.30	-0.59	-0.86	-2.02	-1.38	-0.89	-1.19	-1.98	5.05	44.91%
EMU Corp A	-0.12	-0.02	-0.14	-0.06	0.10	0.21	-7.09	0.39	-0.14	-0.55	-2.52	-0.19	0.75	0.34	-2.48	2.52	43.61%
EMU Corp BBB	2.80	-0.03	-0.20	-1.01	0.46	-0.34	-19.69	0.31	0.99	-0.34	-1.58	-1.40	1.08	-0.22	-2.68	0.69	41.75%
EMU Corp 1-3 Yr	0.37	-0.02	-0.15	-0.08	0.25	0.18	-5.38	0.31	0.28	-0.44	-1.80	-0.22	1.50	0.24	-1.73	1.35	25.71%
EMU Corp 3-5 Yr	0.89	-0.05	-0.11	-0.39	0.25	-0.36	-6.62	0.37	0.83	-1.24	-2.22	-1.28	1.55	-0.55	-2.49	1.84	50.76%
EMU Corp 5-7 Yr	-0.11	-0.04	-0.10	-0.25	0.14	-0.21	-4.38	0.35	-0.15	-1.35	-2.94	-1.32	1.40	-0.47	-2.59	2.50	54.48%
EMU Corp 7-10 Yr	-0.25	-0.03	-0.05	-0.23	0.03	-0.31	-3.76	0.34	-0.41	-1.14	-2.15	-1.57	0.27	-0.87	-2.75	4.21	51.99%
EMU Corp 10+ Yr	-1.56	-0.01	-0.02	-0.10	-0.08	0.12	-3.01	0.43	-1.73	-0.35	-0.66	-0.57	-0.77	0.33	-2.01	1.81	25.88%
EMU Corporate Large Cap Index	**-0.03**	**-0.02**	**-0.12**	**-0.30**	**0.19**	**-0.21**	**-6.07**	**0.38**	**-0.03**	**-0.58**	**-2.63**	**-1.11**	**1.30**	**-0.36**	**-2.57**	**2.52**	**51.64%**
EMU Financial Corporate Index	**-0.35**	**-0.01**	**-0.07**	**-0.03**	**-0.01**	**0.01**	**-2.49**	**0.35**	**-0.49**	**-0.50**	**-1.77**	**-0.18**	**-0.04**	**0.01**	**-1.52**	**3.40**	**30.17%**
Banking	-0.40	-0.02	-0.02	-0.08	-0.03	-0.17	-1.61	0.28	-0.83	-1.01	-1.25	-1.04	-0.74	-0.88	-2.55	4.18	43.41%
Brokerage	-1.20	-0.04	-0.11	-0.08	0.19	-0.40	-3.02	0.39	-1.63	-1.42	-2.88	-0.53	1.55	-1.18	-1.63	2.72	42.41%
Finance & Investment	-1.14	0.01	-0.35	0.11	0.22	0.66	-5.15	0.60	-0.47	0.07	-1.69	0.14	0.91	0.45	-0.69	1.53	12.91%
Insurance	-0.46	0.01	-0.04	-0.28	0.04	-0.08	-6.15	0.20	-0.87	0.10	-1.27	-1.40	0.33	-0.17	-3.59	1.41	39.45%
EMU Corporates Non-Financial Index	**1.22**	**-0.04**	**-0.15**	**-0.52**	**0.35**	**-0.33**	**-9.82**	**0.35**	**0.86**	**-0.87**	**-2.38**	**-1.38**	**1.53**	**-0.39**	**-2.86**	**1.47**	**50.03%**
EMU Corporates Industrials Index	**1.51**	**-0.04**	**-0.16**	**-0.62**	**0.38**	**-0.35**	**-11.38**	**0.34**	**0.97**	**-0.70**	**-2.27**	**-1.40**	**1.47**	**-0.36**	**-2.88**	**1.29**	**49.23%**
Auto Group	-0.52	-0.09	-0.36	-0.10	0.35	0.46	-6.72	0.45	-0.32	-1.03	-3.04	-0.13	1.56	0.31	-1.15	1.20	29.32%
Basic Industry	1.71	-0.06	-0.07	-0.40	0.26	-0.56	-9.14	0.06	1.39	-1.44	-1.24	-1.02	1.45	-0.75	-2.28	0.22	36.82%
Consumer Cyclicals	0.14	-0.13	-0.25	0.16	0.28	0.71	-6.31	0.48	0.10	-2.19	-3.23	0.36	1.30	0.65	-1.73	1.47	30.53%
Capital Goods	2.43	-0.05	-0.17	-0.49	-0.10	-0.53	-9.54	0.44	1.46	-0.70	-1.98	-0.85	-0.40	-0.47	-1.88	1.58	33.45%
Consumer Non-cyclicals	1.70	-0.04	0.01	-0.25	0.11	0.02	-10.13	-0.26	0.84	-0.77	-0.08	-0.71	0.67	0.02	-1.80	-0.49	8.55%
Energy	0.25	-0.11	-0.22	-0.51	0.16	-0.68	6.90	0.63	0.13	-1.04	-2.14	-1.71	0.58	-1.70	1.31	1.40	20.97%
Media	-0.56	-0.08	-0.21	-0.70	0.22	-0.54	-0.48	0.56	-0.27	-0.60	-2.01	-1.72	0.82	-0.54	-0.10	1.44	22.35%
Real Estate	-0.98	-0.13	-0.13	0.13	-0.07	-0.60	-0.09	0.24	-0.72	-2.48	-2.27	0.65	-0.25	-0.98	-0.03	1.27	12.36%
Services Cyclical	3.38	0.05	-0.46	0.38	0.64	0.93	-17.45	0.55	0.95	0.38	-1.27	0.28	1.26	0.33	-1.42	0.82	5.42%
Services Non-Cyclical	-1.83	0.03	-0.01	-0.07	0.03	0.37	-7.30	0.06	-1.84	0.58	-0.33	-0.55	0.12	1.11	-3.23	0.45	21.60%
Telecommunications	-0.38	0.04	-0.13	-1.14	0.58	-0.63	-17.22	0.61	-0.14	0.29	-1.23	-1.88	1.14	-0.70	-1.96	1.94	34.62%
Technology & Electronics	16.07	-0.25	-0.24	-1.97	1.39	-1.75	-16.11	0.80	2.00	-1.11	-1.44	-1.46	1.27	-0.57	-2.07	0.64	18.28%
EMU Corporates Utilities Index	**-0.52**	**-0.01**	**-0.05**	**-0.26**	**0.08**	**-0.23**	**-2.13**	**0.28**	**-0.85**	**-0.40**	**-2.08**	**-2.23**	**0.91**	**-0.89**	**-1.82**	**2.67**	**39.41%**
Euro High Yield Index	**15.27**	**-0.11**	**-0.68**	**-7.36**	**3.69**	**-11.37**	**-22.89**	**2.27**	**0.97**	**-0.28**	**-1.02**	**-2.86**	**2.21**	**-1.79**	**-0.90**	**1.53**	**40.64%**
Euro HY BB	4.57	-0.97	-1.10	-6.11	2.96	-15.63	-3.73	1.86	0.54	-2.90	-1.63	-4.06	2.47	-4.34	-0.30	1.60	61.76%
Euro HY B	12.41	-0.05	-0.44	-5.63	3.23	-7.31	-30.64	1.42	0.70	-0.11	-0.81	-1.95	1.72	-1.00	-1.04	0.92	25.13%
Euro HY CCC-C	64.63	2.01	0.25	-16.76	9.59	-24.08	-107.40	5.48	1.18	1.20	0.12	-1.69	1.61	-1.07	-1.08	1.22	14.86%

Table 3A: **the determinants of option adjusted credit spread changes for US bond indexes** (restricted sample from 1999; 59 observations)**.**

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(a)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US Corporate	**2.13**	**-0.10**	**-0.37**	**0.53**	**-1.01**	**-4.55**	**0.40**	**-17.48**	**21.23**	**1.07**	**-2.39**	**-2.06**	**2.23**	**-2.48**	**-1.51**	**4.10**	**-2.51**	**3.35**	**56.64%**
US Corp AAA	-0.93	-0.07	-0.18	0.18	-0.02	0.78	0.22	-8.06	7.88	-1.01	-2.48	-1.27	1.03	-0.10	0.33	3.68	-2.67	2.84	44.85%
US Corp AA	-0.20	-0.04	-0.15	0.32	-0.23	-3.27	0.31	-9.95	10.86	-0.19	-1.28	-1.18	1.60	-0.89	-1.53	4.46	-2.42	3.87	50.42%
US Corp A	1.31	-0.08	-0.25	0.42	-0.79	-4.12	0.36	-11.12	15.65	0.87	-2.23	-1.88	1.59	-2.43	-1.47	3.85	-1.87	3.14	50.39%
US Corp BBB	4.49	-0.14	-0.64	0.77	-1.75	-5.71	0.47	-26.89	32.23	1.43	-2.20	-2.27	2.34	-2.84	-1.28	2.77	-2.30	2.87	54.53%
US Corp 1-3 Yrs	4.00	-0.12	-0.34	0.43	-1.55	-2.72	0.24	-23.08	27.63	1.40	-2.55	-1.52	1.48	-2.34	-0.77	1.34	-2.51	3.21	38.38%
US Corp 3-5 Yrs	2.02	-0.11	-0.49	0.31	-1.11	-3.66	0.42	-15.15	22.66	0.84	-2.44	-2.33	1.18	-2.31	-1.22	3.51	-1.93	3.06	49.96%
US Corp 5-7 Yrs	1.51	-0.09	-0.41	0.65	-1.02	-4.57	0.42	-14.36	20.31	0.71	-2.09	-2.15	2.46	-2.64	-1.36	3.92	-2.24	3.27	57.27%
US Corp 7-10 Yrs	1.66	-0.12	-0.44	0.59	-0.64	-3.86	0.45	-17.61	19.79	0.94	-2.36	-2.49	2.29	-1.76	-1.12	5.63	-2.61	3.42	59.96%
US Corp 10-15 Yrs	2.00	-0.04	-0.53	0.38	-0.94	-1.22	0.36	-19.85	20.63	1.10	-0.70	-2.05	1.40	-2.05	-0.36	4.48	-2.77	3.28	47.74%
US Corp 15+ Yrs	1.34	-0.07	-0.29	0.74	-0.90	-7.37	0.44	-16.04	17.18	0.88	-1.32	-1.51	3.53	-2.20	-1.94	5.35	-2.62	3.41	63.69%
US Financial Corp	**0.92**	**-0.10**	**-0.31**	**0.36**	**-0.81**	**-4.34**	**0.44**	**-12.03**	**17.14**	**0.42**	**-2.35**	**-1.62**	**1.05**	**-1.60**	**-1.28**	**3.50**	**-1.77**	**2.73**	**40.82%**
US Corp Banking	-1.36	-0.05	-0.09	0.33	-0.06	-3.36	0.35	-8.87	10.16	-1.09	-1.73	-0.58	1.74	-0.23	-1.43	3.92	-1.99	3.40	46.14%
US Corp Brokerage	-1.00	-0.05	-0.18	0.49	-0.32	-5.26	0.42	-10.89	14.31	-0.65	-1.26	-1.30	1.99	-0.87	-1.82	3.83	-1.89	3.71	48.46%
US Corp Finance & Investment	3.20	-0.20	-0.53	0.20	-1.70	-4.27	0.63	-17.34	26.85	0.94	-2.95	-2.01	0.33	-1.71	-0.76	2.66	-1.66	2.21	31.97%
US Corp Insurance	3.34	0.11	-0.80	1.08	-1.01	-6.97	-0.26	0.18	7.84	0.86	1.02	-1.79	1.48	-1.28	-1.50	-0.87	0.02	1.44	12.47%
US Industrial Corp	**2.71**	**-0.09**	**-0.40**	**0.75**	**-1.08**	**-5.87**	**0.36**	**-20.62**	**22.96**	**1.24**	**-1.82**	**-2.22**	**3.76**	**-2.49**	**-1.78**	**3.65**	**-2.70**	**3.39**	**58.13%**
US Corp Auto Group	4.26	-0.25	-0.54	0.97	-2.13	-10.82	0.61	-18.15	29.32	0.98	-2.40	-1.81	1.23	-1.96	-1.45	1.98	-1.06	2.05	31.35%
US Corp Basic Industry	1.49	-0.06	-0.29	0.59	-1.04	-4.08	0.17	-9.53	13.61	1.00	-1.46	-1.58	2.23	-2.89	-1.23	1.13	-0.97	1.54	41.24%
US Corp Consumer Cyclicals	3.75	-0.07	-0.22	1.08	-2.09	-7.87	0.35	-10.22	15.56	1.56	-0.96	-1.17	3.89	-2.71	-1.70	1.97	-1.11	2.24	48.65%
US Corp Capital Goods	2.13	-0.02	-0.23	0.53	-0.67	-7.88	0.14	-9.75	16.21	1.09	-0.46	-1.07	2.55	-1.27	-1.85	0.82	-1.04	2.23	32.75%
US Corp Consumer Non-Cyclical	0.21	0.03	-0.28	0.34	-0.71	-3.90	0.20	-4.59	6.32	0.17	0.74	-2.05	1.99	-1.83	-1.74	2.68	-1.19	2.37	38.41%
US Corp Energy	1.71	-0.15	-0.56	0.28	-0.70	4.02	0.42	-20.27	19.79	0.66	-2.63	-1.44	0.77	-1.22	0.78	2.76	-2.29	2.25	41.52%
US Corp Media	-1.36	-0.21	-0.59	0.68	-0.89	-0.32	0.91	-44.85	42.91	-0.33	-2.41	-1.33	1.90	-1.42	-0.05	3.47	-2.06	1.99	42.27%
US Corp Real Estate	-2.57	-0.03	-0.01	0.51	0.06	-4.52	0.03	-4.26	5.47	-1.48	-0.64	-0.03	2.06	0.20	-1.78	0.22	-0.82	1.55	9.00%
US Corp Services Cyclical	8.63	0.08	-0.59	1.31	-1.98	-13.40	-0.13	-13.27	18.45	2.95	0.99	-2.34	1.85	-2.69	-2.58	-0.44	-0.92	1.62	33.99%
US Corp Services Non-Cyclical	2.68	-0.06	-1.13	-0.88	-2.51	2.22	0.02	-15.80	8.19	0.59	-0.81	-1.58	-0.70	-1.77	0.36	0.04	-1.67	0.89	16.33%
US Corp Telecommunications	2.87	-0.24	-0.31	1.46	-0.62	-11.80	0.71	-50.60	53.44	0.47	-2.14	-0.96	2.49	-0.52	-1.20	1.85	-2.06	2.22	29.85%
US Corp Technology & Electronics	9.01	-0.11	-0.61	0.52	-1.98	-6.29	0.55	-16.24	17.83	1.98	-1.43	-1.80	1.95	-2.21	-1.01	2.58	-1.15	1.45	33.15%
US Utility Corp	**4.42**	**-0.21**	**-0.65**	**-0.16**	**-1.82**	**2.71**	**0.50**	**-29.32**	**38.75**	**1.08**	**-2.36**	**-1.04**	**-0.27**	**-1.69**	**0.36**	**1.87**	**-1.44**	**1.70**	**27.67%**
US High Yield Index	**10.85**	**-0.70**	**-2.16**	**3.21**	**-3.24**	**-8.07**	**1.69**	**-30.51**	**32.71**	**1.23**	**-3.02**	**-2.48**	**2.25**	**-1.46**	**-0.48**	**3.75**	**-1.19**	**1.63**	**58.18%**
US HY BB	7.20	-0.60	-1.68	2.69	-2.07	-6.69	0.97	-34.17	35.46	1.40	-3.49	-2.67	2.17	-1.19	-0.54	2.54	-1.50	2.10	55.09%
US HY B	13.00	-0.78	-2.22	3.17	-3.21	-10.39	2.17	-25.71	31.18	1.13	-2.68	-2.18	2.08	-1.20	-0.51	3.93	-0.91	1.40	57.18%
US HY CCC and Lower	27.38	-0.77	-3.68	6.31	-10.64	-13.51	2.35	-12.09	10.20	1.31	-2.01	-1.93	2.46	-2.90	-0.42	2.05	-0.20	0.22	44.07%
HY US 1-3 Yrs	13.61	-0.58	0.01	10.58	-4.04	-18.06	2.09	-138.87	132.53	0.91	-1.73	0.01	2.73	-1.11	-0.72	2.08	-1.68	1.87	31.72%
HY US 3-5 Yrs	10.91	-0.73	-2.06	3.40	-3.99	-13.68	1.37	-41.78	32.28	1.25	-3.52	-2.65	2.14	-2.08	-0.93	3.03	-1.48	1.23	58.93%
HY US 5-7 Yrs	10.00	-0.80	-1.84	2.72	-4.38	-3.79	1.38	-9.39	16.07	1.20	-3.58	-2.24	2.00	-2.49	-0.22	3.09	-0.42	1.05	61.16%
HY US 7-10 Yrs	10.13	-0.67	-2.14	3.10	-2.13	-4.68	1.65	-20.64	26.16	1.20	-2.59	-2.24	2.14	-0.93	-0.26	3.39	-0.98	1.63	56.12%
HY US 10-15 Yrs	5.14	-0.46	-1.84	1.92	-2.55	-5.81	0.34	-33.78	26.26	0.75	-2.86	-3.02	1.79	-1.97	-0.50	1.01	-1.25	1.47	51.69%
HY US 15+ Yrs	-4.60	-0.58	-0.82	1.69	-0.79	-7.92	1.31	-55.66	42.19	-0.87	-4.15	-1.62	1.79	-0.36	-0.60	4.02	-2.07	2.29	41.86%
HY US Large Cap	14.16	-0.85	-1.20	2.17	-4.81	6.96	2.40	-28.94	30.95	1.34	-3.81	-0.57	0.74	-1.28	0.37	3.45	-0.97	1.40	14.64%
HY US Small Cap	18.35	-0.90	-0.26	0.46	-11.31	5.52	2.12	-28.62	27.72	1.35	-3.31	-0.08	0.11	-2.26	0.21	1.74	-0.69	0.77	-1.78%

Table 3B: **the determinants of option adjusted credit spread changes for UK bond indexes** (restricted sample from 1999; 59 observations)**.**

	alfa	5y	sp 5y	ftse all	ftseiv	smb	lead_us	swsp10	t(alfa)	t(5y)	t(sp 5y)	t(ftse all)	t(ftseiv)	t(smb)	t(lead_us)	t(swsp10)	R2
Sterling Corporate Index	**0.57**	**0.02**	**-0.01**	**-0.37**	**0.01**	**-0.91**	**-2.73**	**0.44**	**0.58**	**0.83**	**-0.40**	**-1.24**	**0.03**	**-2.62**	**-1.36**	**3.23**	**28.18%**
Sterling Corp AAA	0.25	0.03	0.02	0.09	0.05	-0.60	-0.82	0.39	0.34	0.93	0.86	0.37	0.30	-1.95	-0.55	4.57	19.79%
Sterling Corp AA	0.24	0.04	0.00	-0.22	0.02	-0.77	-1.97	0.48	0.34	1.35	0.11	-0.99	0.10	-2.19	-1.36	4.32	31.31%
Sterling Corp A	0.75	0.02	-0.02	-0.44	0.07	-0.92	-3.28	0.45	0.60	0.69	-0.45	-1.27	0.26	-2.03	-1.26	2.44	21.38%
Sterling Corp BBB	1.07	-0.04	-0.10	-0.80	-0.13	-1.36	-5.02	0.47	0.72	-1.10	-1.47	-1.57	-0.48	-3.13	-1.55	2.24	35.54%
Sterling Corp 1-3 Yrs	-0.34	0.01	-0.01	-0.01	0.22	-0.92	-0.05	0.14	-0.44	0.38	-0.55	-0.05	1.30	-2.70	-0.03	1.17	16.82%
Sterling Corp 3-5 Yrs	1.58	-0.01	-0.04	-0.38	0.13	-1.10	-1.59	0.24	1.64	-0.39	-1.07	-1.41	0.64	-3.60	-0.61	1.50	31.39%
Sterling Corp 5-7 Yrs	1.95	-0.03	-0.06	-0.40	-0.16	-0.95	-7.21	0.46	1.68	-0.80	-1.28	-1.10	-0.65	-2.07	-3.01	2.99	38.87%
Sterling Corp 7-10 Yrs	0.76	0.00	-0.03	-0.45	-0.05	-1.16	-3.51	0.53	0.63	-0.10	-0.72	-1.17	-0.21	-3.07	-1.70	3.68	36.18%
Sterling Corp 10-15 Yrs	0.81	0.06	-0.01	-0.47	0.00	-0.95	-3.77	0.58	0.58	1.33	-0.27	-1.35	0.01	-1.76	-1.35	3.07	20.22%
Sterling Corp 15+ Yrs	0.53	0.07	0.02	-0.39	0.04	-0.90	-2.34	0.59	0.38	1.62	0.39	-1.09	0.15	-1.84	-0.90	3.10	16.06%
Sterling Corp Financials Index	**0.02**	**0.04**	**-0.02**	**-0.42**	**-0.06**	**-0.94**	**-2.86**	**0.40**	**0.03**	**1.13**	**-0.81**	**-1.60**	**-0.36**	**-2.28**	**-1.72**	**3.28**	**28.77%**
Sterling Corp Banking	-0.58	0.04	-0.01	-0.40	-0.13	-0.77	-2.64	0.43	-0.75	1.27	-0.24	-1.70	-0.75	-1.85	-1.65	3.58	27.23%
Sterling Corp Brokerage	-1.07	0.04	-0.04	-0.28	-0.08	-1.68	-0.74	0.41	-0.71	0.87	-0.84	-0.90	-0.32	-3.56	-0.23	3.34	19.88%
Sterling Corp Finance & Investment	2.11	0.01	-0.07	-0.12	0.34	-2.08	0.34	0.38	1.22	0.11	-1.45	-0.30	1.65	-2.29	0.11	2.13	21.81%
Sterling Corp Insurance	2.87	0.05	-0.07	-0.59	-0.13	-0.72	-11.02	0.45	1.47	0.79	-0.73	-1.04	-0.43	-1.01	-2.02	1.99	15.83%
Sterling Corp Industrials Index	**1.25**	**-0.02**	**-0.04**	**-0.48**	**0.12**	**-0.92**	**-4.33**	**0.44**	**1.02**	**-0.44**	**-0.83**	**-1.18**	**0.44**	**-2.53**	**-1.59**	**2.40**	**33.47%**
Sterling Corp Basic Industry	2.24	-0.12	-0.15	-0.32	-0.21	-1.34	-2.40	0.17	1.27	-1.32	-1.94	-0.66	-0.53	-2.43	-0.61	0.63	16.42%
Sterling Corp Consumer Cyclicals	0.62	-0.01	-0.05	-0.34	0.07	-0.76	-4.75	0.54	0.43	-0.20	-0.79	-0.86	0.25	-2.00	-1.56	2.95	30.90%
Sterling Corp Capital Goods	3.94	-0.03	-0.06	-1.35	0.15	-2.54	-5.26	0.30	1.43	-0.47	-0.69	-2.03	0.41	-2.35	-1.33	0.95	30.39%
Sterling Corp Consumer Non-cyclicals	0.85	0.01	0.01	-0.27	0.03	-0.66	-3.93	0.48	0.82	0.34	0.39	-0.82	0.15	-1.64	-1.61	2.83	24.63%
Sterling Corp Energy	-0.08	0.05	0.00	-0.22	0.13	-1.20	0.55	0.49	-0.09	1.43	0.02	-0.67	0.65	-3.27	0.26	2.89	24.77%
Sterling Corp Media	2.66	-0.14	-0.03	-0.88	0.13	-1.69	-4.54	0.54	1.24	-0.93	-0.24	-1.63	0.27	-2.54	-0.66	2.06	25.22%
Sterling Corp Real Estate	1.60	0.03	-0.01	0.03	-0.01	-0.73	-6.67	0.40	1.13	0.47	-0.24	0.10	-0.03	-1.50	-1.98	1.93	10.36%
Sterling Corp Services Cyclical	1.38	-0.04	-0.05	-0.21	0.13	-0.85	-3.15	0.37	0.79	-0.51	-0.73	-0.49	0.43	-1.60	-0.85	1.53	9.20%
Sterling Corp Services Non-Cyclical	-3.18	0.09	-0.18	-0.41	0.17	0.01	-3.53	-0.14	-1.38	0.89	-2.06	-0.54	0.41	0.01	-0.62	-0.26	1.46%
Sterling Corp Telecommunications	0.54	0.00	-0.10	-1.02	0.27	-0.69	-5.36	0.56	0.17	0.01	-1.08	-1.41	0.60	-0.75	-1.02	2.05	16.35%
Sterling Corp Utilities Index	**0.61**	**0.04**	**0.03**	**-0.49**	**0.07**	**-1.01**	**-0.53**	**0.59**	**0.42**	**0.79**	**0.50**	**-1.28**	**0.29**	**-2.26**	**-0.18**	**2.59**	**17.10%**
Sterling Corp All Stocks (include not-rated)	**0.66**	**0.03**	**-0.02**	**-0.28**	**0.03**	**-0.85**	**-2.45**	**0.43**	**0.64**	**0.96**	**-0.50**	**-0.92**	**0.16**	**-2.53**	**-1.18**	**3.28**	**24.85%**
Sterling All Stocks U.K. Issuers	0.61	0.04	-0.01	-0.28	0.02	-0.76	-2.41	0.47	0.56	1.25	-0.29	-0.90	0.09	-1.94	-1.22	3.40	22.05%
Sterling All Stocks Non-U.K. Issuers	0.80	0.01	-0.03	-0.31	0.06	-1.08	-3.09	0.34	0.77	0.18	-0.76	-0.97	0.29	-2.87	-1.30	2.94	27.57%
Sterling Large Cap Corp Index	**0.47**	**0.02**	**-0.02**	**-0.47**	**-0.06**	**-0.94**	**-3.06**	**0.49**	**0.46**	**0.46**	**-0.64**	**-1.42**	**-0.25**	**-2.35**	**-1.37**	**3.60**	**33.32%**
Sterling High Yield Index	**4.90**	**-0.29**	**-0.07**	**-4.47**	**1.95**	**-4.50**	**-9.60**	**0.23**	**0.69**	**-1.05**	**-0.25**	**-2.75**	**1.52**	**-1.41**	**-0.52**	**0.29**	**36.87%**
Sterling High Yield BB	-3.57	-0.46	-0.32	-3.20	2.47	-3.20	14.06	0.25	-0.76	-2.50	-1.20	-1.99	2.39	-1.15	0.80	0.35	43.72%
Sterling High Yield B	10.01	-0.19	0.07	-4.83	1.92	-6.71	-11.25	0.41	0.93	-0.46	0.19	-2.36	1.17	-1.90	-0.46	0.39	24.44%
Sterling High Yield CCC-C	1.88	-1.17	0.36	-2.79	-2.00	1.95	-99.49	1.40	0.11	-1.26	0.38	-0.55	-0.41	0.20	-1.89	0.45	1.64%

Table 4A. **The determinants of option adjusted credit spread changes for US bond indexes** (weekly data; sample 1/99- 11/2003; 255 observations)

	alfa	5y	2_10	ty1	russ2	sp100iv	swsp5	t(alfa)	t(5y)	t(2_10)	t(ty1)	t(russ2)	t(sp100iv)	t(swsp5)	R2
US Corporate	**-0.06**	**-0.10**	**0.01**	**0.44**	**-0.32**	**0.16**	**0.29**	**-0.16**	**-4.74**	**-0.06**	**0.76**	**-2.05**	**1.08**	**3.27**	**24.27%**
US Corp AAA	-0.03	-0.04	0.03	0.40	0.01	0.01	0.25	-0.19	-1.68	0.92	0.85	-0.03	0.06	4.80	16.85%
US Corp AA	-0.12	-0.06	0.02	0.48	-0.16	0.05	0.24	-0.56	-2.95	0.68	0.99	-1.51	0.51	4.95	23.65%
US Corp A	-0.13	-0.08	0.02	0.19	-0.15	0.13	0.34	-0.44	-3.63	0.60	0.38	-1.24	0.96	3.93	24.71%
US Corp BBB	-0.08	-0.15	-0.02	0.66	-0.60	0.23	0.30	-0.14	-5.38	-0.38	0.83	-2.33	1.11	2.27	20.60%
US Corp 1-3 Yrs	-0.04	-0.11	-0.03	-0.04	-0.35	0.06	0.34	-0.08	-4.12	-0.70	-0.06	-1.73	0.27	2.58	11.95%
US Corp 3-5 Yrs	-0.11	-0.10	0.02	-0.15	-0.28	0.20	0.28	-0.27	-4.47	0.48	-0.26	-1.80	1.38	3.23	19.89%
US Corp 5-7 Yrs	-0.10	-0.11	0.02	0.71	-0.34	0.09	0.27	-0.27	-4.94	0.63	1.21	-2.19	0.66	3.10	25.23%
US Corp 7-10 Yrs	-0.04	-0.12	0.01	0.70	-0.35	0.24	0.30	-0.11	-4.52	0.25	1.06	-1.88	1.25	3.25	26.62%
US Corp 10-15 Yrs	-0.10	-0.07	0.02	1.30	-0.27	-0.12	0.32	-0.24	-2.19	0.56	1.43	-1.47	-0.56	2.90	11.91%
US Corp 15+ Yrs	-0.02	-0.09	0.01	0.62	-0.24	0.20	0.26	-0.05	-3.57	0.17	1.17	-1.48	1.50	3.33	19.96%
US Financial Corp	**-0.10**	**-0.10**	**-0.02**	**0.07**	**-0.22**	**0.24**	**0.31**	**-0.28**	**-4.41**	**-0.57**	**0.11**	**-1.33**	**1.41**	**3.61**	**21.43%**
US Corp Banking	-0.19	-0.06	0.03	-0.20	0.01	0.21	0.25	-0.82	-3.83	1.22	-0.66	-0.04	1.74	4.39	18.43%
US Corp Brokerage	-0.25	-0.08	0.02	0.55	-0.08	0.01	0.31	-0.88	-2.60	0.37	0.77	-0.57	0.04	3.48	16.35%
US Corp Finance & Investment	0.06	-0.14	-0.10	-0.19	-0.44	0.46	0.48	0.09	-3.75	-1.33	-0.16	-1.52	1.42	3.08	17.56%
US Corp Insurance	-0.23	-0.09	0.05	1.25	-0.37	-0.28	-0.12	-0.43	-1.75	0.82	1.51	-1.00	-0.74	-0.78	1.27%
US Industrial Corp	**-0.08**	**-0.11**	**0.02**	**0.66**	**-0.34**	**0.16**	**0.22**	**-0.20**	**-4.73**	**0.45**	**1.10**	**-2.11**	**0.97**	**2.61**	**18.43%**
US Corp Auto Group	0.72	-0.22	-0.20	0.24	-0.92	0.69	0.64	0.76	-4.55	-1.80	0.12	-1.43	1.33	2.25	20.01%
US Corp Basic Industry	-0.30	-0.07	0.04	0.29	-0.27	-0.14	0.17	-0.87	-2.97	1.41	0.74	-2.48	-1.24	2.69	11.94%
US Corp Consumer Cyclicals	0.23	-0.11	-0.03	0.41	-0.30	0.12	0.25	0.46	-3.36	-0.38	0.54	-1.16	0.52	2.21	8.87%
US Corp Capital Goods	-0.20	-0.03	0.02	-0.22	0.06	0.30	0.31	-0.46	-0.95	0.59	-0.25	0.29	1.45	2.80	3.30%
US Corp Consumer Non-Cyclical	-0.19	-0.03	0.04	0.51	-0.07	0.14	0.18	-0.75	-1.46	1.51	0.99	-0.63	1.16	3.33	11.41%
US Corp Energy	-0.18	-0.08	0.03	0.99	-0.33	0.26	0.26	-0.40	-2.96	0.62	1.64	-1.52	0.73	1.94	9.70%
US Corp Media	-0.01	-0.12	-0.02	1.10	-0.58	0.28	0.32	-0.02	-2.63	-0.32	1.12	-1.56	1.12	1.87	11.46%
US Corp Real Estate	-0.69	-0.05	0.07	0.42	0.09	-0.08	0.15	-2.37	-1.93	2.34	1.06	0.81	-0.54	2.77	5.07%
US Corp Services Cyclical	-0.24	-0.14	0.20	1.72	-0.36	-0.38	0.38	-0.42	-2.42	1.64	1.40	-1.53	-1.35	3.14	15.72%
US Corp Services Non-Cyclical	-0.20	-0.07	-0.01	0.71	-0.34	-0.03	-0.16	-0.26	-1.88	-0.06	1.12	-1.89	-0.13	-0.60	0.76%
US Corp Telecommunications	0.18	-0.27	-0.08	1.30	-0.67	0.68	0.12	0.16	-4.66	-0.81	0.79	-1.96	1.58	0.61	9.56%
US Corp Technology & Electronics	0.07	-0.10	-0.11	0.21	-0.60	0.06	0.32	0.09	-2.21	-0.56	0.24	-2.01	0.17	1.60	5.40%
US Utility Corp	**0.01**	**-0.07**	**0.04**	**-0.49**	**-0.38**	**0.11**	**0.78**	**0.01**	**-1.73**	**0.63**	**-0.60**	**-0.93**	**0.48**	**2.75**	**12.27%**
US High Yield Index	**-0.50**	**-0.87**	**0.04**	**4.17**	**-1.82**	**-0.27**	**0.56**	**-0.38**	**-9.68**	**0.28**	**2.57**	**-3.93**	**-0.48**	**2.13**	**44.47%**
US HY BB	-0.27	-0.58	0.03	3.04	-0.93	0.71	0.46	-0.23	-7.44	0.20	1.38	-1.73	1.14	1.95	24.58%
US HY B	-0.56	-1.01	-0.03	3.20	-2.90	-0.73	0.64	-0.31	-7.88	-0.16	1.41	-3.73	-0.97	1.69	37.87%
US HY CCC and Lower	-1.42	-1.38	0.02	8.12	-1.77	-2.34	1.90	-0.37	-5.22	0.05	2.23	-1.19	-1.59	1.76	15.16%
HY US 1-3 Yrs	-0.34	-0.79	0.29	5.23	-2.35	0.11	0.74	-0.12	-4.18	0.87	1.79	-2.44	0.09	1.32	16.21%
HY US 3-5 Yrs	-0.30	-0.84	0.17	3.07	-1.67	-0.49	0.77	-0.18	-6.46	0.75	1.54	-2.96	-0.91	1.76	32.28%
HY US 5-7 Yrs	-0.84	-0.99	0.09	5.23	-1.67	-0.81	0.46	-0.66	-11.76	0.58	3.20	-3.92	-1.51	1.76	50.94%
HY US 7-10 Yrs	-0.52	-0.89	-0.03	3.72	-1.88	-0.16	0.47	-0.40	-10.67	-0.23	2.16	-3.80	-0.23	1.72	41.96%
HY US 10-15 Yrs	0.27	-0.56	-0.20	0.66	-0.68	-0.68	0.33	0.20	-5.18	-1.07	0.43	-1.64	-1.10	0.92	17.07%
HY US 15+ Yrs	0.22	-0.45	-0.36	3.11	-0.94	1.17	0.09	0.15	-5.21	-2.22	2.03	-2.22	1.32	0.25	15.12%
HY US Large Cap	-0.29	-0.94	-0.01	3.41	-1.79	0.43	0.18	-0.18	-6.98	-0.08	1.64	-2.90	0.55	0.40	33.13%
HY US Small Cap	-0.96	-0.57	0.27	7.30	-1.76	-2.31	1.62	-0.26	-1.69	0.96	2.14	-1.50	-1.65	1.50	4.17%

Table 4B **The determinants of option adjusted credit spread changes for UK bond indexes** (weekly data; sample 1/99- 11/2003; 255 observations)

	alfa	5y	sp 5y	2_10	swo_10y	ftse sm	ftse_iv	swsp10	t(alfa)	t(5y)	t(sp 5y)	t(2_10)	t(swo_10y)	t(ftse sm)	t(ftse_iv)	t(swsp10)	R2
Sterling Corporate Index	**-0.11**	**-0.05**	**-0.01**	**-0.01**	**0.88**	**-0.37**	**-0.05**	**0.11**	**-0.60**	**-2.90**	**-0.87**	**-0.36**	**3.01**	**-3.46**	**-0.90**	**2.76**	**20.74%**
Sterling Corp AAA	-0.09	-0.02	0.01	-0.01	-0.02	-0.04	0.01	0.13	-0.65	-1.35	0.87	-0.40	-0.07	-0.45	0.04	2.70	5.00%
Sterling Corp AA	-0.13	-0.03	-0.01	-0.01	0.84	-0.24	-0.03	0.11	-0.82	-2.34	-0.69	-0.65	3.51	-2.38	-0.54	2.48	15.91%
Sterling Corp A	-0.17	-0.05	-0.01	-0.02	1.28	-0.48	-0.09	0.10	-0.70	-2.55	-0.49	-0.75	3.52	-3.47	-1.22	2.06	19.73%
Sterling Corp BBB	-0.18	-0.08	-0.03	0.01	0.72	-0.88	-0.12	0.12	-0.50	-2.70	-1.06	-0.08	1.48	-4.09	-1.50	1.59	15.47%
Sterling Corp 1-3 Yrs	-0.10	0.01	-0.03	0.08	0.17	-0.24	-0.01	0.06	-0.45	0.01	-0.63	2.35	0.56	-2.11	-0.26	0.93	2.93%
Sterling Corp 3-5 Yrs	-0.05	-0.04	0.01	0.01	0.64	-0.49	-0.06	0.12	-0.25	-2.01	0.62	0.25	1.84	-3.26	-0.96	2.19	13.43%
Sterling Corp 5-7 Yrs	-0.06	-0.08	-0.01	0.01	0.30	-0.68	-0.03	0.21	-0.15	-2.95	-0.44	0.32	0.79	-3.90	-0.39	3.16	15.29%
Sterling Corp 7-10 Yrs	-0.15	-0.07	-0.01	-0.01	0.18	-0.58	-0.12	0.15	-0.67	-3.53	-0.31	-0.50	0.39	-4.34	-1.44	3.54	19.65%
Sterling Corp 10-15 Yrs	-0.21	-0.04	-0.02	-0.02	0.70	-0.55	-0.12	0.03	-0.73	-1.77	-0.67	-0.49	0.98	-3.58	-1.27	0.46	7.73%
Sterling Corp 15+ Yrs	-0.17	-0.03	0.01	-0.03	0.61	-0.29	-0.04	0.08	-0.67	-1.76	-0.09	-0.98	1.56	-2.11	-0.54	1.59	6.65%
Sterling Corp Financials Index	**-0.14**	**-0.04**	**-0.02**	**0.01**	**1.03**	**-0.40**	**-0.08**	**0.08**	**-0.75**	**-2.54**	**-0.97**	**0.30**	**2.79**	**-3.53**	**-1.28**	**1.65**	**16.84%**
Sterling Corp Banking	-0.16	-0.05	-0.01	-0.02	1.10	-0.30	-0.11	0.05	-0.91	-2.76	-0.94	-0.76	3.13	-2.71	-1.74	1.08	13.11%
Sterling Corp Brokerage	-0.32	-0.01	-0.03	-0.03	2.61	-0.36	0.01	0.01	-0.99	-0.40	-0.92	-0.57	1.54	-2.01	-0.01	0.01	9.31%
Sterling Corp Finance & Investment	0.03	-0.05	-0.01	-0.02	0.16	-0.40	0.10	0.19	0.09	-2.22	-0.47	-0.56	0.29	-2.41	0.88	2.68	11.91%
Sterling Corp Insurance	-0.15	-0.01	-0.02	0.09	1.12	-0.81	-0.13	0.21	-0.33	-0.15	-0.39	0.95	1.56	-3.50	-1.03	1.52	4.78%
Sterling Corp Industrials Index	**-0.04**	**-0.04**	**-0.02**	**0.01**	**0.87**	**-0.56**	**0.01**	**0.16**	**-0.16**	**-2.41**	**-1.22**	**0.08**	**2.61**	**-4.03**	**0.20**	**3.60**	**23.96%**
Sterling Corp Basic Industry	-0.21	-0.05	0.07	0.01	1.43	-0.72	-0.16	0.08	-0.43	-1.22	2.04	0.14	2.49	-3.18	-1.63	0.85	6.50%
Sterling Corp Consumer Cyclicals	0.06	-0.02	-0.02	-0.04	0.90	-0.44	-0.04	0.10	0.20	-0.86	-0.74	-0.65	2.21	-2.41	-0.52	1.50	6.93%
Sterling Corp Capital Goods	0.06	-0.03	-0.02	0.05	1.10	-1.06	-0.17	0.21	0.12	-0.84	-0.51	0.91	1.38	-2.85	-0.86	2.45	9.92%
Sterling Corp Consumer Non-cyclicals	0.01	-0.01	0.01	-0.01	0.82	-0.39	0.01	0.14	0.04	-0.58	-0.01	-0.47	3.26	-3.71	0.08	2.68	13.75%
Sterling Corp Energy	-0.15	0.02	-0.01	0.01	1.17	-0.28	0.01	0.16	-0.62	1.01	-0.46	0.24	2.99	-3.13	0.01	2.65	8.90%
Sterling Corp Media	-0.01	-0.14	-0.02	-0.07	1.32	-0.87	-0.01	0.18	-0.01	-3.29	-0.53	-1.03	2.09	-2.48	-0.05	2.27	12.48%
Sterling Corp Real Estate	-0.11	-0.03	-0.05	0.01	0.72	-0.25	-0.03	0.10	-0.38	-1.10	-1.73	0.03	2.03	-1.81	-0.52	1.80	5.22%
Sterling Corp Services Cyclical	0.03	-0.02	0.01	-0.02	1.38	-0.54	-0.09	0.19	0.08	-0.91	0.14	-0.49	3.04	-2.93	-1.41	3.31	11.68%
Sterling Corp Services Non-Cyclical	-0.57	0.05	-0.05	0.02	1.46	-0.28	0.09	0.18	-1.67	1.60	-1.33	0.36	1.87	-1.23	0.88	1.16	8.70%
Sterling Corp Telecommunications	-0.06	-0.10	-0.06	0.04	0.78	-0.88	0.12	0.16	-0.12	-2.74	-1.32	0.77	1.02	-3.14	0.83	2.02	11.55%
Sterling Corp Utilities Index	**-0.15**	**-0.05**	**0.01**	**-0.04**	**0.73**	**-0.42**	**-0.03**	**0.11**	**-0.61**	**-2.41**	**0.44**	**-1.31**	**1.94**	**-3.20**	**-0.45**	**1.85**	**12.92%**
Sterling Corp All Stocks (include not-rated)	**-0.10**	**-0.04**	**-0.01**	**-0.02**	**0.83**	**-0.33**	**-0.04**	**0.11**	**-0.55**	**-2.89**	**-0.55**	**-0.78**	**3.42**	**-3.21**	**-0.92**	**2.85**	**20.19%**
Sterling All Stocks U.K. Issuers	-0.12	-0.04	-0.01	-0.02	0.88	-0.31	-0.08	0.09	-0.67	-2.75	-0.47	-0.83	3.84	-3.19	-1.49	2.52	18.73%
Sterling All Stocks Non-U.K. Issuers	-0.03	-0.03	-0.02	0.01	0.69	-0.47	-0.03	0.11	-0.13	-1.96	-1.07	0.01	2.00	-3.79	-0.42	2.19	16.22%
Sterling Large Cap Corp Index	**-0.08**	**-0.04**	**-0.01**	**-0.01**	**0.69**	**-0.43**	**-0.04**	**0.16**	**-0.43**	**-2.67**	**-0.75**	**-0.39**	**2.31**	**-3.91**	**-0.63**	**3.65**	**19.89%**
Sterling High Yield Index	**-0.33**	**-0.60**	**-0.04**	**-0.07**	**-0.40**	**-5.13**	**-0.09**	**0.25**	**-0.23**	**-5.54**	**-0.37**	**-0.43**	**-0.19**	**-5.63**	**-0.19**	**0.89**	**29.92%**
Sterling High Yield BB	-0.01	-0.77	-0.14	-0.08	2.05	-3.06	-0.16	0.31	-0.01	-4.41	-0.84	-0.31	0.55	-2.04	-0.22	0.85	9.63%
Sterling High Yield B	-0.57	-0.77	-0.17	-0.19	-1.80	-6.69	0.29	0.54	-0.23	-3.80	-0.87	-0.70	-0.36	-4.65	0.20	1.34	17.14%
Sterling High Yield CCC-C	1.38	0.48	0.58	0.10	6.44	-7.52	-0.16	0.96	0.17	0.54	0.77	0.10	0.47	-2.09	-0.08	0.68	-1.23%

Table 4C **The determinants of option adjusted credit spread changes for Eurozone bond indexes** (weekly data; sample 1/99- 11/2003; 255 observations)

	alfa	5y	sp5y	2_10	swo_10y	eustox	dax_iv	swsp5	t(a)	t(5y)	t(sp5y)	t(2_10)	t(swo_10y)	t(eustox)	t(dax_iv)	t(swsp5)	R2
EMU Corporate Index	**0.04**	**-0.08**	**-0.04**	**-0.02**	**0.38**	**-0.27**	**0.18**	**0.18**	**0.19**	**-4.21**	**-2.32**	**-0.93**	**1.14**	**-2.90**	**2.39**	**3.46**	**41.93%**
EMU Corp AAA	-0.02	-0.07	-0.02	-0.03	0.16	-0.01	0.02	0.20	-0.21	-4.82	-1.54	-1.49	0.73	-0.24	0.63	5.06	35.33%
EMU Corp AA	-0.03	-0.07	-0.02	-0.03	0.11	-0.10	0.03	0.19	-0.30	-5.08	-1.71	-1.57	0.53	-2.03	0.70	4.60	38.56%
EMU Corp A	-0.08	-0.11	-0.07	-0.03	0.24	-0.19	0.12	0.21	-0.33	-4.93	-2.75	-0.73	0.65	-1.82	1.34	3.66	32.46%
EMU Corp BBB	0.02	-0.09	-0.05	-0.05	0.23	-0.81	0.68	0.18	0.03	-1.66	-1.00	-0.71	0.23	-2.96	2.44	0.91	28.33%
EMU Corp 1-3 Yr	0.07	-0.07	-0.03	0.01	0.89	-0.33	0.25	0.09	0.28	-3.01	-1.15	0.34	1.82	-2.41	2.35	0.85	27.81%
EMU Corp 3-5 Yr	0.02	-0.09	-0.05	0.01	0.23	-0.40	0.16	0.22	0.09	-4.10	-2.35	-0.15	0.56	-3.63	1.82	3.27	40.46%
EMU Corp 5-7 Yr	0.06	-0.10	-0.04	-0.04	0.44	-0.17	0.09	0.21	0.31	-4.60	-2.29	-1.73	1.28	-1.91	1.13	3.83	35.39%
EMU Corp 7-10 Yr	0.01	-0.06	-0.04	-0.06	0.17	-0.20	0.13	0.22	0.01	-3.55	-2.67	-2.04	0.59	-2.75	1.87	5.26	37.40%
EMU Corp 10+ Yr	0.13	-0.05	-0.03	-0.13	0.26	-0.12	0.10	0.14	0.65	-1.62	-1.27	-2.56	0.63	-1.11	1.03	1.67	13.82%
EMU Corporate Large Cap Index	**0.07**	**-0.07**	**-0.04**	**-0.04**	**0.30**	**-0.35**	**0.23**	**0.20**	**0.34**	**-3.34**	**-2.23**	**-1.12**	**0.74**	**-3.37**	**2.76**	**3.21**	**41.44%**
EMU Financial Corporate Index	**0.01**	**-0.09**	**-0.03**	**-0.05**	**0.32**	**-0.16**	**0.06**	**0.19**	**-0.03**	**-5.34**	**-2.13**	**-2.21**	**1.38**	**-2.03**	**1.03**	**3.79**	**40.17%**
Banking	-0.01	-0.07	-0.02	-0.02	0.12	-0.06	0.01	0.18	-0.09	-4.81	-1.51	-0.76	0.59	-1.11	0.09	4.03	30.60%
Brokerage	-0.17	-0.10	-0.03	-0.01	-0.10	-0.10	0.09	0.21	-0.98	-4.49	-1.47	-0.42	-0.30	-1.25	1.40	3.65	26.58%
Finance & Investment	0.01	-0.19	-0.06	-0.14	1.02	-0.50	0.47	0.07	0.01	-3.09	-0.79	-1.53	1.61	-1.67	1.94	0.44	23.56%
Insurance	-0.02	-0.09	-0.03	-0.03	0.21	-0.25	0.01	0.13	-0.10	-3.77	-1.28	-1.21	0.60	-2.88	0.02	2.07	28.29%
EMU Corporates Non-Financial Index	**0.08**	**-0.06**	**-0.06**	**-0.02**	**0.67**	**-0.47**	**0.32**	**0.16**	**0.24**	**-1.88**	**-2.12**	**-0.52**	**1.27**	**-3.75**	**2.96**	**1.98**	**34.97%**
EMU Corporates Industrials Index	**0.05**	**-0.09**	**-0.05**	**-0.02**	**0.25**	**-0.44**	**0.41**	**0.19**	**0.15**	**-2.88**	**-1.55**	**-0.43**	**0.42**	**-2.92**	**3.14**	**1.97**	**33.31%**
Auto Group	0.12	-0.15	-0.08	-0.05	0.58	-0.60	0.49	0.10	0.23	-3.55	-1.77	-0.78	0.84	-1.71	2.08	0.63	23.75%
Basic Industry	-0.06	-0.10	0.01	-0.01	0.17	-0.19	0.20	-0.04	-0.16	-3.17	0.17	-0.30	0.30	-1.10	1.72	-0.35	7.90%
Consumer Cyclicals	0.08	-0.09	-0.10	0.05	0.18	-0.15	0.24	0.16	0.17	-1.76	-2.71	0.57	0.32	-0.73	1.22	1.30	7.37%
Capital Goods	0.10	-0.10	-0.01	-0.10	0.61	-0.41	0.18	0.07	0.25	-2.77	-0.40	-2.15	0.64	-3.05	0.97	0.49	15.94%
Consumer Non-cyclicals	0.05	-0.08	0.01	-0.04	0.10	-0.13	0.32	0.03	0.18	-3.34	0.06	-1.11	0.23	-0.83	1.41	0.29	3.88%
Energy	0.13	-0.12	0.02	-0.07	0.50	-0.45	0.14	0.30	0.24	-3.16	0.43	-1.26	0.50	-2.18	0.94	1.53	13.61%
Media	0.09	-0.16	-0.03	-0.04	0.31	-0.15	0.02	0.44	0.18	-3.87	-0.82	-0.54	0.43	-0.85	0.12	2.51	14.59%
Real Estate	-0.10	-0.15	0.05	0.01	1.11	0.08	0.01	-0.03	-0.33	-4.41	1.51	-0.03	1.34	0.52	0.03	-0.24	9.52%
Services Cyclical	-0.18	-0.01	0.01	0.03	3.32	-1.18	-0.44	-0.15	-0.14	-0.10	0.06	0.30	1.73	-2.21	-1.34	-0.65	2.21%
Services Non-Cyclical	-0.02	-0.02	-0.01	-0.03	0.85	-0.17	0.02	0.08	-0.09	-0.75	-0.67	-0.88	1.78	-2.41	0.33	0.79	12.49%
Telecommunications	0.06	-0.10	-0.08	0.01	0.13	-0.57	0.63	0.38	0.12	-2.09	-1.63	0.04	0.11	-3.12	3.02	2.07	30.50%
Technology & Electronics	-0.01	0.19	0.02	-0.14	-1.79	-1.78	1.49	-0.05	-0.01	0.80	0.11	-0.41	-0.55	-1.24	1.61	-0.06	5.18%
EMU Corporates Utilities Index	**0.05**	**-0.05**	**-0.01**	**-0.06**	**0.39**	**-0.27**	**0.06**	**0.05**	**0.24**	**-1.92**	**-0.42**	**-1.99**	**1.19**	**-2.38**	**0.89**	**0.48**	**16.55%**
Euro High Yield Index	**-1.47**	**-0.79**	**-0.42**	**-0.39**	**3.78**	**-4.17**	**-0.02**	**1.05**	**-0.54**	**-3.07**	**-1.46**	**-1.31**	**0.93**	**-3.58**	**-0.01**	**0.81**	**19.19%**
Euro HY BB	-1.14	-1.49	-0.11	-0.74	11.59	-2.93	-2.56	2.47	-0.28	-3.21	-0.23	-1.36	1.34	-1.45	-1.09	0.89	10.41%
Euro HY B	-1.47	-0.57	-0.35	0.12	-2.84	-4.48	0.02	0.23	-0.51	-2.02	-1.30	0.34	-0.48	-3.70	0.02	0.20	11.97%
Euro HY CCC-C	-1.82	-1.23	-1.95	-0.15	24.28	-4.81	1.17	2.01	-0.19	-1.27	-2.47	-0.15	1.27	-1.15	0.34	0.76	5.82%

Table 5A: Principal Component Analysis on regression residuals

US Residuals	first vector	second vector	**UK Residuals**	first vector	second vector	**EMU Residuals**	first vector	second vector
U.S. Corp AAA 1-3 Yrs	0.058107	0.004683	Sterling Corp AAA 1-3 Yrs	0.041605	-0.043572	EMU Corp AAA 1-3 Yrs	0.030137	-0.079047
U.S. Corp AAA 3-5 Yrs	0.060634	-0.084613	Sterling Corp AAA 3-5 Yrs	0.058580	0.000624	EMU Corp AAA 3-5 Yrs	0.033751	-0.091636
U.S. Corp AAA 5-7 Yrs	0.175141	-0.013570	Sterling Corp AAA 5-7 Yrs	0.044673	-0.038068	EMU Corp AAA 5-7 Yrs	0.049973	-0.174789
U.S. Corp AAA 7-10 Yrs	0.565386	0.563122	Sterling Corp AAA 7-10 Yrs	0.104399	-0.067679	EMU Corp AAA 7-10 Yrs	0.064754	-0.159171
U.S. Corp AAA 10-15 Yrs	0.086812	-0.080567	Sterling Corp AAA 10-15 Yrs	0.116930	-0.051592	EMU Corp AAA 10+ Yrs	0.094173	-0.215990
U.S. Corp AAA 15+ Yrs	0.093748	-0.081255	Sterling Corp AAA 15+ Yrs	0.129430	-0.123077	EMU Corp AA 1-3 Yrs	0.014621	-0.088349
U.S. Corp AA 1-3 Yrs	0.181255	-0.119138	Sterling Corp AA 1-3 Yrs	0.017099	0.011989	EMU Corp AA 3-5 Yrs	0.020675	-0.166388
U.S. Corp AA 3-5 Yrs	0.386923	0.187962	Sterling Corp AA 3-5 Yrs	0.062984	0.027325	EMU Corp AA 5-7 Yrs	0.048902	-0.181761
U.S. Corp AA 5-7 Yrs	0.063120	-0.162249	Sterling Corp AA 5-7 Yrs	0.085812	0.015315	EMU Corp AA 7-10 Yrs	0.071830	-0.202531
U.S. Corp AA 7-10 Yrs	0.091533	-0.136629	Sterling Corp AA 7-10 Yrs	0.127363	-0.008574	EMU Corp AA 10+ Yrs	0.216134	-0.124771
U.S. Corp AA 10-15 Yrs	0.163563	-0.142155	Sterling Corp AA 10-15 Yrs	0.158219	-0.357303	EMU Corp A 1-3 Yrs	-0.280255	-0.181145
U.S. Corp AA 15+ Yrs	0.317361	-0.006624	Sterling Corp AA 15+ Yrs	0.194004	-0.203038	EMU Corp A 3-5 Yrs	-0.063721	-0.213112
U.S. Corp A 1-3 Yrs	0.068255	-0.128362	Sterling Corp A 1-3 Yrs	0.020595	0.312606	EMU Corp A 5-7 Yrs	-0.018172	-0.227852
U.S. Corp A 3-5 Yrs	0.106046	-0.197669	Sterling Corp A 3-5 Yrs	0.101534	0.095391	EMU Corp A 7-10 Yrs	0.060256	-0.203672
U.S. Corp A 5-7 Yrs	0.157718	-0.222156	Sterling Corp A 5-7 Yrs	0.132299	0.148100	EMU Corp A 10+ Yrs	0.020190	-0.195750
U.S. Corp A 7-10 Yrs	0.263326	-0.069939	Sterling Corp A 7-10 Yrs	0.137617	0.068407	EMU Corp BBB 1-3 Yrs	-0.663995	0.231109
U.S. Corp A 10-15 Yrs	0.112229	-0.274951	Sterling Corp A 10-15 Yrs	0.168225	-0.025348	EMU Corp BBB 3-5 Yrs	0.446499	0.191889
U.S. Corp AA 15+ Yrs	0.101072	-0.360006	Sterling Corp AA 15+ Yrs	0.232650	-0.114528	EMU Corp BBB 5-7 Yrs	-0.021297	-0.636795
U.S. Corp BBB 1-3 Yrs	0.112256	-0.250845	Sterling Corp BBB 1-3 Yrs	-0.083959	0.594918	EMU Corp BBB 7-10 Yrs	0.447002	0.228065
U.S. Corp BBB 3-5 Yrs	0.265466	-0.072084	Sterling Corp BBB 3-5 Yrs	0.046975	0.226511			
U.S. Corp BBB 5-7 Yrs	0.073924	-0.216749	Sterling Corp BBB 5-7 Yrs	-0.810525	-0.160877			
U.S. Corp BBB 7-10 Yrs	0.128865	-0.247460	Sterling Corp BBB 7-10 Yrs	-0.005294	-0.424848			
U.S. Corp BBB 10-15 Yrs	0.132674	-0.202998	Sterling Corp BBB 10-15 Yrs	0.190430	0.187887			
U.S. Corp BBB 15+ Yrs	0.219575	-0.122988	Sterling Corp BBB 15+ Yrs	0.170014	-0.100329			
Cum. explained by PC:	40%	53%	Cum. explained by PC:	43%	57%	Cum. explained by PC:	43%	59%

The table reports results of a principal component analysis using regression residuals on indexes that are classified both by rating and maturity. The specifications are the same used in Tables 2A-2C. The available indexes are 24 for US and UK, and 19 for Euro area.
The first two vectors for each set of residuals, with the percentage of cumulative variance explained by the vectors, are reported.

Table 5B: Principal Component Analysis on delta credit spreads.

US Delta credit spreads			**UK Delta credit spreads**			**EMU Delta credit spreads**		
	first vector	second vector		first vector	second vector		first vector	second vector
U.S. Corp AAA 1-3 Yrs	0.128648	0.229301	Sterling Corp AAA 1-3 Yrs	0.168309	0.167106	EMU Corp AAA 1-3 Yrs	0.190237	0.215008
U.S. Corp AAA 3-5 Yrs	0.173043	-0.045454	Sterling Corp AAA 3-5 Yrs	0.193617	0.199423	EMU Corp AAA 3-5 Yrs	0.224463	0.187262
U.S. Corp AAA 5-7 Yrs	0.167997	-0.182879	Sterling Corp AAA 5-7 Yrs	0.201352	0.198540	EMU Corp AAA 5-7 Yrs	0.228368	0.276546
U.S. Corp AAA 7-10 Yrs	0.175362	-0.168626	Sterling Corp AAA 7-10 Yrs	0.220669	0.168200	EMU Corp AAA 7-10 Yrs	0.198894	0.366132
U.S. Corp AAA 10-15 Yrs	0.114691	-0.185097	Sterling Corp AAA 10-15 Yrs	0.169777	0.147324	EMU Corp AAA 10+ Yrs	0.138472	0.335758
U.S. Corp AAA 15+ Yrs	0.186093	-0.207064	Sterling Corp AAA 15+ Yrs	0.184864	0.284445	EMU Corp AA 1-3 Yrs	0.178139	0.172748
U.S. Corp AA 1-3 Yrs	0.176586	0.054705	Sterling Corp AA 1-3 Yrs	0.164078	0.049153	EMU Corp AA 3-5 Yrs	0.249821	0.120719
U.S. Corp AA 3-5 Yrs	0.174057	0.324527	Sterling Corp AA 3-5 Yrs	0.229189	0.074097	EMU Corp AA 5-7 Yrs	0.243350	0.193610
U.S. Corp AA 5-7 Yrs	0.173617	0.344900	Sterling Corp AA 5-7 Yrs	0.244026	0.097024	EMU Corp AA 7-10 Yrs	0.253124	0.203623
U.S. Corp AA 7-10 Yrs	0.212181	-0.048906	Sterling Corp AA 7-10 Yrs	0.234167	0.107449	EMU Corp AA 10+ Yrs	0.147365	0.152310
U.S. Corp AA 10-15 Yrs	0.213273	0.106714	Sterling Corp AA 10-15 Yrs	0.180643	0.117899	EMU Corp A 1-3 Yrs	0.180928	-0.234783
U.S. Corp AA 15+ Yrs	0.206231	0.293062	Sterling Corp AA 15+ Yrs	0.216177	0.202825	EMU Corp A 3-5 Yrs	0.240450	-0.229802
U.S. Corp A 1-3 Yrs	0.202962	-0.123121	Sterling Corp A 1-3 Yrs	0.156455	-0.217212	EMU Corp A 5-7 Yrs	0.245309	-0.152467
U.S. Corp A 3-5 Yrs	0.219099	0.053097	Sterling Corp A 3-5 Yrs	0.199268	-0.237172	EMU Corp A 7-10 Yrs	0.264799	-0.020556
U.S. Corp A 5-7 Yrs	0.214209	0.195546	Sterling Corp A 5-7 Yrs	0.227247	-0.094084	EMU Corp A 10+ Yrs	0.211651	-0.079536
U.S. Corp A 7-10 Yrs	0.213699	-0.206685	Sterling Corp A 7-10 Yrs	0.243454	-0.066337	EMU Corp BBB 1-3 Yrs	0.201190	-0.342893
U.S. Corp A 10-15 Yrs	0.225079	-0.070539	Sterling Corp A 10-15 Yrs	0.243475	0.017231	EMU Corp BBB 3-5 Yrs	0.236978	-0.207352
U.S. Corp AA 15+ Yrs	0.222841	0.137725	Sterling Corp AA 15+ Yrs	0.229921	0.072037	EMU Corp BBB 5-7 Yrs	0.225952	-0.163063
U.S. Corp BBB 1-3 Yrs	0.160131	-0.395304	Sterling Corp BBB 1-3 Yrs	0.121908	-0.347929	EMU Corp BBB 7-10 Yrs	0.227164	-0.184969
U.S. Corp BBB 3-5 Yrs	0.183323	-0.300803	Sterling Corp BBB 3-5 Yrs	0.149306	-0.310457			
U.S. Corp BBB 5-7 Yrs	0.204216	0.088032	Sterling Corp BBB 5-7 Yrs	0.104623	-0.325867			
U.S. Corp BBB 7-10 Yrs	0.190388	-0.194105	Sterling Corp BBB 7-10 Yrs	0.168307	-0.141007			
U.S. Corp BBB 10-15 Yrs	0.213178	-0.143198	Sterling Corp BBB 10-15 Yrs	0.215156	-0.134499			
U.S. Corp BBB 15+ Yrs	0.219371	0.014568	Sterling Corp BBB 15+ Yrs	0.230172	0.001037			
Cum. explained by PC:	73%	82%	Cum. explained by PC:	75%	90%	Cum. explained by PC:	75%	85%

The table reports results of a principal component analysis using delta credit spreads of indexes that are classified both by rating and maturity. The available indexes are 24 for US and UK, and 19 for Euro area. The first two vectors, with the percentage of cumulative variance explained by the vectors, are reported.

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APPENDIX

Table A.1A: descriptive statistics for option adjusted credit spreads according to investment grade, maturity and industry (US market)

US indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
US Corporate	**0.35**	**11.80**	**-44**	**-9**	**-1**	**15**	**47**	**0.32**	**7.25**	**63.82**	**6.98**	**0.1392**	**3789**
US Corp AAA	-0.28	5.71	-16	-6	-1	6	21	0.60	5.33	23.71	9.68	0.0630	117
US Corp AA	-0.25	7.01	-16	-8	0	8	24	0.73	4.62	16.42	12.66	0.1527	454
US Corp A	0.23	9.87	-37	-10	0	13	29	-0.19	5.77	27.09	6.23	0.0643	1734
US Corp BBB	0.86	17.37	-64	-12	-1	18	79	0.77	9.17	139.86	11.03	0.1861	1484
US Corp 1-3 Yrs	0.92	13.93	-62	-9	-1	17	53	-0.12	9.06	127.01	13.38	0.0945	653
US Corp 3-5 Yrs	0.29	12.51	-50	-11	0	13	54	0.49	8.84	121.12	9.76	0.1674	663
US Corp 5-7 Yrs	-0.05	12.10	-45	-11	-1	14	47	0.40	7.25	64.58	10.07	0.1725	505
US Corp 7-10 Yrs	0.58	12.18	-39	-10	-1	15	46	0.45	6.39	42.53	8.87	0.1370	697
US Corp 10-15 Yrs	0.07	10.94	-28	-9	-1	14	53	1.34	8.96	147.79	11.50	0.1350	194
US Corp 15+ Yrs	-0.34	11.91	-37	-10	-2	16	39	0.04	5.28	17.95	7.44	0.1193	1077
US Financial Corp	**-0.24**	**12.05**	**-53**	**-12**	**-1**	**15**	**34**	**-0.43**	**7.38**	**69.03**	**4.35**	**0.0728**	**1222**
Banking	-0.88	8.21	-29	-11	-1	9	20	-0.11	4.32	6.24	8.15	0.1235	567
Brokerage	-1.22	10.77	-34	-12	-2	11	36	0.52	5.26	21.35	7.18	0.1035	153
Finance & Investment	0.43	19.39	-105	-13	0	18	72	-1.15	14.55	479.84	5.12	-0.0622	375
Insurance	0.86	15.99	-19	-11	-1	14	115	4.60	32.63	3329.01	12.81	0.2887	127
US Industrial Corp	**0.41**	**12.76**	**-37**	**-11**	**-2**	**15**	**51**	**0.85**	**6.58**	**54.43**	**7.46**	**0.1563**	**2130**
Auto Group	0.04	26.30	-121	-20	-1	29	78	-0.94	9.18	144.29	3.52	-0.0278	136
Basic Industry	0.01	10.25	-28	-8	-1	14	26	0.21	4.30	6.41	9.64	0.1616	239
Consumer Cyclicals	-0.31	15.24	-66	-13	-1	18	44	-0.71	7.25	69.28	7.61	-0.0106	213
Capital Goods	0.72	10.17	-25	-9	-1	14	33	0.45	4.25	8.23	12.78	-0.0739	188
Consumer Non-Cyclical	-0.63	7.40	-29	-7	-1	8	20	-0.24	5.98	31.48	12.32	0.2309	279
Energy	0.64	12.75	-30	-10	-1	14	74	2.37	15.01	576.67	18.37	0.2511	344
Media	-1.64	22.52	-59	-21	-3	15	126	2.17	15.70	623.08	11.52	0.1632	154
Real Estate	-0.98	11.25	-31	-13	-2	12	48	1.04	6.97	69.42	26.63	0.3320	95
Services Cyclical	0.86	19.15	-50	-14	-1	24	98	2.02	11.16	287.21	9.50	-0.1052	222
Services Non-Cyclical	0.69	19.47	-30	-17	-1	17	116	2.90	16.89	784.05	7.60	0.1068	50
Telecommunciations	1.54	29.34	-76	-21	-1	20	130	1.91	10.83	262.30	25.60	0.2017	249
Technology & Electronics	2.27	19.11	-48	-15	-1	20	100	1.82	10.92	262.63	9.13	0.0061	97
US Utility Corp	**1.90**	**20.37**	**-61**	**-13**	**0**	**17**	**123**	**2.85**	**19.13**	**1011.94**	**19.82**	**-0.0488**	**335**
US High Yield Index	**1.93**	**59.14**	**-155**	**-64**	**2**	**54**	**211**	**0.60**	**5.80**	**32.10**	**5.95**	**0.1078**	**1270**
US HY BB	1.77	45.58	-111	-45	-1	29	195	1.33	8.30	121.64	6.38	0.1474	465
US HY B	2.98	66.48	-184	-74	1	86	229	0.31	5.20	18.03	6.53	0.0429	597
US HY CCC and Lower Rated	1.04	111.15	-271	-117	-1	132	385	0.35	4.73	12.10	7.69	0.2134	208
US HY Aerospace	-2.07	66.87	-170	-74	-2	46	380	2.19	15.00	564.69	5.98	-0.1122	11
US HY Gaming	-4.82	51.53	-160	-61	-5	38	241	1.23	10.32	206.26	8.32	0.0622	48
US HY Hotels	-4.22	57.34	-175	-59	-3	42	334	2.05	16.81	717.93	7.61	-0.0294	19
US HY Air Transportation	22.76	193.77	-611	-46	3	148	840	0.83	9.12	138.92	22.38	0.2224	30
US HY Automotive & Auto Parts	11.76	92.81	-263	-97	1	111	417	1.02	7.58	86.94	13.07	0.1291	28
US HY Banks & Thrifts	-7.29	34.87	-107	-43	-4	24	136	0.21	6.44	41.51	0.04	0.0771	19
US HY Building Materials	-0.41	55.27	-122	-69	-2	54	218	0.71	6.02	38.41	6.01	0.0749	21
US HY Broadcasting	-5.74	51.57	-121	-68	-7	41	196	0.89	6.03	42.93	24.05	0.1566	38
US HY Capital Goods	-0.64	64.21	-267	-68	2	78	210	-0.59	7.01	60.39	9.53	0.0159	29
US HY Chemicals	3.64	62.39	-154	-61	7	75	203	-0.11	3.92	3.09	6.86	0.0348	43
US HY Consumer Products	10.96	82.60	-181	-80	6	96	393	0.99	7.71	90.24	8.64	0.0540	31
US HY Containers	-3.01	110.26	-572	-81	-3	82	333	-0.91	12.22	305.57	13.16	0.0116	25

US indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
US HY Cable/Sat TV	8.77	95.40	-228	-70	1	114	529	1.90	12.92	390.72	8.55	0.1717	85
US HY Diversified Media	-6.81	49.25	-166	-61	-4	36	199	0.60	7.34	70.02	6.31	-0.1468	18
US HY Utilities	-0.51	82.74	-241	-73	-2	61	409	1.45	11.04	252.47	21.93	0.1478	74
US HY Energy	-6.54	53.01	-140	-76	-3	47	227	0.53	7.10	62.15	10.14	0.0041	106
US HY Entertainment	4.49	91.02	-143	-103	-2	98	420	1.63	8.28	133.48	17.68	0.0890	8
US HY Environmental	-6.18	77.81	-223	-83	-8	71	279	0.43	5.48	23.86	9.64	0.0155	9
US HY Div. Financial Services	6.24	113.28	-372	-81	-9	98	578	2.13	14.47	517.84	6.55	0.0433	22
US HY Food/Beverage/Tobacco	5.76	65.52	-140	-53	-3	80	345	1.97	11.09	280.38	9.27	0.0451	34
US HY Food & Drug Retail	1.04	99.20	-353	-86	3	107	285	-0.48	5.42	23.32	14.11	0.2543	23
US HY Homebuilders/Real Estate	-4.47	44.77	-122	-57	-6	48	157	0.46	4.91	15.54	4.36	-0.0107	43
US HY Healthcare	-1.02	37.91	-84	-45	-1	46	110	0.31	3.33	1.74	12.31	0.1205	70
US HY Insurance	16.77	214.53	-522	-176	2	175	1213	2.16	14.29	505.06	10.91	0.0902	11
US HY Leisure	-2.94	64.26	-169	-84	-3	55	225	0.48	5.44	23.76	6.86	0.1659	12
US HY Metals/Mining	8.34	80.16	-177	-71	0	95	301	0.97	5.49	34.55	10.43	0.1089	24
US HY Paper	0.22	64.50	-244	-61	-3	63	323	1.03	11.35	255.61	8.46	0.1392	47
US HY Publishing/Printing	-2.49	60.90	-185	-66	0	54	261	0.73	7.62	81.32	27.46	0.2118	17
US HY Railroads	-7.04	44.56	-246	-57	0	25	114	-1.75	12.35	344.88	8.31	-0.1419	2
US HY Restaurants	0.77	52.90	-136	-56	0	60	164	0.21	3.74	2.50	6.78	0.1633	12
US HY Services	-1.58	93.15	-323	-93	-6	114	259	0.04	4.64	9.37	12.67	0.1118	20
US HY Transportation Ex Air/Rail	1.23	62.97	-169	-63	3	59	249	0.78	6.55	52.01	8.68	0.0036	16
US HY Super Retail	0.82	69.08	-165	-71	-1	87	242	0.49	4.47	10.72	11.10	0.2158	53
US HY Steel	17.62	104.75	-264	-81	10	122	389	1.01	5.39	33.95	7.77	0.2100	19
US HY Telecommunications	17.68	185.80	-358	-130	-9	171	1261	3.63	25.84	1986.02	9.93	0.1545	125
US HY Textiles/Apparel	15.53	87.44	-246	-70	8	114	405	0.88	7.38	77.02	12.62	0.1596	23
US HY Technology	-2.08	106.27	-397	-109	0	122	262	-0.25	5.53	22.89	11.78	0.0738	37
US HY 1-3 Yrs	10.19	109.09	-206	-101	2	88	534	1.95	10.15	229.69	6.65	0.1778	103
US HY 3-5 Yrs	0.55	62.48	-183	-80	0	74	237	0.66	5.91	35.34	7.71	0.1568	212
US HY 5-7 Yrs	0.77	56.87	-154	-67	-2	64	202	0.38	5.39	21.68	4.87	0.0916	333
US HY 7-10 Yrs	2.95	56.00	-135	-63	1	68	203	0.58	5.49	26.19	6.83	0.0517	395
US HY 10-15 Yrs	-1.57	39.21	-124	-48	-1	42	151	0.35	5.84	29.61	6.67	0.1412	41
US HY 15+ Yrs	-3.17	41.94	-107	-57	-3	27	240	2.15	15.86	635.48	7.68	0.1907	109
US HY Large Cap	2.55	81.91	-388	-68	1	74	351	-0.08	12.03	282.19	6.16	-0.1982	597
US HY Small Cap	-2.47	117.09	-664	-84	0	72	631	-0.25	23.47	1450.37	12.08	-0.3604	597

The table illustrates descriptive statistics on delta credit spread of Merril Lynch US corporate indexes. Data are expressed in basis points. For each series we calcolate mean (mean), standard deviation (s.dev.), minimo (Min), first decile median and nineth decile of the distribution (p10, p50, p90), maximum (max), skewness (Sk), kurtosis (Kurt), the Jarque-Bera test (J-B), the Box-Pierce test (B-P), first order autocorrelation index (ac1), and the average number of bonds included in each index. The Box-Pierce tests the hypothesis of no autocorrelation up to the 10th order.
The table includes 79 most representative out of 204 available US indexes. The observation period is from January 1997 to November 2003. Statistics on all other indexes are available upon request.

Table A.1B: descriptive statistics for option adjusted credit spreads according to investment grade, maturity and industry (UK market)

UK indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
Sterling Corporates Index	**-0.68**	**9.02**	**-18**	**-11**	**-2**	**8**	**34**	**1.05**	**5.44**	**28.08**	**8.72**	**0.1450**	**478**
Sterling Corp AAA	-0.66	6.65	-13	-9	-1	7	22	0.85	5.08	19.55	8.67	0.1102	77
Sterling Corp AA	-0.85	7.86	-18	-10	-1	7	30	0.86	5.99	32.24	9.28	0.0785	129
Sterling Corp A	-0.49	10.74	-23	-11	-2	11	41	1.10	5.74	33.32	9.54	0.1306	190
Sterling Corp BBB	-0.46	13.99	-30	-16	-2	14	50	0.89	4.74	16.72	6.70	0.1896	83
Sterling Corp 1-3 Yrs	-1.15	6.40	-19	-9	-1	6	15	-0.19	3.97	2.97	10.23	0.0410	67
Sterling Corp 3-5 Yrs	0.25	8.73	-18	-11	1	8	28	0.63	4.25	8.50	8.35	0.1124	66
Sterling Corp 5-7 Yrs	0.09	11.10	-23	-12	-2	17	33	0.72	3.49	6.22	5.93	0.1556	54
Sterling Corp 7-10 Yrs	-0.71	11.02	-21	-13	-2	13	45	1.20	6.29	44.91	11.52	0.1322	70
Sterling Corp 10-15 Yrs	-0.57	11.76	-25	-12	-2	14	48	1.31	6.45	50.78	9.96	0.1719	53
Sterling Corp 15+ Yrs	-0.98	10.85	-31	-12	-2	12	42	0.80	5.99	31.18	7.51	0.0727	169
Sterling Corp Financials Index	**-1.11**	**8.88**	**-19**	**-9**	**-2**	**10**	**35**	**1.28**	**6.41**	**49.20**	**11.21**	**0.1181**	**233**
Banking	-1.46	8.60	-18	-10	-2	8	37	1.49	8.07	93.88	11.15	0.1035	163
Brokerage	-2.37	10.96	-29	-15	-2	10	34	0.43	4.39	7.21	23.21	0.3286	5
Finance & Investment	-0.48	12.44	-39	-14	-1	13	45	0.39	6.32	31.49	8.82	-0.0716	34
Insurance	0.86	15.75	-27	-12	-2	17	68	1.96	8.27	117.00	5.21	0.0495	31
Sterling Corp Industrials Index	**-0.31**	**10.86**	**-22**	**-15**	**0**	**10**	**34**	**0.69**	**4.34**	**10.09**	**10.45**	**0.1421**	**137**
Basic Industry	1.38	14.62	-31	-14	1	19	48	0.81	4.68	14.77	21.51	0.1939	8
Consumer Cyclicals	-0.98	10.57	-22	-16	0	11	34	0.55	4.32	8.01	14.04	0.2365	15
Capital Goods	0.32	19.31	-63	-20	-1	18	56	0.08	5.20	13.20	8.55	0.1725	11
Consumer Non-cyclicals	-0.66	8.76	-22	-12	0	9	22	0.20	3.09	0.44	9.15	0.1366	27
Energy	-1.46	8.40	-30	-10	-2	7	28	0.02	5.56	17.77	6.94	0.0976	16
Media	-0.06	18.13	-38	-24	-1	27	51	0.57	3.72	4.96	22.67	0.3334	8
Real Estate	-0.05	10.91	-21	-13	-1	12	35	0.55	3.62	4.28	9.15	0.1485	13
Services Cyclical	-0.14	12.89	-28	-15	-1	15	45	0.85	5.09	19.57	11.00	0.1465	20
Services Non-Cyclical	-2.46	9.54	-24	-9	-4	11	18	-0.13	3.84	0.78	10.33	-0.1575	1
Telecom	-0.55	19.04	-38	-21	-3	21	74	1.37	6.15	47.29	10.45	0.0949	18
Sterling Corp Utilities Index	**-0.88**	**10.63**	**-30**	**-12**	**-2**	**13**	**33**	**0.39**	**3.85**	**3.60**	**9.93**	**0.2112**	**56**
Sterling Corp All Stocks (include not-rated)	**-0.45**	**8.80**	**-18**	**-10**	**-2**	**9**	**35**	**1.14**	**5.89**	**36.61**	**8.70**	**0.1797**	**565**
U.K. Issuers	-0.46	8.87	-20	-10	-2	10	36	1.09	6.18	40.39	9.83	0.1647	385
Non-U.K. Issuers	-0.62	9.07	-16	-12	-1	9	28	0.86	3.94	10.41	7.85	0.1353	180
Sterling Large Cap Corp Index	**-0.88**	**9.60**	**-19**	**-12**	**-2**	**9**	**35**	**0.93**	**5.09**	**21.24**	**8.95**	**0.0857**	**160**
Sterling High Yield Index	**0.43**	**61.73**	**-124**	**-80**	**-6**	**72**	**188**	**0.62**	**3.99**	**6.85**	**12.07**	**0.1765**	**31**
Sterling HY BB	-4.50	47.74	-114	-75	-7	35	157	0.83	5.78	23.56	14.92	-0.0446	9

UK indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
Sterling HY B	-1.81	67.16	-125	-93	-3	83	215	0.66	3.84	5.87	19.34	0.1313	17
Sterling HY CCC-C	-11.76	159.48	-486	-185	-8	138	524	0.66	5.88	24.20	10.58	0.0363	4

The table illustrates descriptive statistics on delta credit spread of Merril Lynch US corporate indexes. Data are expressed in basis points. For each series we calcolate mean (mean), standard deviation (s.dev.), minimum (Min), first decile median and nineth decile of the distribution (p10, p50, p90), maximum (max), skewness (Sk), kurtosis (Kurt), the Jarque-Bera test (J-B), the Box-Pierce test (B-P), first order autocorrelation index (ac1), and the average number of bonds included in each index. The Box-Pierce tests the hypothesis of no autocorrelation up to the 10th order.
The table includes 36 most representative out of 125 available UK indexes. The observation period is from January 1998 to November 2003. Statistics on all other indexes are available upon request.

Table A1.C: descriptive statistics for option adjusted credit spreads according to investment grade, maturity and industry (Eurozone market)

Eurozone indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
EMU Corporate Index	**-0.47**	**7.52**	**-20**	**-9**	**-1**	**8**	**25**	**0.66**	**5.00**	**14.30**	**4.10**	**0.1415**	**1159**
EMU Corp AAA	-0.68	3.12	-8	-4	-1	3	8	0.05	3.31	0.27	9.01	-0.0540	281
EMU Corp AA	-0.70	3.67	-8	-5	-1	5	8	0.34	2.60	1.58	8.97	0.1181	333
EMU Corp A	-0.47	8.32	-25	-9	-1	9	29	0.60	5.90	24.75	4.21	0.0799	356
EMU Corp BBB	0.65	22.22	-46	-21	-3	27	95	1.52	7.74	79.29	4.77	0.1843	152
EMU Corp 1-3 Yr	0.18	9.22	-31	-7	0	12	32	0.57	6.71	37.60	4.96	0.0106	314
EMU Corp 3-5 Yr	-0.08	9.56	-22	-10	-1	12	34	0.90	5.70	26.31	5.83	0.1730	320
EMU Corp 5-7 Yr	-0.67	7.01	-19	-9	0	7	19	0.24	3.54	1.29	4.33	0.1087	223
EMU Corp 7-10 Yr	-1.02	5.77	-13	-9	-1	7	15	0.21	2.88	0.49	6.75	0.1628	252
EMU Corp 10+ Yr	-1.77	5.80	-13	-8	-2	5	21	1.01	5.75	29.13	17.79	0.1214	50
EMU Corporate Large Cap Index	**-0.62**	**8.44**	**-23**	**-10**	**-1**	**8**	**29**	**0.60**	**5.49**	**18.40**	**3.73**	**0.1368**	**453**
EMU Financial Corporate Index	**-0.63**	**2.98**	**-7**	**-5**	**-1**	**7**	**9**	**0.39**	**3.98**	**3.93**	**7.78**	**0.0520**	**722**
Banking	-0.85	3.38	-8	-5	-1	4	7	0.18	2.89	0.35	12.57	0.1565	545
Brokerage	-2.00	6.62	-14	-10	-3	8	21	0.91	4.48	13.54	8.07	0.0838	27
Finance & Investment	-0.14	18.04	-84	-13	-1	19	72	-0.56	13.42	269.79	8.71	-0.1022	103
Insurance	-1.20	6.64	-14	-8	-1	7	23	0.98	5.35	22.99	9.96	0.1616	39
EMU Corporates Non-Financial Index	**0.00**	**12.30**	**-25**	**-11**	**-1**	**12**	**50**	**1.24**	**7.07**	**55.88**	**4.97**	**0.1487**	**386**
EMU Corporates Industrials Index	**0.20**	**13.88**	**-31**	**-12**	**0**	**14**	**56**	**1.19**	**7.07**	**54.71**	**4.73**	**0.1485**	**317**
Auto Group	-0.20	17.51	-40	-22	-1	18	54	0.61	5.26	16.21	9.21	-0.1219	63
Basic Industry	0.12	11.02	-28	-14	-1	12	38	0.73	5.20	17.14	9.43	0.1622	21
Consumer Cyclicals	0.41	13.75	-28	-17	0	20	44	0.97	4.94	18.46	5.09	-0.0859	55
Capital Goods	1.03	15.24	-31	-14	-1	23	52	0.87	4.90	16.36	8.45	0.2067	37
Consumer Non-cyclicals	0.86	12.76	-14	-8	-2	12	80	4.29	26.54	1543.37	4.51	0.0205	58
Energy	0.69	14.89	-45	-12	0	15	43	0.24	5.97	22.23	38.33	-0.1545	27
Media	-0.90	16.95	-40	-16	-1	11	81	2.11	11.97	241.60	8.22	0.0264	16
Real Estate	-1.32	9.00	-21	-14	-2	9	22	0.01	3.10	0.02	7.31	0.1446	6
Services Cyclical	3.75	32.54	-135	-12	-1	31	145	0.64	13.82	292.08	6.97	-0.1566	21
Services Non-Cyclical	-1.60	5.64	-15	-8	-1	4	11	-0.56	3.53	2.75	9.35	0.1370	1
Telecommunications	-2.54	22.23	-52	-24	-5	21	98	1.79	9.53	136.36	6.83	0.1048	58
Technology & Electronics	12.37	46.57	-41	-11	2	34	246	3.74	17.78	674.41	18.26	0.4164	17
EMU Corporates Utilities Index	**-1.00**	**5.41**	**-14**	**-8**	**-1**	**6**	**14**	**0.21**	**3.65**	**1.48**	**5.02**	**0.1327**	**61**
Euro High Yield Index	**1.02**	**95.42**	**-204**	**-143**	**-4**	**112**	**300**	**0.43**	**3.82**	**3.51**	**14.67**	**0.1674**	**94**
Euro HY BB	-9.55	88.00	-227	-141	-11	100	214	-0.05	4.10	2.87	10.24	-0.0926	22
Euro HY B	1.41	88.54	-160	-112	-12	120	297	0.83	4.23	10.48	19.15	0.2683	54

Eurozone indexes	Mean	S.Dev	Min	p10	p50	p90	Max	Sk	Kurt	J-B	B-P	ac(1)	Av. n. bonds
Euro HY CCC-C	21.22	263.21	-629	-261	-5	425	800	0.78	4.91	14.95	16.24	0.1669	18

The table illustrates descriptive statistics on delta credit spread of Merril Lynch US corporate indexes. Data are expressed in basis points. For each series we calcolate mean (mean), standard deviation (s.dev.), minimum (Min), first decile median and nineth decile of the distribution (p10, p50, p90), maximum (max), skewness (Sk), kurtosis (Kurt), the Jarque-Bera test (J-B), the Box-Pierce test (B-P), first order autocorrelation index (ac1), and the average number of bonds included in each index. The Box-Pierce tests the hypothesis of no autocorrelation up to the 10th order.
The table includes 35 most representative out of 118 available Eurozone indexes. The observation period is from January 1999 to November 2003. Statistics on all other indexes are available upon request.

Table A.2A: **the determinants of option adjusted credit spread changes for US bond indexes** (including high yield sectors; sample 1/1997 – 11/2003; 83 observations).

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(alfa)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US Corporate	**2,02**	**-0,10**	**-0,43**	**0,56**	**-1,01**	**-5,07**	**0,33**	**-17,31**	**19,25**	**1,10**	**-2,58**	**-2,49**	**2,28**	**-2,52**	**-1,78**	**2,95**	**-2,56**	**3,05**	**52,33%**
US Corp AAA	-0,75	-0,07	-0,17	0,21	-0,09	0,13	0,23	-7,92	7,36	-0,91	-3,50	-1,55	1,08	-0,46	0,07	3,82	-2,74	2,69	50,54%
US Corp AA	0,04	-0,04	-0,17	0,35	-0,37	-3,39	0,29	-9,49	9,53	0,03	-1,86	-1,35	1,65	-1,39	-1,73	4,67	-2,48	3,11	47,37%
US Corp A	1,28	-0,08	-0,30	0,45	-0,83	-4,62	0,31	-10,86	14,02	0,86	-2,45	-2,15	1,64	-2,58	-1,78	3,34	-2,17	3,01	48,56%
US Corp BBB	4,18	-0,13	-0,75	0,80	-1,70	-6,09	0,37	-26,89	29,37	1,49	-2,37	-2,82	2,39	-2,73	-1,47	2,00	-2,24	2,60	50,01%
US Corp 1-3 Yrs	3,82	-0,12	-0,34	0,46	-1,56	-2,76	0,18	-23,25	26,03	1,48	-2,96	-1,68	1,53	-2,71	-0,86	1,14	-2,60	3,01	36,96%
US Corp 3-5 Yrs	2,01	-0,10	-0,44	0,34	-1,10	-4,19	0,33	-15,54	21,56	0,91	-2,60	-2,24	1,23	-2,56	-1,57	2,71	-1,99	2,80	46,91%
US Corp 5-7 Yrs	1,76	-0,09	-0,46	0,68	-1,12	-4,96	0,34	-14,47	17,93	0,86	-2,47	-2,28	2,51	-2,86	-1,60	2,63	-2,20	2,83	50,08%
US Corp 7-10 Yrs	1,63	-0,12	-0,50	0,62	-0,67	-4,91	0,39	-17,30	17,68	0,99	-2,76	-2,68	2,34	-1,74	-1,49	3,76	-2,65	3,12	55,98%
US Corp 10-15 Yrs	1,84	-0,02	-0,56	0,41	-0,92	-2,36	0,29	-19,27	19,21	1,13	-0,39	-2,47	1,45	-2,03	-0,76	2,94	-2,71	2,94	43,45%
US Corp 15+ Yrs	1,05	-0,06	-0,47	0,77	-0,90	-7,59	0,39	-15,39	14,30	0,70	-1,43	-2,35	3,58	-1,67	-2,03	3,49	-2,70	2,81	55,88%
US Financial Corp	**0,98**	**-0,10**	**-0,28**	**0,39**	**-0,87**	**-5,42**	**0,39**	**-11,84**	**15,76**	**0,49**	**-2,66**	**-1,62**	**1,10**	**-2,04**	**-1,74**	**3,22**	**-1,99**	**2,59**	**40,54%**
US Corp Banking	-1,08	-0,06	-0,11	0,36	-0,23	-5,16	0,35	-7,96	8,79	-0,89	-2,15	-0,84	1,79	-0,90	-1,90	4,41	-2,02	2,99	43,19%
US Corp Brokerage	-0,69	-0,10	-0,06	0,52	-0,40	-7,06	0,44	-11,62	12,59	-0,44	-2,26	-0,24	2,04	-1,24	-2,51	5,14	-2,27	3,43	42,30%
US Corp Finance & Investment	3,11	-0,17	-0,45	0,23	-1,65	-4,50	0,48	-17,55	26,10	1,03	-2,70	-2,13	0,38	-2,01	-0,93	2,31	-1,80	2,14	30,47%
US Corp Insurance	3,06	0,06	-0,94	1,11	-1,12	-6,40	-0,20	-0,23	4,26	0,93	0,65	-1,79	1,53	-1,77	-1,50	-0,61	-0,03	0,97	8,37%
US Industrial Corp	**2,61**	**-0,08**	**-0,54**	**0,78**	**-1,13**	**-6,12**	**0,29**	**-20,21**	**20,17**	**1,27**	**-1,84**	**-2,99**	**3,81**	**-2,07**	**-1,86**	**2,25**	**-2,64**	**2,96**	**50,36%**
US Corp Auto Group	3,89	-0,22	-0,71	1,00	-2,08	-10,36	0,43	-18,08	25,84	0,98	-2,24	-2,62	1,28	-2,29	-1,52	1,51	-1,22	2,06	27,99%
US Corp Basic Industry	1,56	-0,06	-0,43	0,62	-1,10	-3,56	0,14	-9,50	11,37	1,04	-1,88	-2,52	2,28	-2,82	-1,16	1,00	-1,09	1,37	38,23%
US Corp Consumer Cyclicals	3,28	-0,07	-0,48	1,11	-2,07	-7,82	0,27	-9,86	11,54	1,23	-1,06	-2,36	3,94	-2,05	-1,78	1,53	-1,31	2,07	38,61%
US Corp Capital Goods	2,22	-0,03	-0,38	0,56	-0,81	-6,66	0,14	-9,56	14,22	1,27	-0,82	-2,40	2,60	-1,45	-1,75	1,01	-1,07	1,94	31,97%
US Corp Consumer Non-Cyclical	0,46	0,02	-0,36	0,37	-0,80	-3,94	0,19	-4,27	4,92	0,43	0,74	-2,61	2,04	-2,07	-1,95	2,49	-1,22	1,81	39,05%
US Corp Energy	1,78	-0,13	-0,54	0,31	-0,77	2,86	0,36	-19,66	18,77	0,78	-3,11	-1,91	0,82	-1,73	0,68	2,77	-2,09	2,05	42,31%
US Corp Media	-1,25	-0,16	-0,73	0,71	-0,97	-2,48	0,75	-43,44	40,22	-0,36	-1,89	-2,00	1,95	-1,55	-0,44	3,14	-1,86	1,79	40,44%
US Corp Real Estate	-0,79	-0,09	-0,02	0,54	-0,62	-4,42	0,16	-3,71	3,28	-0,38	-1,74	-0,06	2,11	-1,13	-1,67	0,97	-0,71	0,89	12,08%
US Corp Services Cyclical	8,77	0,01	-0,81	1,34	-2,31	-11,51	-0,05	-13,44	13,59	2,54	0,25	-2,42	1,90	-2,90	-2,71	-0,20	-1,06	1,22	26,94%
US Corp Services Non-Cyclical	1,91	0,01	-0,74	-0,85	-2,21	-0,13	-0,16	-15,05	11,31	0,56	0,12	-1,65	-0,65	-1,91	-0,02	-0,42	-1,46	1,21	13,52%
US Corp Telecommunications	2,48	-0,20	-0,62	1,49	-0,55	-13,13	0,48	-49,95	48,09	0,47	-1,74	-1,76	2,54	-0,39	-1,44	1,16	-1,89	1,98	23,35%
US Corp Technology & Electronics	8,26	-0,09	-0,65	0,55	-1,81	-6,79	0,44	-16,27	15,90	2,00	-1,35	-2,15	2,00	-2,43	-1,20	1,95	-1,21	1,43	31,80%
US Utility Corp	**4,07**	**-0,17**	**-0,44**	**-0,13**	**-1,65**	**2,64**	**0,31**	**-29,54**	**39,02**	**1,11**	**-2,16**	**-1,02**	**-0,22**	**-1,83**	**0,42**	**1,40**	**-1,37**	**1,59**	**23,81%**
US High Yield Index	**9,93**	**-0,81**	**-2,46**	**3,24**	**-3,50**	**-13,93**	**1,71**	**-29,74**	**21,09**	**1,12**	**-4,49**	**-2,83**	**2,30**	**-1,57**	**-0,83**	**3,61**	**-1,23**	**1,13**	**56,89%**
US HY BB	6,38	-0,65	-2,02	2,72	-2,19	-9,24	0,88	-33,54	25,92	1,16	-4,82	-2,99	2,22	-1,22	-0,74	2,38	-1,54	1,61	51,75%
US HY B	12,17	-0,92	-2,45	3,20	-3,60	-17,70	2,26	-24,57	19,45	1,08	-3,96	-2,52	2,13	-1,40	-0,89	3,96	-0,90	0,94	57,39%

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(alfa)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US HY CCC and Lower	24,85	-1,12	-4,23	6,34	-10,90	-24,82	2,65	-13,50	-12,60	1,21	-3,44	-2,22	2,51	-3,23	-0,78	2,43	-0,25	-0,29	44,70%
US HY Aerospace	8,33	-0,85	-2,13	4,80	-3,72	-21,28	0,47	-23,33	-0,86	0,65	-4,53	-1,54	1,42	-1,81	-1,34	0,82	-0,66	-0,02	37,54%
US HY Gaming	-4,21	-0,83	-1,64	2,61	-0,37	-17,77	0,96	0,58	-8,42	-0,52	-4,25	-1,59	1,13	-0,32	-1,17	1,93	0,03	-0,54	48,64%
US HY Hotels	2,21	-0,72	-2,14	4,10	-1,87	-18,96	0,46	-8,80	3,19	0,20	-3,65	-1,68	1,42	-1,20	-1,11	0,83	-0,34	0,16	35,56%
US HY Air Transportation	95,33	-0,03	-10,01	10,23	-13,17	-131,55	-0,63	-53,64	29,33	2,50	-0,04	-3,18	1,76	-2,22	-2,15	-0,39	-0,50	0,30	27,14%
US HY Automotive & Auto Parts	32,01	-0,94	-3,10	9,46	-9,77	-34,23	1,64	52,13	-6,90	1,72	-2,47	-1,73	3,70	-2,29	-1,10	1,75	0,97	-0,19	36,84%
US HY Banks & Thrifts	-10,60	-0,65	-0,18	2,08	-1,95	-4,53	0,76	-20,14	23,08	-1,82	-6,62	-0,34	2,96	-1,15	-0,60	1,87	-0,71	0,92	48,00%
US HY Building Materials	4,13	-0,80	-2,00	1,24	-4,55	-20,89	0,77	10,02	-3,37	0,65	-4,22	-2,51	0,79	-2,32	-1,65	1,55	0,41	-0,20	53,03%
US HY Broadcasting	-4,99	-0,71	-1,56	2,38	-0,75	-23,13	1,64	-18,68	7,17	-0,55	-3,33	-1,66	1,43	-0,57	-1,26	3,34	-1,00	0,60	52,32%
US HY Capital Goods	9,31	-0,80	-0,54	2,12	-4,82	-37,28	0,71	-46,37	16,54	0,91	-4,21	-0,67	1,08	-1,50	-1,74	1,07	-1,54	0,53	39,03%
US HY Chemicals	10,77	-1,08	-1,04	3,10	-4,32	-24,40	1,14	-7,38	13,15	1,11	-4,72	-0,95	1,80	-1,37	-1,19	1,76	-0,22	0,46	51,98%
US HY Consumer Products	21,92	-0,55	-0,93	0,76	-9,62	-38,35	0,26	-28,26	17,74	1,55	-1,55	-0,67	0,24	-2,43	-1,43	0,22	-0,99	0,74	27,45%
US HY Containers	37,67	-0,32	-1,60	5,92	-16,81	-35,69	3,64	70,04	-27,24	1,61	-0,55	-0,77	3,03	-2,14	-0,90	1,68	1,16	-0,88	27,82%
US HY Cable/Satellite TV	17,79	-0,80	-3,92	5,01	0,18	-11,22	2,92	-83,05	53,84	1,40	-3,06	-2,89	2,14	0,03	-0,43	3,23	-1,86	1,25	31,14%
US HY Diversified Media	-3,09	-0,51	-1,95	2,54	-2,12	-19,39	0,58	36,88	-10,80	-0,37	-2,29	-2,10	1,30	-1,41	-1,20	1,11	1,03	-0,31	28,70%
US HY Utilities	3,72	-1,00	-2,50	1,46	-4,45	44,87	1,11	-119,72	117,23	0,22	-3,22	-1,53	0,86	-1,41	1,52	1,18	-1,27	1,40	22,10%
US HY Energy	-15,09	-1,00	-1,22	1,50	-0,71	15,16	1,28	-69,29	42,19	-1,70	-5,32	-1,39	1,28	-0,45	1,12	2,02	-1,84	1,23	47,94%
US HY Entertainment/Film	5,25	-0,76	0,29	-1,78	-3,54	-33,64	2,96	-40,92	36,66	0,36	-1,97	0,16	-0,64	-0,74	-1,24	2,12	-0,78	0,80	18,50%
US HY Environmental	-11,52	-0,82	-2,85	3,48	-0,18	10,28	0,73	-63,09	42,84	-1,10	-2,80	-1,63	1,20	-0,07	0,30	0,50	-1,15	0,95	18,04%
US HY Div. Financial Services	43,41	-0,10	-1,75	3,02	-19,36	-41,30	1,28	-119,20	114,90	2,17	-0,30	-0,74	1,71	-3,24	-1,68	1,12	-1,65	1,86	26,32%
US HY Food/Beverage/Tobacco	7,49	-1,30	-0,03	1,86	-6,92	29,01	1,11	25,68	-17,23	0,81	-2,30	-0,02	1,43	-2,57	0,68	1,87	0,82	-0,91	36,82%
US HY Food & Drug Retail	16,34	-0,62	0,66	9,26	-17,28	-12,08	1,93	-77,41	92,27	0,92	-2,22	0,28	5,76	-2,38	-0,41	1,85	-1,03	1,29	30,93%
US HY Homebuilders/Real Estate	-1,48	-0,77	-0,93	1,75	-3,07	-16,06	0,48	-17,16	5,40	-0,23	-5,07	-1,54	1,22	-2,48	-1,54	1,06	-1,11	0,50	54,70%
US HY Healthcare	5,23	-0,45	-1,67	0,55	-4,27	-8,18	0,84	-8,40	5,14	1,10	-3,39	-2,28	0,56	-3,23	-0,68	2,43	-0,68	0,55	57,96%
US HY Insurance	49,48	-0,89	-3,12	-9,36	-23,64	-38,22	1,31	50,84	31,90	1,70	-0,78	-0,81	-1,19	-2,58	-0,89	0,47	0,30	0,31	4,96%
US HY Leisure	8,94	-0,76	-1,53	2,05	-3,21	-30,67	1,43	15,23	-50,87	1,04	-2,69	-1,67	1,27	-1,57	-1,50	1,90	0,47	-2,22	48,13%
US HY Metals/Mining	3,64	-0,96	-2,91	1,98	-0,88	-5,28	0,66	-98,64	102,44	0,41	-2,79	-1,73	1,16	-0,30	-0,23	0,60	-1,26	1,40	28,28%
US HY Paper	0,17	-1,14	-1,12	2,93	-2,58	-7,11	2,20	9,43	-9,05	0,03	-4,06	-1,39	2,95	-1,79	-0,33	2,75	0,36	-0,53	50,84%
US HY Publishing/Printing	0,12	-1,15	-1,79	1,69	-2,45	-8,96	0,67	20,56	-7,10	0,01	-6,00	-1,28	0,78	-1,34	-0,48	1,11	0,87	-0,34	49,10%
US HY Railroads	-8,96	-0,32	-0,27	0,94	-2,22	-15,39	-0,07	-18,45	22,10	-1,27	-1,25	-0,29	0,66	-1,28	-0,91	-0,12	-0,56	0,81	5,78%
US HY Restaurants	9,84	-0,58	-1,03	1,69	-5,72	-16,26	0,38	-39,94	19,66	1,24	-2,86	-1,21	1,83	-2,59	-1,08	0,83	-1,86	1,07	41,62%
US HY Services	11,19	-0,73	-1,55	-2,49	-10,28	-46,50	0,70	-19,42	3,81	0,84	-2,61	-0,60	-0,72	-2,47	-1,31	0,36	-0,55	0,14	28,03%
US HY Transportation Ex Air/Rail	0,95	-0,61	-2,62	2,79	-2,26	-12,88	0,68	-35,13	15,36	0,10	-2,60	-2,60	1,26	-1,29	-0,79	0,92	-1,51	0,49	30,35%
US HY Super Retail	11,52	-0,71	-2,04	4,15	-6,95	-16,14	0,56	-34,43	22,44	0,95	-2,60	-1,31	1,85	-3,04	-0,61	0,81	-0,62	0,48	31,12%
US HY Steel	27,34	-1,66	1,87	5,04	-6,28	-30,86	3,06	86,48	-61,17	1,72	-3,82	0,78	1,81	-1,67	-0,84	2,26	1,28	-1,41	30,42%
US HY Telecommunications	25,63	-1,31	-6,01	9,91	5,28	-46,81	4,78	-133,98	74,34	0,79	-2,65	-2,90	1,77	0,38	-0,79	2,30	-0,97	0,89	18,40%

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(alfa)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US HY Textiles/Apparel	42,32	-0,99	-1,65	3,37	-10,88	-21,15	1,09	47,68	-23,50	2,27	-2,72	-1,05	0,99	-3,73	-0,83	1,04	1,20	-0,80	35,57%
US HY Technology	7,39	-1,67	-1,68	5,72	-5,07	-13,15	3,72	-53,73	-8,84	0,49	-3,80	-1,05	3,25	-1,41	-0,51	2,15	-1,20	-0,37	49,76%
HY US 1-3 Yrs	10,09	-0,85	-2,20	10,61	-4,16	-23,06	2,04	-138,20	95,19	0,60	-3,22	-1,05	2,78	-0,85	-0,87	1,86	-1,84	1,55	20,64%
HY US 3-5 Yrs	10,15	-0,88	-2,31	3,43	-4,38	-18,03	1,45	-41,12	19,90	1,09	-5,62	-2,49	2,19	-2,20	-1,29	3,13	-1,54	0,80	57,35%
HY US 5-7 Yrs	8,96	-0,93	-2,03	2,75	-4,58	-9,16	1,51	-8,83	6,24	1,06	-5,24	-2,44	2,05	-2,98	-0,55	3,39	-0,42	0,42	61,67%
HY US 7-10 Yrs	9,51	-0,77	-2,47	3,13	-2,42	-11,02	1,67	-19,92	15,13	1,16	-3,80	-2,82	2,19	-1,05	-0,63	3,45	-0,99	1,01	55,05%
HY US 10-15 Yrs	3,62	-0,50	-1,91	1,95	-2,38	-10,13	0,27	-33,50	19,89	0,52	-4,21	-2,95	1,84	-1,79	-0,89	0,86	-1,36	1,16	49,10%
HY US 15+ Yrs	-4,83	-0,55	-0,97	1,72	-0,74	-11,35	1,05	-54,95	36,00	-1,07	-4,11	-1,93	1,84	-0,35	-0,85	2,89	-1,96	2,03	40,18%
HY US Large Cap	12,42	-0,89	-1,39	2,20	-4,61	0,30	2,32	-28,37	22,92	1,32	-5,30	-0,81	0,79	-1,55	0,02	3,51	-0,99	1,16	20,92%
HY US Small Cap	15,23	-0,93	0,01	0,49	-10,36	-1,97	1,98	-29,68	25,36	1,32	-4,76	0,01	0,16	-2,63	-0,09	1,94	-0,79	0,79	5,07%

Dependent variables are monthly changes of Option Adjusted Spreads of Merrill Lynch Corporate indexes. Each change is calculated before monthly rebalancing in order to ensure invariance of index constituents for a given spread change. Indexes are divided for rating, maturity and industries. Data are measured in basis points. Each table reports estimated coefficients, t-stats and adjusted R-squared. T-stats are calculated by using Heteroskedasticity and Autocorrelation Consistent Covariances with the Newey-West covariance matrix estimator (truncation lag is set to three).

The table reports findings for the US market for a sample period ranging from 1/1997 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1 \Delta(5y)_t + \beta_2 (russ2)_t + \beta_3 \Delta(riv)_t + \beta_4 (smb)_t + \beta_5 \Delta(lead)_t + \beta_6 \Delta(swsp5)_t + \beta_7 \Delta(hy_b)_t + \beta_8 \Delta(hy_s)_t + \varepsilon_t$$

where *DCS* (Delta Credit Spread) is the change of the option adjusted credit spread, *5y* is the 5-year Treasury bond yield, *russ2* is the return of the Russel 2000, *riv* is the implicit volatility of the options on the Russell 2000, *smb* is the Fama-French Small-minus-Big factor, *lead* is the Leading Indicator del Conference Board, *swsp5* is the spread between swap and yield of 5-year government bond, *hy_b* (*hy_s*) are total HY US bond purchases (sales) of Lehman Brothers professional investors.

Estimates include high yield sectors.

Table A.2B: **: the determinants of option adjusted credit spread changes for US bond indexes** (including high yield sectors; restricted sample from 1999; 59 observations)..

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(a)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US Corporate	**2,13**	**-0,10**	**-0,37**	**0,53**	**-1,01**	**-4,55**	**0,40**	**-17,48**	**21,23**	**1,07**	**-2,39**	**-2,06**	**2,23**	**-2,48**	**-1,51**	**4,10**	**-2,51**	**3,35**	**56,64%**
US Corp AAA	-0,93	-0,07	-0,18	0,18	-0,02	0,78	0,22	-8,06	7,88	-1,01	-2,48	-1,27	1,03	-0,10	0,33	3,68	-2,67	2,84	44,85%
US Corp AA	-0,20	-0,04	-0,15	0,32	-0,23	-3,27	0,31	-9,95	10,86	-0,19	-1,28	-1,18	1,60	-0,89	-1,53	4,46	-2,42	3,87	50,42%
US Corp A	1,31	-0,08	-0,25	0,42	-0,79	-4,12	0,36	-11,12	15,65	0,87	-2,23	-1,88	1,59	-2,43	-1,47	3,85	-1,87	3,14	50,39%
US Corp BBB	4,49	-0,14	-0,64	0,77	-1,75	-5,71	0,47	-26,89	32,23	1,43	-2,20	-2,27	2,34	-2,84	-1,28	2,77	-2,30	2,87	54,53%
US Corp 1-3 Yrs	4,00	-0,12	-0,34	0,43	-1,55	-2,72	0,24	-23,08	27,63	1,40	-2,55	-1,52	1,48	-2,34	-0,77	1,34	-2,51	3,21	38,38%
US Corp 3-5 Yrs	2,02	-0,11	-0,49	0,31	-1,11	-3,66	0,42	-15,15	22,66	0,84	-2,44	-2,33	1,18	-2,31	-1,22	3,51	-1,93	3,06	49,96%
US Corp 5-7 Yrs	1,51	-0,09	-0,41	0,65	-1,02	-4,57	0,42	-14,36	20,31	0,71	-2,09	-2,15	2,46	-2,64	-1,36	3,92	-2,24	3,27	57,27%
US Corp 7-10 Yrs	1,66	-0,12	-0,44	0,59	-0,64	-3,86	0,45	-17,61	19,79	0,94	-2,36	-2,49	2,29	-1,76	-1,12	5,63	-2,61	3,42	59,96%
US Corp 10-15 Yrs	2,00	-0,04	-0,53	0,38	-0,94	-1,22	0,36	-19,85	20,63	1,10	-0,70	-2,05	1,40	-2,05	-0,36	4,48	-2,77	3,28	47,74%
US Corp 15+ Yrs	1,34	-0,07	-0,29	0,74	-0,90	-7,37	0,44	-16,04	17,18	0,88	-1,32	-1,51	3,53	-2,20	-1,94	5,35	-2,62	3,41	63,69%
US Financial Corp	**0,92**	**-0,10**	**-0,31**	**0,36**	**-0,81**	**-4,34**	**0,44**	**-12,03**	**17,14**	**0,42**	**-2,35**	**-1,62**	**1,05**	**-1,60**	**-1,28**	**3,50**	**-1,77**	**2,73**	**40,82%**
US Corp Banking	-1,36	-0,05	-0,09	0,33	-0,06	-3,36	0,35	-8,87	10,16	-1,09	-1,73	-0,58	1,74	-0,23	-1,43	3,92	-1,99	3,40	46,14%
US Corp Brokerage	-1,00	-0,05	-0,18	0,49	-0,32	-5,26	0,42	-10,89	14,31	-0,65	-1,26	-1,30	1,99	-0,87	-1,82	3,83	-1,89	3,71	48,46%
US Corp Finance & Investment	3,20	-0,20	-0,53	0,20	-1,70	-4,27	0,63	-17,34	26,85	0,94	-2,95	-2,01	0,33	-1,71	-0,76	2,66	-1,66	2,21	31,97%
US Corp Insurance	3,34	0,11	-0,80	1,08	-1,01	-6,97	-0,26	0,18	7,84	0,86	1,02	-1,79	1,48	-1,28	-1,50	-0,87	0,02	1,44	12,47%
US Industrial Corp	**2,71**	**-0,09**	**-0,40**	**0,75**	**-1,08**	**-5,87**	**0,36**	**-20,62**	**22,96**	**1,24**	**-1,82**	**-2,22**	**3,76**	**-2,49**	**-1,78**	**3,65**	**-2,70**	**3,39**	**58,13%**
US Corp Auto Group	4,26	-0,25	-0,54	0,97	-2,13	-10,82	0,61	-18,15	29,32	0,98	-2,40	-1,81	1,23	-1,96	-1,45	1,98	-1,06	2,05	31,35%
US Corp Basic Industry	1,49	-0,06	-0,29	0,59	-1,04	-4,08	0,17	-9,53	13,61	1,00	-1,46	-1,58	2,23	-2,89	-1,23	1,13	-0,97	1,54	41,24%
US Corp Consumer Cyclicals	3,75	-0,07	-0,22	1,08	-2,09	-7,87	0,35	-10,22	15,56	1,56	-0,96	-1,17	3,89	-2,71	-1,70	1,97	-1,11	2,24	48,65%
US Corp Capital Goods	2,13	-0,02	-0,23	0,53	-0,67	-7,88	0,14	-9,75	16,21	1,09	-0,46	-1,07	2,55	-1,27	-1,85	0,82	-1,04	2,23	32,75%
US Corp Consumer Non-Cyclical	0,21	0,03	-0,28	0,34	-0,71	-3,90	0,20	-4,59	6,32	0,17	0,74	-2,05	1,99	-1,83	-1,74	2,68	-1,19	2,37	38,41%
US Corp Energy	1,71	-0,15	-0,56	0,28	-0,70	4,02	0,42	-20,27	19,79	0,66	-2,63	-1,44	0,77	-1,22	0,78	2,76	-2,29	2,25	41,52%
US Corp Media	-1,36	-0,21	-0,59	0,68	-0,89	-0,32	0,91	-44,85	42,91	-0,33	-2,41	-1,33	1,90	-1,42	-0,05	3,47	-2,06	1,99	42,27%
US Corp Real Estate	-2,57	-0,03	-0,01	0,51	0,06	-4,52	0,03	-4,26	5,47	-1,48	-0,64	-0,03	2,06	0,20	-1,78	0,22	-0,82	1,55	9,00%
US Corp Services Cyclical	8,63	0,08	-0,59	1,31	-1,98	-13,40	-0,13	-13,27	18,45	2,95	0,99	-2,34	1,85	-2,69	-2,58	-0,44	-0,92	1,62	33,99%
US Corp Services Non-Cyclical	2,68	-0,06	-1,13	-0,88	-2,51	2,22	0,02	-15,80	8,19	0,59	-0,81	-1,58	-0,70	-1,77	0,36	0,04	-1,67	0,89	16,33%
US Corp Telecommunications	2,87	-0,24	-0,31	1,46	-0,62	-11,80	0,71	-50,60	53,44	0,47	-2,14	-0,96	2,49	-0,52	-1,20	1,85	-2,06	2,22	29,85%
US Corp Technology & Electronics	9,01	-0,11	-0,61	0,52	-1,98	-6,29	0,55	-16,24	17,83	1,98	-1,43	-1,80	1,95	-2,21	-1,01	2,58	-1,15	1,45	33,15%
US Utility Corp	**4,42**	**-0,21**	**-0,65**	**-0,16**	**-1,82**	**2,71**	**0,50**	**-29,32**	**38,75**	**1,08**	**-2,36**	**-1,04**	**-0,27**	**-1,69**	**0,36**	**1,87**	**-1,44**	**1,70**	**27,67%**
US High Yield Index	**10,85**	**-0,70**	**-2,16**	**3,21**	**-3,24**	**-8,07**	**1,69**	**-30,51**	**32,71**	**1,23**	**-3,02**	**-2,48**	**2,25**	**-1,46**	**-0,48**	**3,75**	**-1,19**	**1,63**	**58,18%**
US HY BB	7,20	-0,60	-1,68	2,69	-2,07	-6,69	0,97	-34,17	35,46	1,40	-3,49	-2,67	2,17	-1,19	-0,54	2,54	-1,50	2,10	55,09%
US HY B	13,00	-0,78	-2,22	3,17	-3,21	-10,39	2,17	-25,71	31,18	1,13	-2,68	-2,18	2,08	-1,20	-0,51	3,93	-0,91	1,40	57,18%
US HY CCC and Lower	27,38	-0,77	-3,68	6,31	-10,64	-13,51	2,35	-12,09	10,20	1,31	-2,01	-1,93	2,46	-2,90	-0,42	2,05	-0,20	0,22	44,07%
US HY Aerospace	8,04	-0,64	-1,03	4,77	-2,51	-24,19	0,02	-25,82	16,52	0,76	-2,06	-1,29	1,37	-1,04	-1,49	0,02	-0,69	0,52	40,10%
US HY Gaming	-4,55	-0,60	-1,27	2,58	0,37	-15,54	0,47	-0,99	1,47	-0,65	-2,68	-1,53	1,08	0,22	-0,97	0,82	-0,05	0,10	43,76%

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(a)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
US HY Hotels	1,56	-0,57	-1,75	4,07	-0,95	-21,05	0,43	-7,83	17,16	0,16	-2,02	-1,95	1,37	-0,48	-1,05	0,62	-0,28	0,83	43,31%
US HY Air Transportation	99,99	0,41	-9,57	10,20	-13,29	-147,09	-0,41	-40,08	63,73	2,45	0,60	-3,36	1,71	-1,50	-2,34	-0,22	-0,34	0,64	33,17%
US HY Automotive & Auto Parts	36,85	-0,68	-1,22	9,43	-10,14	-29,20	1,65	53,41	26,38	2,52	-1,30	-0,83	3,65	-4,00	-0,83	1,55	1,07	0,85	51,48%
US HY Banks & Thrifts	-10,74	-0,50	0,46	2,05	-1,22	-4,75	0,37	-21,46	31,17	-1,84	-5,06	0,87	2,91	-0,68	-0,83	1,07	-0,79	1,29	43,28%
US HY Building Materials	6,08	-0,62	-1,75	1,21	-4,31	-23,69	0,27	8,39	1,80	1,01	-2,79	-2,27	0,74	-2,06	-1,59	0,67	0,34	0,11	43,83%
US HY Broadcasting	-5,55	-0,65	-1,04	2,35	-0,01	-20,76	1,51	-21,77	16,36	-0,63	-2,35	-1,18	1,38	-0,01	-0,99	2,73	-1,03	1,28	48,53%
US HY Capital Goods	10,76	-0,67	-0,33	2,09	-4,71	-30,54	0,54	-47,25	25,04	1,09	-2,94	-0,43	1,03	-1,13	-1,43	0,76	-1,44	0,75	32,76%
US HY Chemicals	10,78	-0,96	-0,78	3,07	-4,02	-17,89	1,08	-8,11	24,57	1,11	-3,26	-0,66	1,75	-1,37	-0,75	1,41	-0,23	0,88	51,76%
US HY Consumer Products	24,34	-0,63	-0,90	0,73	-9,47	-26,01	0,44	-34,08	22,04	1,42	-1,70	-0,51	0,19	-1,83	-1,07	0,39	-1,17	0,81	22,41%
US HY Containers	44,28	-0,17	-1,13	5,89	-19,02	-30,71	4,21	80,91	-6,96	1,86	-0,23	-0,44	2,98	-2,90	-0,67	1,83	1,16	-0,21	34,66%
US HY Cable/Satellite TV	19,94	-0,75	-3,35	4,98	0,35	0,34	3,14	-85,86	71,71	1,40	-2,36	-2,35	2,09	0,06	0,01	3,71	-2,01	1,48	33,02%
US HY Diversified Media	-3,23	-0,38	-1,36	2,51	-1,51	-18,28	0,32	34,65	-0,86	-0,42	-1,25	-1,70	1,25	-0,91	-0,97	0,45	0,91	-0,03	23,74%
US HY Utilities	5,69	-1,15	-3,05	1,43	-5,55	58,75	1,89	-118,22	121,15	0,30	-3,37	-1,43	0,81	-1,41	1,77	1,94	-1,31	1,50	25,81%
US HY Energy	-20,26	-0,80	-1,10	1,47	1,46	14,17	0,72	-72,16	47,90	-2,50	-4,28	-1,11	1,23	0,83	0,86	1,19	-1,78	1,34	37,29%
US HY Entertainment/Film	12,00	-1,08	-0,15	-1,81	-5,95	-19,14	3,81	-43,82	31,01	0,71	-2,33	-0,07	-0,69	-1,18	-0,73	2,44	-0,78	0,65	19,10%
US HY Environmental	-9,96	-0,84	-2,85	3,45	-0,53	38,79	1,00	-69,07	54,65	-0,85	-2,31	-1,36	1,15	-0,17	1,35	0,65	-1,34	1,19	24,29%
US HY Div. Financial Services	38,21	0,15	-3,52	2,99	-16,50	-33,75	1,41	-116,21	126,32	2,09	0,40	-2,50	1,66	-3,22	-1,25	1,13	-1,51	2,03	38,78%
US HY Food/Beverage/Tobacco	12,75	-1,31	1,02	1,83	-7,98	39,02	0,95	19,73	-9,92	1,41	-2,00	0,69	1,38	-3,45	0,85	1,47	0,59	-0,47	33,46%
US HY Food & Drug Retail	24,53	-0,44	3,42	9,23	-19,03	-6,98	2,06	-76,30	125,17	1,55	-1,35	1,56	5,71	-3,80	-0,24	1,82	-0,95	1,63	45,69%
US HY Homebuilders/Real Estate	-2,48	-0,66	-0,67	1,72	-2,38	-13,29	0,21	-18,19	12,02	-0,43	-3,55	-1,13	1,17	-1,51	-1,36	0,45	-1,05	1,07	49,69%
US HY Healthcare	6,42	-0,44	-1,95	0,52	-4,57	-0,68	0,92	-8,36	6,78	1,14	-3,13	-2,09	0,51	-2,60	-0,06	2,49	-0,62	0,69	55,96%
US HY Insurance	68,34	-1,57	-5,94	-9,39	-31,20	-29,76	3,25	59,63	-2,34	1,98	-1,26	-1,47	-1,24	-3,29	-0,72	1,38	0,38	-0,03	8,96%
US HY Leisure	13,14	-0,48	-0,96	2,02	-3,31	-29,76	0,84	15,48	-42,56	1,49	-1,66	-0,99	1,22	-1,38	-1,55	1,59	0,48	-1,94	44,59%
US HY Metals/Mining	3,42	-0,76	-3,41	1,95	-0,22	7,64	0,36	-100,63	109,43	0,36	-2,20	-1,67	1,11	-0,07	0,34	0,28	-1,25	1,48	21,89%
US HY Paper	0,00	-0,75	-0,26	2,90	-1,37	-3,89	1,22	5,94	3,43	0,00	-3,79	-0,36	2,90	-0,91	-0,26	3,38	0,29	0,33	53,49%
US HY Publishing/Printing	0,91	-1,11	-1,28	1,66	-2,32	-10,45	0,64	19,60	-0,44	0,08	-4,45	-0,99	0,73	-1,10	-0,46	0,90	0,74	-0,02	44,56%
US HY Railroads	-8,63	-0,40	-0,05	0,91	-2,52	-15,54	0,26	-18,25	25,46	-1,08	-1,34	-0,05	0,61	-1,42	-0,82	0,38	-0,51	0,81	5,92%
US HY Restaurants	13,37	-0,46	-1,10	1,66	-6,55	-9,02	0,26	-39,62	25,41	1,63	-1,85	-1,35	1,78	-3,35	-0,55	0,46	-1,59	1,22	39,92%
US HY Services	14,58	-0,88	-2,93	-2,52	-11,07	-36,49	1,10	-20,90	-5,10	1,08	-2,29	-0,93	-0,77	-2,76	-0,83	0,57	-0,61	-0,19	26,09%
US HY Transportation Ex Air/Rail	-0,91	-0,32	-2,24	2,76	-0,45	-15,24	-0,15	-38,72	25,20	-0,10	-1,25	-2,65	1,21	-0,22	-0,82	-0,23	-1,52	0,79	19,21%
US HY Super Retail	13,74	-0,49	-1,43	4,12	-6,66	-13,78	0,26	-35,33	37,53	1,09	-1,44	-0,84	1,80	-2,77	-0,47	0,30	-0,62	0,83	29,62%
US HY Steel	29,83	-1,36	2,91	5,01	-6,47	-28,42	2,81	89,27	-42,55	1,78	-2,64	1,10	1,76	-1,81	-0,65	1,97	1,33	-1,07	23,89%
US HY Telecommunications	24,62	-1,19	-4,84	9,88	6,72	-34,29	5,26	-136,97	108,94	0,65	-2,10	-2,08	1,72	0,46	-0,61	2,67	-1,02	1,10	19,85%
US HY Textiles/Apparel	46,38	-0,92	-1,08	3,34	-11,67	-21,62	1,27	50,11	-11,51	2,35	-2,24	-0,60	0,94	-3,19	-0,73	1,21	1,16	-0,36	35,55%
US HY Technology	9,56	-1,81	-0,89	5,69	-5,85	-2,00	4,68	-55,47	11,84	0,59	-4,23	-0,53	3,20	-1,97	-0,09	2,83	-1,36	0,53	58,86%
HY US 1-3 Yrs	13,61	-0,58	0,01	10,58	-4,04	-18,06	2,09	-138,87	132,53	0,91	-1,73	0,01	2,73	-1,11	-0,72	2,08	-1,68	1,87	31,72%
HY US 3-5 Yrs	10,91	-0,73	-2,06	3,40	-3,99	-13,68	1,37	-41,78	32,28	1,25	-3,52	-2,65	2,14	-2,08	-0,93	3,03	-1,48	1,23	58,93%
HY US 5-7 Yrs	10,00	-0,80	-1,84	2,72	-4,38	-3,79	1,38	-9,39	16,07	1,20	-3,58	-2,24	2,00	-2,49	-0,22	3,09	-0,42	1,05	61,16%

	alfa	5y	russ2	riv	smb	lead	swsp5	hy_b	hy_s	t(a)	t(5y)	t(russ2)	t(riv)	t(smb)	t(lead)	t(swsp5)	t(hy_b)	t(hy_s)	R2
HY US 7-10 Yrs	10,13	-0,67	-2,14	3,10	-2,13	-4,68	1,65	-20,64	26,16	1,20	-2,59	-2,24	2,14	-0,93	-0,26	3,39	-0,98	1,63	56,12%
HY US 10-15 Yrs	5,14	-0,46	-1,84	1,92	-2,55	-5,81	0,34	-33,78	26,26	0,75	-2,86	-3,02	1,79	-1,97	-0,50	1,01	-1,25	1,47	51,69%
HY US 15+ Yrs	-4,60	-0,58	-0,82	1,69	-0,79	-7,92	1,31	-55,66	42,19	-0,87	-4,15	-1,62	1,79	-0,36	-0,60	4,02	-2,07	2,29	41,86%
HY US Large Cap	14,16	-0,85	-1,20	2,17	-4,81	6,96	2,40	-28,94	30,95	1,34	-3,81	-0,57	0,74	-1,28	0,37	3,45	-0,97	1,40	14,64%
HY US Small Cap	18,35	-0,90	-0,26	0,46	-11,31	5,52	2,12	-28,62	27,72	1,35	-3,31	-0,08	0,11	-2,26	0,21	1,74	-0,69	0,77	-1,78%

Dependent variables are monthly changes of Option Adjusted Spreads of Merrill Lynch Corporate indexes. Each change is calculated before monthly rebalancing in order to ensure invariance of index constituents for a given spread change. Indexes are divided for rating, maturity and industries. Data are measured in basis points. Each table reports estimated coefficients, t-stats and adjusted R-squared. T-stats are calculated by using Heteroskedasticity and Autocorrelation Consistent Covariances with the Newey-West covariance matrix estimator (truncation lag is set to three).

The table reports findings for the US market for a sample period ranging from 1/1999 to 11/2003. The specification is the following:

$$DCS_t = \alpha + \beta_1 \Delta(5y)_t + \beta_2 (russ2)_t + \beta_3 \Delta(riv)_t + \beta_4 (smb)_t + \beta_5 \Delta(lead)_t + \beta_6 \Delta(swsp5)_t + \beta_7 \Delta(hy_b)_t + \beta_8 \Delta(hy_s)_t + \varepsilon_t$$

where *DCS* (Delta Credit Spread) is the change of the option adjusted credit spread, *5y* is the 5-year Treasury bond yield, *russ2* is the return of the Russel 2000, *riv* is the implicit volatility of the options on the Russell 2000, *smb* is the Fama-French Small-minus-Big factor, *lead* is the Leading Indicator del Conference Board, *swsp5* is the spread between swap and yield of 5-year government bond, *hy_b* (*hy_s*) are total HY US bond purchases (sales) of Lehman Brothers professional investors.

Estimates include high yield sectors.

Table A.2C: **: the determinants of option adjusted credit spread changes for US bond indexes** (including high yield sectors; weekly data; sample, 1/1999 – 11/2003; 255 observations)**..**

	alfa	5y	2_10	ty1	russ2	sp100iv	swsp5	t(alfa)	t(5y)	t(2_10)	t(ty1)	t(russ2)	t(sp100iv)	t(swsp5)	R2
US Corporate	**-0,06**	**-0,10**	**0,01**	**0,44**	**-0,32**	**0,16**	**0,29**	**-0,16**	**-4,74**	**-0,06**	**0,76**	**-2,05**	**1,08**	**3,27**	**24,27%**
US Corp AAA	-0,03	-0,04	0,03	0,40	0,01	0,01	0,25	-0,19	-1,68	0,92	0,85	-0,03	0,06	4,80	16,85%
US Corp AA	-0,12	-0,06	0,02	0,48	-0,16	0,05	0,24	-0,56	-2,95	0,68	0,99	-1,51	0,51	4,95	23,65%
US Corp A	-0,13	-0,08	0,02	0,19	-0,15	0,13	0,34	-0,44	-3,63	0,60	0,38	-1,24	0,96	3,93	24,71%
US Corp BBB	-0,08	-0,15	-0,02	0,66	-0,60	0,23	0,30	-0,14	-5,38	-0,38	0,83	-2,33	1,11	2,27	20,60%
US Corp 1-3 Yrs	-0,04	-0,11	-0,03	-0,04	-0,35	0,06	0,34	-0,08	-4,12	-0,70	-0,06	-1,73	0,27	2,58	11,95%
US Corp 3-5 Yrs	-0,11	-0,10	0,02	-0,15	-0,28	0,20	0,28	-0,27	-4,47	0,48	-0,26	-1,80	1,38	3,23	19,89%
US Corp 5-7 Yrs	-0,10	-0,11	0,02	0,71	-0,34	0,09	0,27	-0,27	-4,94	0,63	1,21	-2,19	0,66	3,10	25,23%
US Corp 7-10 Yrs	-0,04	-0,12	0,01	0,70	-0,35	0,24	0,30	-0,11	-4,52	0,25	1,06	-1,88	1,25	3,25	26,62%
US Corp 10-15 Yrs	-0,10	-0,07	0,02	1,30	-0,27	-0,12	0,32	-0,24	-2,19	0,56	1,43	-1,47	-0,56	2,90	11,91%
US Corp 15+ Yrs	-0,02	-0,09	0,01	0,62	-0,24	0,20	0,26	-0,05	-3,57	0,17	1,17	-1,48	1,50	3,33	19,96%
US Financial Corp	**-0,10**	**-0,10**	**-0,02**	**0,07**	**-0,22**	**0,24**	**0,31**	**-0,28**	**-4,41**	**-0,57**	**0,11**	**-1,33**	**1,41**	**3,61**	**21,43%**
US Corp Banking	-0,19	-0,06	0,03	-0,20	0,01	0,21	0,25	-0,82	-3,83	1,22	-0,66	-0,04	1,74	4,39	18,43%
US Corp Brokerage	-0,25	-0,08	0,02	0,55	-0,08	0,01	0,31	-0,88	-2,60	0,37	0,77	-0,57	0,04	3,48	16,35%
US Corp Finance & Investment	0,06	-0,14	-0,10	-0,19	-0,44	0,46	0,48	0,09	-3,75	-1,33	-0,16	-1,52	1,42	3,08	17,56%
US Corp Insurance	-0,23	-0,09	0,05	1,25	-0,37	-0,28	-0,12	-0,43	-1,75	0,82	1,51	-1,00	-0,74	-0,78	1,27%
US Industrial Corp	**-0,08**	**-0,11**	**0,02**	**0,66**	**-0,34**	**0,16**	**0,22**	**-0,20**	**-4,73**	**0,45**	**1,10**	**-2,11**	**0,97**	**2,61**	**18,43%**
US Corp Auto Group	0,72	-0,22	-0,20	0,24	-0,92	0,69	0,64	0,76	-4,55	-1,80	0,12	-1,43	1,33	2,25	20,01%
US Corp Basic Industry	-0,30	-0,07	0,04	0,29	-0,27	-0,14	0,17	-0,87	-2,97	1,41	0,74	-2,48	-1,24	2,69	11,94%
US Corp Consumer Cyclicals	0,23	-0,11	-0,03	0,41	-0,30	0,12	0,25	0,46	-3,36	-0,38	0,54	-1,16	0,52	2,21	8,87%
US Corp Capital Goods	-0,20	-0,03	0,02	-0,22	0,06	0,30	0,31	-0,46	-0,95	0,59	-0,25	0,29	1,45	2,80	3,30%
US Corp Consumer Non-Cyclical	-0,19	-0,03	0,04	0,51	-0,07	0,14	0,18	-0,75	-1,46	1,51	0,99	-0,63	1,16	3,33	11,41%
US Corp Energy	-0,18	-0,08	0,03	0,99	-0,33	0,26	0,26	-0,40	-2,96	0,62	1,64	-1,52	0,73	1,94	9,70%
US Corp Media	-0,01	-0,12	-0,02	1,10	-0,58	0,28	0,32	-0,02	-2,63	-0,32	1,12	-1,56	1,12	1,87	11,46%
US Corp Real Estate	-0,69	-0,05	0,07	0,42	0,09	-0,08	0,15	-2,37	-1,93	2,34	1,06	0,81	-0,54	2,77	5,07%
US Corp Services Cyclical	-0,24	-0,14	0,20	1,72	-0,36	-0,38	0,38	-0,42	-2,42	1,64	1,40	-1,53	-1,35	3,14	15,72%
US Corp Services Non-Cyclical	-0,20	-0,07	-0,01	0,71	-0,34	-0,03	-0,16	-0,26	-1,88	-0,06	1,12	-1,89	-0,13	-0,60	0,76%
US Corp Telecommunications	0,18	-0,27	-0,08	1,30	-0,67	0,68	0,12	0,16	-4,66	-0,81	0,79	-1,96	1,58	0,61	9,56%
US Corp Technology & Electronics	0,07	-0,10	-0,11	0,21	-0,60	0,06	0,32	0,09	-2,21	-0,56	0,24	-2,01	0,17	1,60	5,40%
US Utility Corp	**0,01**	**-0,07**	**0,04**	**-0,49**	**-0,38**	**0,11**	**0,78**	**0,01**	**-1,73**	**0,63**	**-0,60**	**-0,93**	**0,48**	**2,75**	**12,27%**
US High Yield Index	**-0,50**	**-0,87**	**0,04**	**4,17**	**-1,82**	**-0,27**	**0,56**	**-0,38**	**-9,68**	**0,28**	**2,57**	**-3,93**	**-0,48**	**2,13**	**44,47%**

	alfa	5y	2_10	ty1	russ2	sp100iv	swsp5	t(alfa)	t(5y)	t(2_10)	t(ty1)	t(russ2)	t(sp100iv)	t(swsp5)	R2
US HY BB	-0,27	-0,58	0,03	3,04	-0,93	0,71	0,46	-0,23	-7,44	0,20	1,38	-1,73	1,14	1,95	24,58%
US HY B	-0,56	-1,01	-0,03	3,20	-2,90	-0,73	0,64	-0,31	-7,88	-0,16	1,41	-3,73	-0,97	1,69	37,87%
US HY CCC and Lower	-1,42	-1,38	0,02	8,12	-1,77	-2,34	1,90	-0,37	-5,22	0,05	2,23	-1,19	-1,59	1,76	15,16%
US HY Aerospace	-0,21	-0,97	-0,18	0,99	-1,06	-0,82	0,10	-0,12	-7,44	-0,88	0,47	-0,95	-0,66	0,21	25,85%
US HY Gaming	-0,79	-0,81	0,17	4,77	-1,77	-0,82	0,02	-0,66	-8,08	1,03	3,00	-2,30	-1,06	0,08	41,07%
US HY Hotels	-0,65	-0,74	0,20	1,79	-1,82	-0,98	0,01	-0,44	-6,93	1,31	1,02	-2,08	-0,84	-0,01	29,19%
US HY Air Transportation	3,04	-0,23	0,65	-2,89	-7,68	-1,00	1,38	0,44	-0,59	0,47	-0,21	-2,83	-0,29	1,25	5,71%
US HY Automotive & Auto Parts	1,00	-0,10	0,43	7,51	-5,97	-2,20	0,04	0,21	-0,19	0,75	1,28	-2,28	-1,05	0,05	3,12%
US HY Banks & Thrifts	-1,32	-0,64	0,01	1,10	1,42	0,76	0,61	-0,94	-8,09	0,09	0,61	1,63	1,37	2,06	15,85%
US HY Building Materials	-0,68	-1,01	0,17	-0,66	-0,56	-0,51	-0,06	-0,49	-10,50	1,05	-0,43	-1,25	-0,83	-0,22	34,68%
US HY Broadcasting	-0,14	-1,02	0,07	2,67	-1,08	-0,76	0,51	-0,10	-9,98	0,44	1,44	-2,35	-1,27	1,59	39,66%
US HY Capital Goods	-0,78	-0,87	0,27	4,36	-1,15	0,38	0,64	-0,38	-5,34	1,04	1,80	-1,69	0,50	1,41	22,43%
US HY Chemicals	-0,40	-0,94	-0,17	3,40	-2,04	-1,33	0,27	-0,25	-8,57	-0,97	1,84	-3,88	-1,79	0,77	34,64%
US HY Consumer Products	-1,18	-0,40	0,12	1,20	0,27	-0,85	-0,36	-0,30	-0,92	0,39	0,37	0,28	-0,86	-0,59	-1,45%
US HY Containers	-0,11	-1,18	-0,08	6,07	-1,57	-0,50	0,17	-0,03	-5,10	-0,17	1,43	-1,39	-0,43	0,25	15,36%
US HY Cable/Satellite TV	0,70	-1,11	-0,09	6,91	-2,49	-0,54	0,90	0,30	-8,32	-0,35	1,84	-2,62	-0,45	1,41	16,90%
US HY Diversified Media	-0,59	-1,15	0,03	4,11	-0,29	0,33	0,82	-0,36	-7,34	0,13	2,18	-0,40	0,31	2,10	31,59%
US HY Utilities	0,78	-0,71	0,07	1,62	-1,62	0,95	0,58	0,28	-4,09	0,26	0,46	-1,71	1,06	0,83	12,96%
US HY Energy	-1,68	-1,07	-0,03	0,17	-1,11	-2,39	1,53	-0,81	-7,17	-0,14	0,08	-1,62	-1,25	1,77	19,79%
US HY Entertainment/Film	0,55	-0,87	-1,25	2,68	-1,22	-0,43	0,69	0,18	-3,99	-1,96	0,78	-1,08	-0,38	0,56	10,08%
US HY Environmental	-0,97	-0,93	-0,03	8,91	-3,15	0,07	0,60	-0,42	-9,56	-0,16	2,73	-3,30	0,08	0,86	29,90%
US HY Div. Financial Services	-1,01	-0,60	-0,14	3,63	-1,97	0,04	0,76	-0,32	-2,61	-0,40	1,22	-1,92	0,03	1,06	5,20%
US HY Food/Beverage/Tobacco	-0,97	-0,89	-0,01	7,42	-1,16	-1,08	-0,30	-0,41	-6,21	-0,05	3,07	-1,06	-1,28	-0,45	8,24%
US HY Food & Drug Retail	-0,89	-0,81	0,04	6,68	-1,83	-2,07	0,65	-0,22	-3,62	0,12	1,87	-1,30	-1,12	0,84	5,23%
US HY Homebuilders/Real Estate	-0,92	-0,92	-0,12	2,13	-0,25	-0,47	0,32	-0,89	-13,20	-1,04	2,19	-0,87	-1,72	2,29	56,52%
US HY Healthcare	-0,70	-0,64	0,14	3,39	-0,73	0,19	0,68	-0,61	-5,78	0,80	1,79	-1,58	0,39	2,78	31,52%
US HY Insurance	-0,04	-0,23	1,09	13,49	-6,87	-1,35	1,40	0,01	-0,29	0,96	1,19	-2,06	-0,31	0,69	1,72%
US HY Leisure	0,01	-0,93	-0,46	3,99	-0,68	-0,10	0,62	0,01	-7,58	-1,20	1,42	-0,96	-0,15	1,51	21,09%
US HY Metals/Mining	-0,99	-1,06	0,39	1,10	-2,04	-0,64	0,07	-0,28	-3,89	0,91	0,39	-1,22	-0,50	0,14	9,83%
US HY Paper	-1,82	-0,87	0,18	2,13	-0,61	-0,78	0,66	-0,95	-5,93	0,65	1,09	-0,97	-0,94	1,80	14,51%
US HY Publishing/Printing	-0,45	-1,01	0,01	3,12	-0,31	-0,29	0,17	-0,27	-7,90	0,05	1,53	-0,67	-0,48	0,49	28,88%
US HY Railroads	0,33	-0,85	-0,50	5,30	0,74	-0,18	-0,45	0,13	-3,32	-1,87	1,07	0,92	-0,14	-0,46	8,45%
US HY Restaurants	0,05	-0,74	0,11	4,43	-0,24	0,42	0,26	0,03	-4,00	0,44	1,45	-0,49	0,76	0,74	14,41%
US HY Services	0,65	-0,51	-0,61	3,68	-1,13	-0,90	1,40	0,14	-1,59	-0,82	0,82	-0,61	-0,49	1,01	1,21%

	alfa	5y	2_10	ty1	russ2	sp100iv	swsp5	t(alfa)	t(5y)	t(2_10)	t(ty1)	t(russ2)	t(sp100iv)	t(swsp5)	R2
US HY Transportation Ex Air/Rail	-1,02	-0,79	0,33	0,18	-0,65	-2,15	0,56	-0,40	-4,35	1,03	0,06	-0,64	-2,08	0,92	6,26%
US HY Super Retail	-0,78	-0,71	-0,26	1,63	-1,16	-0,55	0,26	-0,38	-5,38	-0,86	0,66	-1,53	-0,89	0,69	14,89%
US HY Steel	-2,18	-1,32	0,87	3,64	-0,27	-1,69	0,66	-0,46	-5,67	1,53	0,66	-0,16	-1,13	0,85	7,67%
US HY Telecommunications	-0,95	-1,26	0,28	16,62	-4,71	1,59	0,36	-0,18	-4,30	0,67	2,42	-3,49	0,54	0,32	9,55%
US HY Textiles/Apparel	1,24	-1,29	0,30	2,43	-2,96	-2,72	0,93	0,39	-4,98	0,55	0,40	-2,71	-2,23	1,39	16,31%
US HY Technology	-0,74	-1,28	0,65	-5,53	-2,94	0,01	1,79	-0,19	-3,37	0,76	-0,71	-2,03	0,01	1,49	10,65%
HY US 1-3 Yrs	-0,34	-0,79	0,29	5,23	-2,35	0,11	0,74	-0,12	-4,18	0,87	1,79	-2,44	0,09	1,32	16,21%
HY US 3-5 Yrs	-0,30	-0,84	0,17	3,07	-1,67	-0,49	0,77	-0,18	-6,46	0,75	1,54	-2,96	-0,91	1,76	32,28%
HY US 5-7 Yrs	-0,84	-0,99	0,09	5,23	-1,67	-0,81	0,46	-0,66	-11,76	0,58	3,20	-3,92	-1,51	1,76	50,94%
HY US 7-10 Yrs	-0,52	-0,89	-0,03	3,72	-1,88	-0,16	0,47	-0,40	-10,67	-0,23	2,16	-3,80	-0,23	1,72	41,96%
HY US 10-15 Yrs	0,27	-0,56	-0,20	0,66	-0,68	-0,68	0,33	0,20	-5,18	-1,07	0,43	-1,64	-1,10	0,92	17,07%
HY US 15+ Yrs	0,22	-0,45	-0,36	3,11	-0,94	1,17	0,09	0,15	-5,21	-2,22	2,03	-2,22	1,32	0,25	15,12%
HY US Large Cap	-0,29	-0,94	-0,01	3,41	-1,79	0,43	0,18	-0,18	-6,98	-0,08	1,64	-2,90	0,55	0,40	33,13%
HY US Small Cap	-0,96	-0,57	0,27	7,30	-1,76	-2,31	1,62	-0,26	-1,69	0,96	2,14	-1,50	-1,65	1,50	4,17%

Dependent variables are weekly changes of Option Adjusted Spreads of Merrill Lynch Corporate indexes. Weekly data are calculated between two adjoining Wednesdays. We select as regressors all those included in estimates on monthly data which are available at weekly fequency. Indexes are divided for rating, maturity and industries. Data are measured in basis points. Each table reports estimated coefficients, t-stats and adjusted R-squared. T-stats are calculated by using Heteroskedasticity and Autocorrelation Consistent Covariances with the Newey-West covariance matrix estimator (truncation lag is set to four).

The table reports findings for the US market for a sample period ranging from 1/1999 to 11/2003, using weekly data. The specification is the following:

$$DCS_t = \alpha + \beta_1 \Delta(5y)_t + \beta_2 \Delta(2_10)_t + \beta_3 \Delta(ty1)_t + \beta_4 (russ2)_t + \beta_5 \Delta(sp100iv)_t + \beta_6 \Delta(swsp5)_t + \varepsilon_t$$

where 5y is the 5-year Treasury yield, 2_10 is the spread between 10 and 2-year Treasury yield, ty1 is the implicit volatility (in basis points) of the options on the 10-year Treasury bond future, russ2 is the return of the Russell 2000, sp100iv is the implicit volatility of the options on the Standard & Poor's 100, swsp5 is the spread between the swap rate and the 5-year government bond yield. Estimates include high yield sectors.