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ΧΡΗΜΑΤΟΟΙΚΟΝΟΜΙΚΗ ΚΑΙ ΤΡΑΠΕΖΙΚΗ
ΜΕΤΑΠΤΥΧΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΣΠΟΥΔΩΝ
ΓΙΑ ΣΤΕΛΕΧΗ

ANALYZING THE INTEGRATION IN THE EURO CORPORATE BONDS MARKET- A SWAP YIELD APPROACH

ΤΣΩΝΗ ΕΥΣΤΑΘΙΑ
ΑΡΙΘΜΟΣ ΜΗΡΩΟΥ 200153

ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ : ΔΗΜΗΤΡΙΟΣ ΓΕΩΡΓΟΥΤΣΟΣ

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TABLE OF CONTENTS:

1. PREFACE

Over the past few years financial markets have become more and more global, as technological progress and stepped-up competition have supported the accelerating move towards greater integration of financial markets. The creation of EMU and the single currency were undoubtly another important milestone spurring many European countries to promote this drive for integration. Acting as a catalyst, the single currency made a major contribution to competition and efficiency in financial markets across the euro area. The reduction in net funding needs by the public sector in Euroland, due to strict fiscal criteria results in a ''crowding in'' effect that facilitates the issuance of non-government bonds. Nevertheless, many assert that financial markets are somehow segmented in many ways. In the current assignment we shall focus on the rapid growing Euro corporate bond market and try to establish a view about whether this market is an integrated one, as far as yields are concerned, or still remains highly affected by individual issuer country.

We start our analysis with a brief introduction to the corporate bond issues, and the growing corporate bond market. We move on with recent developments in European Market, and examine main factors affecting corporate bond yields, focusing mainly on the rating process that is assumed to play the most important role in the credit yields demanded by the market. This is an important procedure, as nowadays companies are required to be classified under a (non) investment grade rating, in order to participate in well-organized corporate bond markets, and issue fair valued debt instruments. Strict methods and criteria in rating has accelerated the significance of the ratings in corporate bond valuation, in such a way, that it may be expected bonds traded in the same market nominated in the same currency, having the same rating, both coupon and maturity being interpolated, should yield the same. If this is not the case, then issuer's country factors are responsible for the yield spread between bonds of the same rating.

What we are really interested in is to investigate on the spread over corporate bonds of the same rating and maturity that is supposed to be identical for bonds traded in the same market. One should expect that after the establishment of EMU and the adoption of the common currency, the restriction imposed on fiscal policy, and the introduction of the Euroclear as the common settlement house for bonds, yields among equal quality bonds of different areas should be the same.

In order to compare different bond issues we introduce the idea of benchmarking with Swap Yield Curve, instead of traditional government yield curves.

In our empirical study, we used time series from EuroCorporate Bond index, to observe the trend of spread over mid swaps and government yields. We also focused on the Telecommunication industry to see whether there are substantial diversions in spreads among issues with the same credit and the same maturity.

Finally, we come up with the conclusions of our study witch are partly favorable of an integrated corporate bond market in Euro Issues.

The purpose of the author was to focus on the Greek corporate bond market, as one of the most promising debt issuing in the Greek financing sector. Nevertheless, because this market is still in an infant stage in Greece, a few companies have moved into issuing corporate debt and even more, they lack of rating grades, we consider and compare corporate bonds around European integrated market, of the same industry, nominated in Euro, graded with the same rating and having isolated the coupon and maturity effect.

Throughout our study we exclude 'non normal' bonds, such as convertibles, callable or putables, sinkable, asset backed bonds, as well as floating rate notes, which allow for complicated treatment in pricing yield and spread. Instead, we assume all bonds under discussion to be 'plain vanilla' bonds. These bonds are issued at par and have a redemption value equal to the face value.

2.CORPORATE BONDS

2.1 BASIC ISSUES ON CORPORATE BONDS

Corporate bonds are debt obligations issued by private and public corporations. Fabozzi (1995) defines corporate debt as financial obligations of a corporation that have priority over its common stock and preffered stock in case of bankruptcy. Bonds are typically issued in multiples of &1000 and $5000, and are classified by the type of issuer. The four general classifications are:

- Utilities
- Transportations
- Industrials
- Banks and finance companies

Finer breakdowns are often made to create more homogenous groups.

Companies use the funds they raise from selling bonds for a variety of purposes, from building facilities to purchasing equipment to expanding the business. When you buy the bond, you lend money to the corporation that issued it, which promises to return your money on principal, on a specified maturity date. Failure to pay either the principal or interest when due constitutes legal default, and investors can go to court to enforce the contract.

Most corporate bonds are term bonds; that is, they run for a term of years, and then become due and payable. Any amount of the liability that has not been paid off prior to maturity must be paid off at that time. The term may be short or long. Generally, obligations due in 10 years from the day of issues are called notes. Most corporate borrowings take the form of bonds due in 20 to 30 years. Term bonds may be retired by payment at final maturity or retired prior to maturity if provided for the indenture. Some corporate bond issues are arranged so that specified amounts become due on specified dates. Such issues are called serial bonds.

Many corporate bonds offer security to debtors. Either real property or personal property may be pledged to offer security beyond the issuer's general credit rating (mortgage bonds, collateral bonds). Debenture bonds are debt securities not secured by a specified pledge of the property, but debtors have the claim of general creditors on all assets of the issuer not pledged specifically to secure other debt. Finally, guaranteed bonds are obligations guaranteed by another entity.

Most corporate bonds have **provisions** for paying off. A *call provision* allows the issuer an option to buy back all or part of the issue prior to the stated maturity date. Issuers generally want this right because they recognize that at some time in the future the general level of interest rates may fall sufficiently below the issue's coupon rate that redeeming the issue and replacing it

with another issue with a lower coupon rate would be attractive. This right is a disadvantage to the bondholder. A *sinking fund provision* requires the issuer to retire a specified portion of an issue each year. This kind of provision for repayment of corporate debt may be designed to liquidate all of a bond issue by the maturity date, or it may be arranged to pay only a part of the total by the end of the term. If only a part is paid, the remainder is called a balloon payment. The purpose of the sinking fund provision is to reduce credit risk

Other features can be included in a bond issue: There are *convertible/exchangeable* bonds, which grants the bondholder the right to convert the bond to a predetermined number of shares of common stock of the issuer. The exchangeable bond grant the bondholder the right o exchange the bond for the common stock of a firm other than the issuer of the bond. There are also uses of *debt with warrants*, and *putable issues*, that grant the bondholder the right to sell the issue back ot the issuer at par value on designated dates. Last, there are issues for deferred-interest bonds, step up bonds (with increasing coupon), as well as payment-in-kind bonds.

Most corporate bonds are debentures-that is unsecured debt obligations baked only by the issuer's general credit and the capacity of its cash flow to repay interest and principal. Credit ratings are a key tool for the investor who wants to know how strong a company's unsecured bonds are.

Interest received on corporate bonds is subject to state income tax. If gains are realized by selling a bond prior to its maturity, the gains are taxed at ordinary investor's rate. There are complicated issues concerning the taxation of zero coupon bonds or originally issue-discount bonds.

Almost all corporate bonds are issued as bullet loans, i.e. the entire principal falls due at maturity. Payment of interest typically takes place once a year and the size of such payment depends on the coupon. However, the terms of interest and repayment may vary. Some bonds carry a coupon rate while others are callable (typically 3 years before maturity). Duration is the best risk assessment of the interest and price risk associated with corporate bonds. Duration shows how much the amount invested (price including accrued interest) changes when the yield is adjusted by 1 per cent. When you look at the interest risk involved, corporate bonds do not differ from other bonds.

However, compared to the government or mortgage bonds, which are often deemed to be credit-risk free, investments in corporate bonds will involve a **credit risk** since the issuer of the bond is a company. The credit risk may vary; bonds issued by companies which hold government guarantees, will typically be credit-risk free. Also bonds used by Supranationals are usual associated with moderate credit risk. Companies which plan on issuing corporate bonds often get

a credit rating- the higher the rating, the higher the prices the company can expect for its bonds, which will reduce the interest rate on the loan. Moreover, investors may get a chance to assess the likelihood of the company going into insolvent liquidation.

Even though the credit risk is the dominant risk factor, one should not overlook the *liquidity risk* that is often involved in investments in corporate bonds. The reason for this is partly the fact that most corporate bonds are issued in relatively small series, partly that corporate bonds are often sold as private placements, i.e. the bonds are initially distributed to investors who wish to hold the bonds until maturity. Subsequent trading at the exchange, the so-called secondary market, may thus turn out to be rather modest. Investors who wish to sell such corporate bonds on the secondary market may have to accept a reduction in the ask price, i.e. pay a *liquidity premium* in order to be able to sell the bond. The marketability of the bond is shown by how quickly and easily the particular bond can be bought or sold. In general, for a bond to enjoy high marketability, there must be a large trading volume and a large number of dealers in the security.

2.2 UNDERSTANDING INTEREST RATE RISK

Like all bonds, corporates tend to rise in value when interest rate fall, and they fall in value when interest rates rise. Usually the longer the maturity, the greater the degree of price volatility. By holding a bond until maturity you may not be concerned about the there price fluctuations (market risk), because you will receive the par, or face value of the bond at maturity.

When interest rates rise, new bond issues come to market with higher yields than the older securities, making these older ones worth less. Hence, their prices go down (their yields go up). When interest rates decline, new bond issues come to market with lower yields than older securities, making those older, higher yielding ones worth more. Thus, their prices go up (their yields go down). As a result, if you have to sell your bond before maturity, it may be worth more or less than you paid for it.

We are mainly concerned with yield to maturity throughout our analysis. We use it to compare bonds with different maturities and coupons. It includes all interest plus any capital gain you will realize (if you purchase the bond below par) or minus the capital loss you will suffer (if you purchase the bond above par). Specific issues on corporate bond pricing will be considered later on.

2.3. RECENT DEVELOPMENTSIN EUROBOND MARKETS

There are really two secondary corporate bond markets: the exchange market and the over the counter market. The great bulk of trading volume takes place in the OTC market, which is the market used by institutional investors and professional money managers. The corporate bond market is large and liquid, with daily trading volume estimated in $15 billion. Most corporate bonds trade in Over The Counter Market, which does not exist in a central location. It is made up of bond dealers and brokers from around the world who trade debt securities over the phone ore electronically. Investors in corporate bonds include large financial institutions, such as pension funds, endowments, mutual funds, insurance companies and banks.

The introduction of the euro has played a crucial role in fostering a deeper and more liquid euro area-wide bond market. The single currency per se, does not, however, remove all the barriers to market integration. It was expected that the small yield spread between sovereign bonds issued by euro area governments would narrow further. The underlying rationale was that these spreads reflected both liquidity premia and credit risk differentials. As smaller issuers were expected to adopt a strategy of concentrating issuance on a small number of larger issues, the liquidity premia were expected to narrow as a result. Meanwhile, strict adherence to the terms of the stability and growth pact was expected to result in a general strengthening of the fiscal positions of member states, thereby reducing perceived differences of creditworthiness that could affect individual corporate issuers due to country risk. Many market participants expected a benchmark yield to emerge consisting of the most liquid German, French and Italian sovereign bonds. These expectations were only partially met. ***Yield spreads between euro area sovereign bonds widened slightly if anything and a single benchmark yield curve did not emergè.*** Although 10-year Bund future contract plays this role as the true underlying benchmark for this part of the curve for the whole euro market, it also appears that investors are not yet totally impartial as regard the purchase of two bonds from two different euro area countries, for reasons that reflect a still incomplete integration. According to market participants, the heterogeneous tax environment in the euro area represents a significant barrier to further integration. Legal environment, credit assessment and infrastructures appear as administrative costs for investors. The still relatively low number of rated companies in the euro area (if compared to the United states) is also perceived as an obstacle to integration. A widespread rating would facilitate cross-border investment for investors who have limited knowledge of the creditworthiness of medium-sized issuers in other euro are member states. We must also add the heterogeneous insolvency

regimes across the euro area, as well as differences in accounting and disclosure rules. Credit risk assessment and the estimation of recovery rates are not uniform for all areas.

In Greece there has been no organized market for corporate bond issues, not until recently. The main reason has been the high cost procedure of debt issuing (a credit rating is required, which is costly to acquire), as well as the favorable conditions for rising money through the Stock exchange. Mainly due to the sharp decline of stock markets, and the deterioration of company's ratios through the increasing dependence on banking lending, it seems that rising money through corporate debts is going to be the next fund resource for Greek companies. Some companies have already issued convertible corporate bonds, which are listed in the Athens Stock Exchange.

2.4. CORPORATE BOND VALUATION

The literature on approaches to corporate debt valuation begins with Black-Scholes (1973) and Merton (1974). They model corporate liabilities as contingent claims to the firm's assets. Te primary source of uncertainty in all these models is the evolution of the firm's assets, while some models have added stochastic interest rates as a second source of uncertainty.

Merton (1974) assumes that the default trigger occurs on the date the debt matures if the firm's value (assets) is less than the debt's face value. The firm's securities are valued as contingent claims to the firm's assets where the terminal payoffs differentiate the types of securities. For example, stockholders have the residual claim to the firm assets after the bondholders are paid in full, which resembles a European call option with strike price equal to the debt's face value. The actual or observed spread is generally measured as the bond's market yield minus the comparable risk free Treasury yield. The default spread as defined herein is a theoretical measure of the default component of the credit spread. Investigators who estimate default spreads from the Merton model for public companies are typically calibrating the model to the firm's equity price and equity volatility. Credit risk is entirely attributed to default risk (which is extremely important in our study, as we stand absolutely on the rating to compare yields). However, *do not expect credit spreads to be completely explained by default risk.*

Many articles have been written about the pricing of corporate bonds. All of them admit a strong co variation between default-free discount rates and the market's perception of default risk. *David Brown* (2001) shows that the corporate bond yield spread consists of 1) a default margin 2) risk premium and 3) a liquidity premium. Theoretical models of credit spreads derive the level of the default margin component of the credit spread as a function of the characteristics of the bond,

the issuer's assets and liabilities. Longer maturity and lower credit quality corporate bonds are less liquid.

Elton, Martin and Agrawal (2001) explain the spread between rates on corporate and government bonds in expected default loss, tax premium (in favor of government bonds) and risk premium (in the case that large part of the corporate bond risk is non diversifiable).

Fabozzi (1995) has shown the relationship between annualized total returns and return spreads versus U.S Treasuries for investment –grade corporates for various periods ending in 1992. He comes up with two conclusions: a) corporate bonds outperformed treasuries b) the lower the credit rating, the better the performance relative to treasuries. Thus, the ratings appear to do a good job of differentiating the credit risk associated with investing in corporate bonds.

Other studies (Robert, Geskel 1999) support theoretical measurement and empirical finding that the default spread is not a major component of the credit spread for investment grade corporate bonds. They conclude that the tax factor and especially the market risk and return factors are the more significant components of the credit spread.

Bert Scholtens (1999), presented an investigation on how bond yield spreads are related to country risk. Bond prices and bond yields are determined in the secondary market. Therefore, bond yields and their spread vs. Treasury bonds might provide a continuous and more reliable information base than traditional measures of country risk. He concludes that there is a strong relation between changes in the bond yield spread and the country risk. Country risk does play an important role in the bond market; bond yield spreads are positively associated with country risk.

3. THE CREDIT RATING PROCEDURE

Many studies have connected the credit rating of a corporate to the yield spread. So, it is interesting to examine how these credit ratings are attributed to each corporate, and which are the factors that influence them.

Financial institutions assess assets and loan applications by assigning a credit score witch summarizes quantitative and qualitative information about the issue. This score supposes that the probability of default o the issue is a monotony function of the credit score

Credit risk: There are three types of credit risk facing bond investors: default risk, credit spread risk and downgrade risk

Default Risk: is the risk the borrower will not be able to pay the specified interest and principal amounts in a timely manner. Within a set of bonds, we could estimate a default rate by

determining the fraction of the bonds that is expected to default. One thing to notice is that even if there is default, the *recovery* rate, or the fraction of the bond's value that can be recovered in the event of default will not be the same for all bonds. However, if we can estimate the recovery rate and the default rate, we can compute the expected return on the bond

Liquidity risk: is the risk that an investor will be unable to obtain a price within the range of recently observed trades, if they wish to sel a bond rather than hold it to maturity. Each dealer quotes a bid, the price at which they are willing to purchase the bond, and an ask, which is the price at which they are willing to sell the bond. Liquid markets are indicated by narrow bid-ask spreads. The bid-ask spread for an individual bond dealer is the difference between the ask and bid prices. We can also define a market bid-ask spread by calculating the difference between the best ask price observed across all of the dealers, and the best bid price observed.

3.1. DETERMINANTS OF CREDIT RISK PREMIA

Credit risk is highly correlated to the probability of default of each issue. This probability is affected by the following factors:

- Volatility of issuer's assets
- Volatility of cash flow
- Leverage
- Default free interest rate risk
- Liquidity of assets

Another important issue is the ***recovery rate*** on default claims. By recovery rate we mean the value of collateral upon default/ the face value of claim. This rate is also affected by liquidity of firm assets, bankruptcy costs, priority on claim and complexity of liabilities.

Eurobonds issuance spreads over the corresponding maturity. Treasury bonds reflect investor's perception of the risk of loss and of the bond primary and secondary market efficiency and liquidity conditions. As such, they are a function of five main factors:

1. The bond issuer default risk
2. The bond's expected recovery rate in case of default
3. The expected liquidity of the secondary rate of the bond issue
4. The expected tax treatment to which investors will be subject
5. The bond's primary market efficiency conditions

Corporations wishing to raise funds in bonds markets can get a reasonable estimate of the average spread that they would face given their rating and the maturity of

their funding needs. These estimates are also a useful tool to investment banks in charge of designing bond's technical features and the fixing of issuance price.

3.2. RATING METHODOLOGY

A rating change can reflect a variety of events that affecting the ability of an issuer to repay the principal and interest on its debt. Rating agencies rate bonds. They are private companies that evaluate a bond issuer's financial health and assess its ability to repay its obligations in a timely manner. A rating is an evaluation of the likelihood that an issuer will repay the principal and interest of a particular bond on time and in full.

Long- term credit ratings are divided into several categories ranging from AAA (Aaa), reflecting the strongest credit quality, to D, reflecting the lowest. Long term rating from AA to CCC may be modified by the addition of a plus or a minus sign to show relative standing within the major rating categories. Since a corporate credit rating provides an overall assessment of the creditworthiness of the company, it is issued fir a variety of financial and commercial purposes, such as negotiating long or short-term debt or minimizing the need for a letter of credit for vendors. Many companies incorporate specific rating objectives as corporate goals, because possessing an A rating or at least an investment-grade rating affords companies a measure of flexibility and is worthwhile as part of an overall financial strategy. In any event, pursuit of the highest rating attainable is not necessarily in the company's best interests. AAA might not be the best rating, though the highest. Typically, a company with virtually no financial risk is not optimal as far as meeting the needs of its carious constituencies. It might be an under-leveraged firm that is not minimizing its cost of capital, thus depriving its owners of potentially greater value of their investment.

An *issue credit rating* is a current opinion of the creditworthiness of an obligor with respect to a specific financial obligation, a specific class of financial obligations or a specific financial program. It takes into consideration the creditworthiness of guarantors, insurers or other forms of credit enhancement on the obligation and takes into account the currency in which the obligation is denominated. When an entity has both senior and subordinated debt, then there is differentiation between the issue and the issuer. Debt that provides excellent prospects for ultimate recovery (such as secured debt) is often rated higher than the issuer credit rating.

Issues rated in the four highest categories (from triple A to triple B) generally are recognized as being investment grade. Debt rated double B or below generally is referred to as speculative grade. The term 'junk bond' is merely a more irreverent expression of this category of more risky debt.

3.3. RATIO MEDIANS

Risk adjusted ratio depict the role that financial ratios play in the rating process, since financial ratios are viewed in the context of a firms' business risk. A company with a stronger competitive position, more favorable business prospects and more predictable cash flows can afford to undertake additional financial risk while marinating the same credit rating. The key ratios for rating an issuer are the following:

- Earning before Interest and Taxes
- Earnings before Interest, tax, depreciation and amortization
- Funds from operations / Total debt
- Free operating cash flow/ Total debt
- Return on capital
- Operating Income/ Sales
- Long-term Debt/ Capital
- Total Debt/ Capital

It is obvious from the above ratios that profit potential is a critical determinant of credit protection. The most important is not the absolute levels of the ratios, but to focus on trends and compare these ratios with those of competitors. Particularly important today are management's plans for achieving earnings growth.

A company's asset mix is a critical determinant of the appropriate leverage for a given level of risk. Assets with stable cash flow or market values justify greater use of debt financing than those with clouded marketability. Another key to the analysis knows the true values to assign a company' s assets. Leverage as reported to financial statements is meaningless if assets are materially under (over)valued relative to book value. Other important issues examined are off-balance sheet financing items, the preferred stock, the cash flow adequacy, the cash flow ratios, the financial flexibility and the need for capital of the company.

International corporate ratings are conducted by teams that combine knowledge of the country of domicile with industry expertise. The analysis of corporates around the globe all follows the same rating methodology (as described above). Industry risk and the company's competitive position are evaluated in conjunction with the firm's financial profile and policies.

This fundamental analysis is performed with an appreciation of relevant industry and financial characteristics of a specific country or region. *If the region (country) environment poses additional risks to corporates operating there, this is incorporated in the analysis.*

3.4.RATING DEFINITIONS

The most important rating agencies in the financial market is Moody's, S&P, Fitch, Duff & Phels Rating Company *D&P)

Moody's investor service provides the following definition for rating grades: (S & P and Fitch give similar definitions so, their definition will be omitted for convenience. In parenthesis appears the corresponding rating given by Standards and Poors).

Aaa (AAA): counterparties rated Aaa offer exceptional financial security and have the smallest degree of risk. While the financial strength of these entities my change, such changes as can be visualized are most unlikely to impair the entities' strong position.

Aa (AA): counterparties rated Aa offer excellent financial security but are rated lower than Aaa counterparties because long-term risks appear somewhat larger. The margins of protection may not be as large as with Aaa counterparties, or flactuations of prospective elements may be of greater amplitude.

A (A): counterparties rated A offer good financial security. However, elements may be present that suggest a susceptibility to impairment at some time in the future.

Baa (BBB): counterparties rated Baa offer adequate financial security. However, certain protective elements may be lacking or may be characteristically unreliable over any great length of time.

Ba (BB): counterparties rated Ba offer questionable financial security. Often the ability of these entities to meet counterparty obligations may be uncertain and thereby not well safeguarded in the future.

B (B): Counterparties rated B offer poor financial security. Assurance of punctual payment of obligations over any long period of time is small.

Caa (CCC): counterparties rated Caa offer very poor financial security. Such counterparties may be in default, or there may be present elements of danger to financial capacity.

C (CC): counterparties rated C are the lowest rate class of counterparties, are usually in default on their obligations and potential recovery values are low.

R: an obligor rated R is under regulatory supervision owing of its financial condition. During the pendency of the regulatory supervision the regulators may have the power to favor one class of obligations over others or pay some obligations and not others.

Moody's applies numerical modifiers 1, 2 and 3 in each generic rating category form Aa to Caa. The modifier 1 indicates that the counterparty is in the higher end of its letter rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates that the counterparty is in the lower and of the letter-rating category. The following table summarizes the credit definitions:

MOODY'S	S&P	FITCH	D&P	BRIEF DEFINITION
INVESTMENT GRADE: HIGH CREDITWORTHINESS				
Aaa	AAA	AAA	AAA	Gilt edge, prime, maximum safety
Aa1	AA+	AA+	AA+	Very high grade, high quality
Aa2	AA	AA	AA	
Aa3	AA-	AA-	AA-	
A1	A+	A+	A+	
A2	A	A	A	Upper Medium grade
A3	A-	A-	A-	
Baa1	BBB+	BBB+	BBB+	
Baa2	BBB	BBB	BBB	Lower medium grade
Baa3	BBB-	BBB-	BBB-	
NONINVESTMENT GRADE: DISTINCTLY SPECULATIVE-LOW CREDITWORTHNESS				
Ba1	BB+	BB+	BB+	
Ba2	BB	BB	BB	Low grade, speculative
Ba3	BB-	BB-	BB-	
B1	B+	B+		
B2	B	B	B	Highly speculative
NONINVESTMENT GRADE: PREDOMINANTLY SPECULATIVE- SUBSTANTIAL RISK OF DEFAULT				
	CCC+			
Caa	CCC	CCC	CCC	Substantial risk, in poor standing
Ca	CCC-	CC		May be in default, extremely speculative
C	C	C		Even more speculative than those above
	C1			CI= income bonds, no interest is being paid
		DDD		Default

Rating agencies pay attention to credit watch highlights, which is considered to be the potential direction of a short or long-term rating. It focuses on identifiable events and short-term trends that cause rating to be placed under special surveillance. These may include mergers, re-capitalization, voter referendums, regulatory action or anticipated operating developments. Rating appear on credit watch when such an event or a deviation from an expected trend occurs and additional information is necessary to evaluate the current rating. The designation might be positive, meaning that the rating may be raised, negative, that means that it might be lowered or developing, meaning that it might be raised, lowered or affirmed.

3.5. COUNTRY RISK:

Macroeconomic volatility is important business risk factor. If the economy of the country exhibits high volatility in the microenvironments, this may compound the constraint on credit quality typically associated with cyclical industries (they become even more cyclical). Access to imported raw materials, exchange rate risk and government regulation, taxes, legal issues, labor issues, infrastructure problems, changing tariff barriers, terrorism,, as well as industry structure and operating environment, affect a company's rating. There are also financial risk factors, such as local accounting standard issues, foreign exchange risks, potential price controls, inflation, etc. Country risk is mainly analyzed using interest rate spreads. The higher the country score rating, the lower the probability of restructuring or default. When there is really a relation between yield spreads and country risk, we expect that higher yield spreads will correspond to higher country risk (Fabozzi, 1996).

4.BENCHMARKING WITH SWAPS

Yields on government bonds have long been used as benchmarks to determine the relative value of yields being offered in the corporate bond markets. But some government bonds are an endangered species. Some governments are buying back treasuries, thus the bellwether 30-year bonds are just a memory. Other countries, having turned their own deficit into surplus, are slashing bond sales, and kicking the debt habit.

Looking elsewhere to judge the worth of non-government bond investments, fund managers are increasingly turning to the swap market. Generally, swap agreements allow fixed- and –floating rate payments to be exchanged between two parties. ***Swap curves are created from the fixed rate required to receive some foliating rate-usually the British bankers' association's interbank offered rates-for maturities out to 30 years.*** The difference in yield of a particular issue versus the yield at a similar maturity point on the swap curve is used for valuing the bond. And the swap market is booming. The swap market is particularly helpful in pricing bonds denominated in euros, because the 12 countries lack a full series of liquid bonds from a single government that would act as benchmarks. While investors recon German bonds are the best guide to the cost of borrowing euros for 10 years or more, Italian bonds do that job better for maturities of about 2-3 years, and French bonds are a better guide for everything in between. The swap curve is the only single curve in the euro. The speed at which some governments have moved away from issuing long -term -debt bonds has surprised investors. As fast as traditional government benchmarks fade away, though swap curves gain in popularity as a benchmarking tool.

We need to create 'apples to apples' comparison between securities with different maturity dates and interest rates (coupons). Working out how many basis points two bonds deliver compared with money market deposits reduces non-identical bonds to the value of their cash flows, eliminating at least some of the distortions produced by these bond's differences.

Generally, the price of corporate bonds is fixed on the basis of the swap yield curve. The swap rates are the rates at which prime banks borrow from each other. The difference between the swap rate and the yield on government bonds therefore reflects the credit risk associated with the prime bank. The differences mainly reflect the difference in credit ratings, but also differences in liquidity. *When you assess the price of a corporate bond you must always compare it to the swap yield curve.* You determine the yield spread or yield pick-up, expressed in basis points, at which the individual corporate bonds is traded. If for instance the yield on a 5-year double A corporate bond is 6.25 per cent and the swap yield with a term to maturity 5 years is 5.95 per cent, you say that the bond is traded at a yield spread of 30 basis points.

In the world of asset swaps a bond's London Interbank offered rate spread is the key factor. *Spread is essentially the difference between the bond's yield and the interpolated swap rate for an identical maturity.* Two, often independent elements drive it; the bond's credit spread (the difference between its yield on the underlying government curve for an identical maturity) and the maturity's appropriate swap spread (the difference between the interpolated swap rate and the interpolated government yield at the bond's maturity).

The asset swap market is a reasonably reliable indicator of the returns required for individual credit exposures, and provides a mark to market framework for reference assets as well as a hedging mechanism. A par asset swap typically combines the sale of an asset such as a fixed-rate corporate bond to counterparty at par and with no interest accrued, with an interest-rate swap. The coupon on the bond is paid in return for Libor (Euribor), plus a spread if necessary. ***This spread is the asset swap spread*** and is the price of the asset swap. In effect the asset swap allows market participants that pay Libor (Euribor) based funding to receive the asset swap spread. *This spread is a function of the credit risk of the underlying bond asset, which is why it may be viewed as equivalent to the price payable on a cried default swap written on that asset.*

A company's asset swap is driven in part by its credit spread, which in turn hinges on investor's general appetite for risk, the premium return investor require for accepting a certain class of risk and whether investors believe an issuer's credit is improving or deteriorating in risk class. We use the technique to discover which bond offers the best value at time.

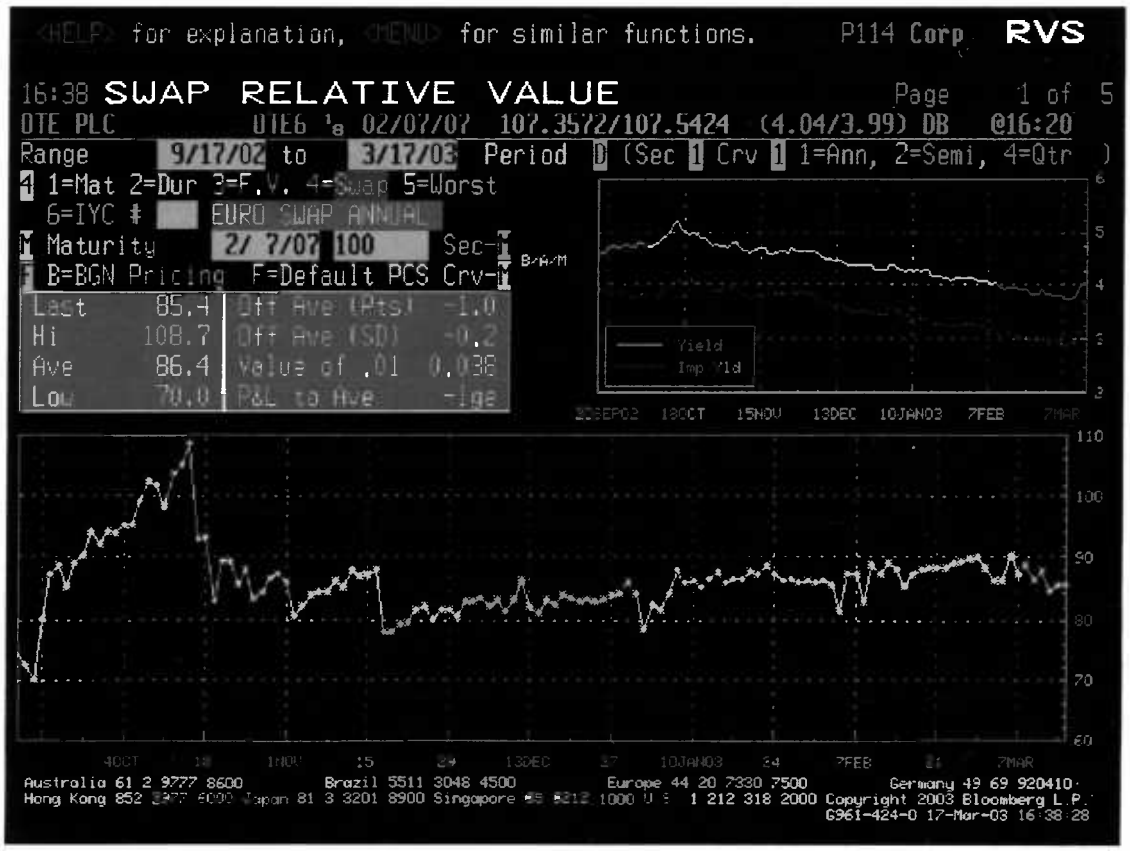
Pricing new euro-denominated issues against swaps is not yet the rule, but it is becoming more common. Lately, MATEL, the world largest toy maker issued a €150 million two year bond to yield 150 b.p more than swaps. Fiat, the world's sixth largest car maker began selling €500 million of five year bonds, priced at 51 points more than swap rates. Still, most of the companies are pricing their issues with a spread against German Government bonds, but there is a trend that things will change.

In the following pictures we depict the swap relative value function for three bonds from telecom sector: OTE (Greece), Telefonica (Spain), Telecom Italia (Italy), that all have the same maturity (2007), although different coupons and ratings.

In analyzing this function, we use the maximum period allowed by Bloomberg Program, that is 6 months (17/09/2002-17/03/2003), and use as an Implied Yield Curve the Euro Benchmark curve for all bonds, the Euro Swap Annual. In the graph we observe the spread on the last date in the date range (Last), the highest spread in the date range (hi), the average spread over the date range (Ave), the lowest spread in the date range (Low), the difference between the current spread and the average (Off Ave Pts), the points of the Average divided by the standard deviation of the data points from the average (off Ave St), the price value of a basis point in change in yield (value of .01), and finally the profit or loss generated if the selected issue's yield moves back to give the historical average spread (P&L to Ave). When using the Swap curve to compare corporate bond issues, it is of extremely importance to watch the historical volatility of

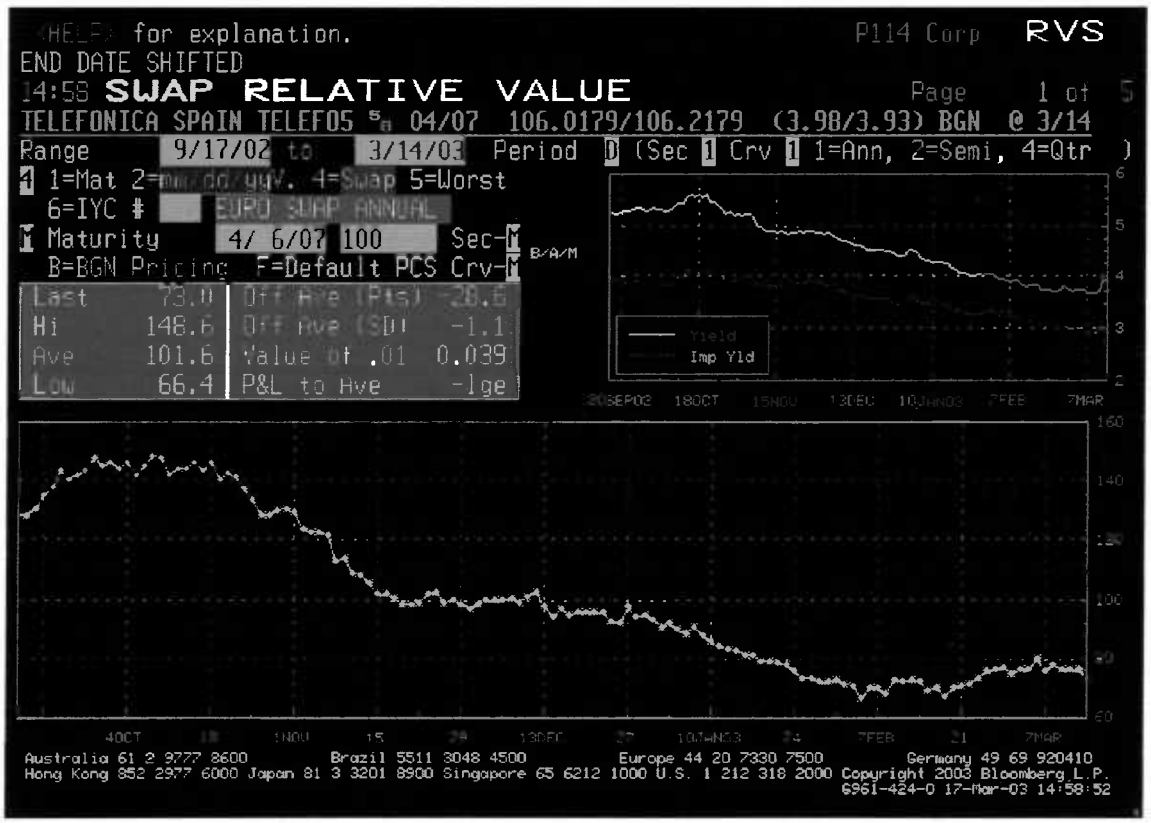
the series, because highly volatile spreads indicate investment opportunities. The top graph at the right displays the historical and implied yield on the vertical y-axis and the date on the horizontal x-axis. The implied yield is derived by interpolating the yield of the issues, using the selected yield curve that has maturities immediately before and after the selected issues. The bottom graph displays the spread between the yield on the vertical y-axis and the date on the horizontal x-axis. A legend appears in an unused portion of each graph. *Subtracting the implied yield from the actual bond yield for each day derives the actual spread.*

OTE corporation bond, bears a coupon of 6.125%, matures at 07/02/2007 is credited as A by S&P and A2 by Moody's (Greek Government Rating). The issue has been hold by OTE PLC which is a special purpose entity formed for the purpose of issuing commercial notes. The total amount of the issue is € 1.100.000(m), issued at the Euro Non-dollar market. The organization has only this particular debt issue.



TELEFONICA SPAIN corporation bond, bears a coupon of 5.625%, matures at 06/04/2007, is credited as A by S&P and A3 by Moody's. Telefonica provides telecommunications services mainly to countries in Europe and Latin America. . The total amount

of the issue is € 500.000(m), issued at the Euro Zone market. The organization has issued additional debt, distributed in several maturities, totaling at €13.498.299 m.



TELECOM ITALIA corporation bond, bears a coupon of 5.625%, matures at 01/02/2007, is credited as BBB by S&P and Baa1 by Moody's. The company offers through subsidiaries fixed line and mobile telephone and data transmission services in Italy and abroad. The total amount of the issue is € 1.000(m), issued at the Euro Zone market. The organization has issued more debt distributed in several maturities, totaling at € 12.500.000 m.

It is really interesting analyzing the differences in swap spreads between bonds of the same sector, with the same maturity. When comparing swap spreads between OTE and Telefonica, we see that the two bonds have been moving similarly for the period examined, although OTE has exhibited a stable premium spread over Telefonica, mainly due to the worse credit rating. But when compared to Telecom Italia, we can see that due to the lower credit rating and the illiquid issue of the Italian Company, it offers a much greater spread than OTE.

5. EMPIRICAL RESULT

5.1. FTSE EURO CORPORATE BOND INDEX

In our empirical study we wanted to present the recent trend of corporate bond market over benchmarks such as mid swaps and government spread. Most of the studies concerning corporate spread use the spot rate curve to deal with bonds maturing at different time and bearing different coupon payments. In order to avoid complicated mathematics and to be more market –

oriented we use mid swap rate as benchmarks (mid swap: the mid rate of bid and ask yield). In our analysis we shall use the most representative market corporate bond indexes. We use FTSE Euro Corporate Bond Index, with constituents of most important bond securities traded. The index is designed to contain securities of the same liquidity but different quality classes, for all corporate entities but banking institutions. Bonds mast have a minimum issue size of 500m euro, and only straight bonds are allowed; furthermore issues need to carry an investment grade rating (BBB minimum). The constituents of the index are weighted in the following order:

- Telecoms (34.1%)
- Automobile (18.2%)
- Energy (14.3%)
- Financial Institutions (10.3%)
- Retail (9.6%)
- Industry (8.7%)
- Tobacco Industry (4.8%)

We calculate the difference between the bond's actual ISMA (International securities market association) mid yield vs. asset swap spread, swap rates from fixed rate payer side, and also exhibit the spread as differences between the bond's actual ISMA mid yield vs. government interpolated yield of German government bond curve (which is commonly used for extracting spread in eurobond market). The average spreads are weighted averages of all spreads which are calculated issue by issue where the weighting is market value, so issues with larger volumes outstanding carry more effect than smaller issues in calculating the spread on topic. The index portfolio is rearranged at the end of every month on vase of the available issue data three working days before.

Data are taken on a daily basis from Reuters and cover a period of 01/01/2002-17/03/2003. The yields are calculated using the modern financial mathematical concept of regression, and cash flow stripping derived from all bond's market prices. All yields are annually compounded. Day convention is actual/actual and occurs no difference to 30/360.

Three different time series are created, one for each credit rating: an index with all BBB rating corporate bonds, an index with bonds rating AA and an index with corporates rated as AAA. All these series are depicted graphically to Graphs I and II. Graph I depicts the relationship between corporate bond spread over mid rate swaps (based on Euribor), while Graph II depicts the relationship between corporate bond spreads over government bond, for period 1/2002-3/2003. Trying to analyze the graph of corporate bond spread over mid swap, as well as corporate

bond spread over government bonds, we see that spreads have been more volatile for lower grade bonds than for bonds of higher quality. We see that bonds rated as AAA or AA have a smooth divergence over both benchmarks, while BBB bonds have been trading within a wide spread range.

5.2. CORPORATE TELECOMM BONDS

Apart from the above conclusions, we tried to conclude whether there is a specific country factor included in the yield of a corporate issue, which is not captured by the rating attributed to the issuer. We expect that other things being constant, issues of the same rating and the same time to maturity, denominated in the same currency, from countries that follow the same monetary policy should be the same. Thus, the credit rating should capture the part of the credit risk that is attributed to the country of issue. To do, we observe the announced data of Alpha Telecoms Euro Index, as of March 2003.

We use ***Alpha Telecoms EURO Index,*** for analyzing and monitoring Telecom Sector Euro Corporate Bonds. This index is made up by Alpha Bank Treasury Department and depicts in the best manner the market attitude *while works as measure of comparison between different issues of the same sector.* This index describes the difference between yields (margin) of chosen corporate bonds of telecom sector against corresponding maturities of European Interbank market, measured in basis points. When the price of the index is decreasing, a baying interest is implied for the energy sector bonds, while when the price of the index is falling, a selling interest is depicted. The index is compromised according to following criteria:

- Bond issue of energy companies in Euro
- Fixed coupon
- At least 2 years of maturity
- Credit Rating of at least Baa3 (Moody's)/ BBB- (S&P)
- Minimum amount of issue €350 million

The companies that form the index are the following:

France Telecom, British Telecom, Deutsche Telecom, Ericsson, Royal KPN, Vodafone, Mannesmann, OTE, Portugal Telecom, Sonera, Tecnost (Olivetti), Tele Denmark, Telefonica, Telstra, Sogerim (Telecom Italia), TPSA.

The telecom industry has been volatile through the last 2 years. This is attributed mainly to evolutions concerning financial positions of enterprises, as well as interest rates level and stock prices. Telecomm companies, which used to benefit from state monopolies in very stable markets,

are now facing increased competition and deregulation, in markets where rapidly changing technologies considerably enhance return, but also increase risks. This change, together with the substantial rise in leverage associated with the financing of the purchase of UMTS licenses, caused a reduction of the rating of many of these companies in 2000, and consequently credit spreads have increased. Fixed bond issues have increased by €45 billion, an increase in year on year base of 67%. The downgrade of companies by investment houses has lead to gradual widening of yield spread vs. euro interbank rates. (Moody's and S&P have downgrade 20 companies within the industry, mainly due to the increase in debt through mergers and acquisitions, and investment in UMTS). Nevertheless, the interest rate cut by ECB, have helped the market recover lately. Recently there have been issues of euro bonds with guarantees against potential downgrades. The operation of these companies are considered to be non cyclical, thus are not affected that much by the economic conditions. Some of the companies have moved into re-financing of old debt, exploiting the benefit of historically low interest rates.

In table II we present the data for the corporates used in our analysis. Each issue is classified according to its credit rating, its maturity, its country of issue. Modified duration is used along with convexity to show the sensitivity of each issue to interest rate changes. Modified duration is a measure of price volatility for a bond; bonds with low coupon rate will have greater price volatility (thus greater modified duration), and bonds with long maturity will also have greater price volatility (greater modified duration). Because duration is a good approximation for small changes in yields, we introduce also the convexity, which supplements the duration in analyzing the effect on bond prices when interests change.

Column spread vs. mid swaps is used for analyzing the spread over the Euribor Swap curve for each issue, while we also present the yield of each issue against it's government benchmark. As noticed, German Government bonds are the mainly benchmarks for European Issues. We present the graphs of spreads over mid swaps according to modified duration of the issues, as well as the spread over mid swaps according to the credit rating of the issues.

From Graph III, we conclude the following: The longer maturities tend to exhibit a greater spread than the short ones (that is absolutely consistent with the upsloping yield curve theory). What is interesting is that among issues with the same maturity, there is difference in the spread over swaps, which is attributed to the credit rating differences. For example OTE 6.125% 2/2007 bears a spread of 88 b.p. over Mid swaps, while TPSA 6.5% 3/2007 bears a spread of 362. We also observe issues with higher maturity (e.g Telefonica 4.5% 4/ 2009), to have less spread than issues with shorter maturities (e.g British Telecom 6.375 2/2006). Again, this is attributed to rating differences.

Finally, in our last graph, issues are presented against mid swaps according to their credit rating: the lower the rating, the higher the spread. (This is consistent with the role of ratings in credit spread discussed earlier). Nevertheless, there are some divergences from this rule: Tele Denmark (Denmark), 5.875% 4/2006, rated as A3 exhibits a spread of 117b.p. over swap, while Telefonica (Spain) 5.125 % 10/2006 rated also as A3 exhibits a spread of only 64 b.p. The same is true for the pear o France Telecom and Deutche Telecom, with maturity of 2010. France Telecom exhibits a spread of 219 b.p, while Deutche Telecom exhibits a spread of 247 b.p. If we assert that all quality and quantitative elements of issues are included in the credit rating, then these differences should not appear. The countries of the issuers belong to the same monetary union, have common interest rates and currency, thus even in the case of investment opportunities, arbitrage should eliminate this spread. One could say that is spread is justified in terms of different environment even between countries of the same union. (For example, an isolated increase in inflation in Greece would increase the yield of OTE issue, widening its spread over other issues with the same maturity and rating.). Specific country's factors are expected to influence it's corporate issues. In general, we could say that the Euro Corporate Telecomm bond market is fairly valued in terms of spreads between different issues. This indicates a degree of market integration.

6. CONCLUSIONS

The introduction of the euro has played a crucial role in fostering a deeper and more liquid, euro area-wide bond market. The remaining spread between different issuers reflects both liquidity and credit risk. There are also different tax treatments among countries, differences in accounting and disclosure rules, as well as heterogeneous insolvency regimes. In the current study we tried to test whether bonds issued under the same credit rating, with similar characteristics are exhibiting the similar spread over benchmarks, a fact that would indicate a degree of integration. We accept that the main factor dominating a bond's spread is the credit rating attributed by the rating houses, and we have briefly gone through the rating procedures.

Although the advent of the euro has consecrated the swap curve as the reference benchmark because of its liquidity, homogeneity and uniqueness in the zone, the spread versus sovereigns remains a significant determinant of asset allocation. Nevertheless, we introduced benchmarking with swaps in order to compare different corporate issues. In the last part of the presentation, we used time series of Euro Corporate Bond index, in order to approach the trend of different rating issues over mid swaps and government. Finally, we focused on Telecomm Industry to observe any divergences in spreads between bonds of same quality.

What we observed through our analysis is that the euro corporate market, at least in the telecom industry seems to be integrated, as far as yields are concerned. One or two examples don't seem strong enough to support the opposite argument, since the rest of the issues are moving in the same direction and with spreads that are very close to each other. The common feature of all these issues (the credit rating attributed by the rating houses), seems to be adequate to justify the spread over the relative benchmarks.

But one could say that apart from the credit rating, there might be specific demand and supply shocks affecting each bond's yield. The lack of liquidity in the corporate bond market, reflected in the infrequently observed bid-ask spread, indicates a market imperfection. The fact is that as economic environment becomes more integrated in the countries participating the European Monetary Union, so the yields spreads among issues of the same characteristics will tend to narrow, indicating the end of segmentation in European Corporate Bonds.

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8. APPENDIX

Graph I: Corporate Bond Spread Over Mid Swap

Graph II: Corporate Bond Spread Over Government

Graph III: Corporate Telecoms Spread Against Mid-Swap According to Modified Duration

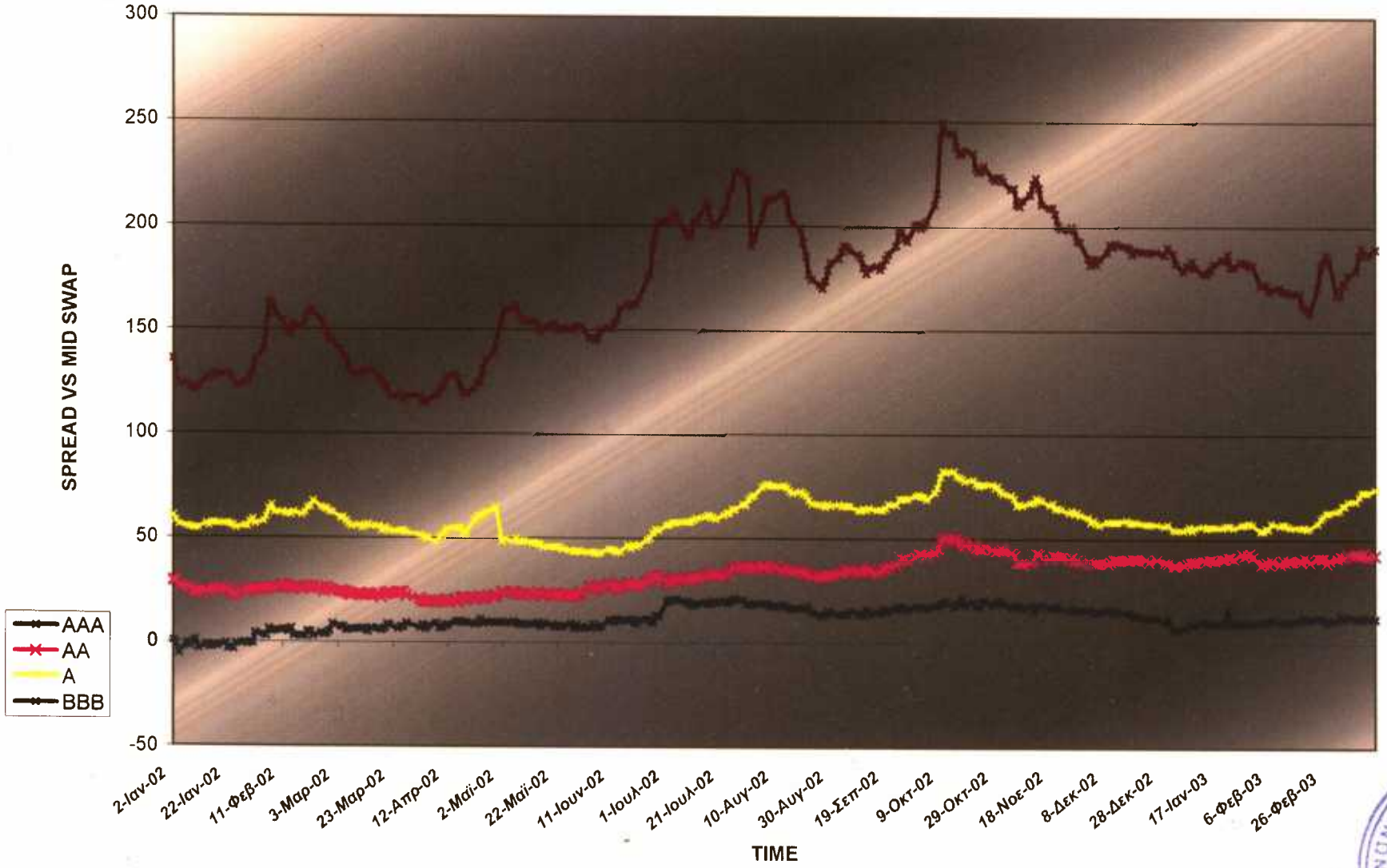
Graph IIV: Corporate Telecom Spread Against Mid-Swap According to Credit Rating.

DATA:

1. Telecom Index Data as of March 2003.
2. FTSE Euro Corporate Bond Index Time Series.

https://doi.org/10.26219/heal.aueb.1381

GRAPH I:CORPORATE BOND SPREAD OVER MID SWAP



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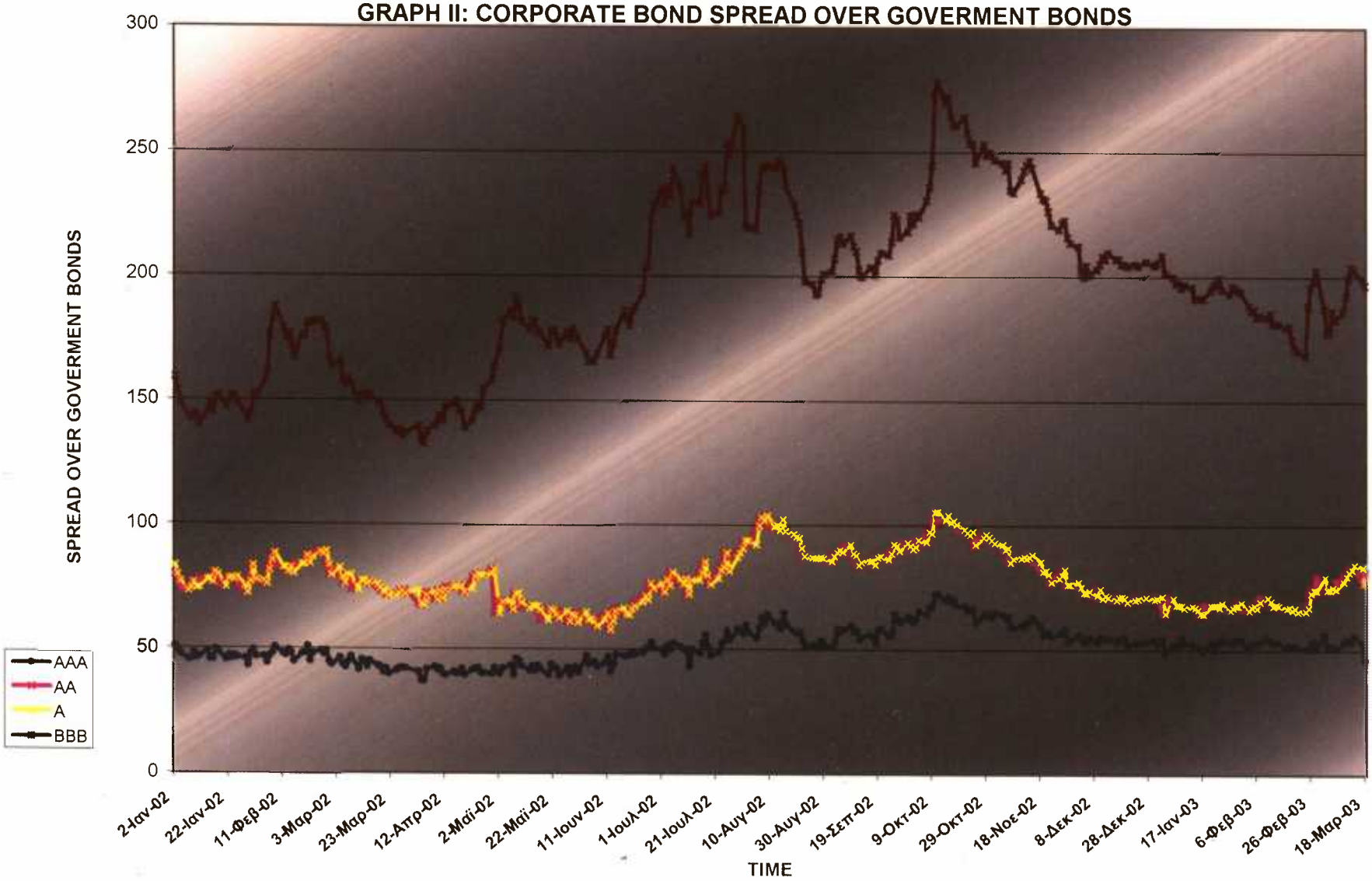

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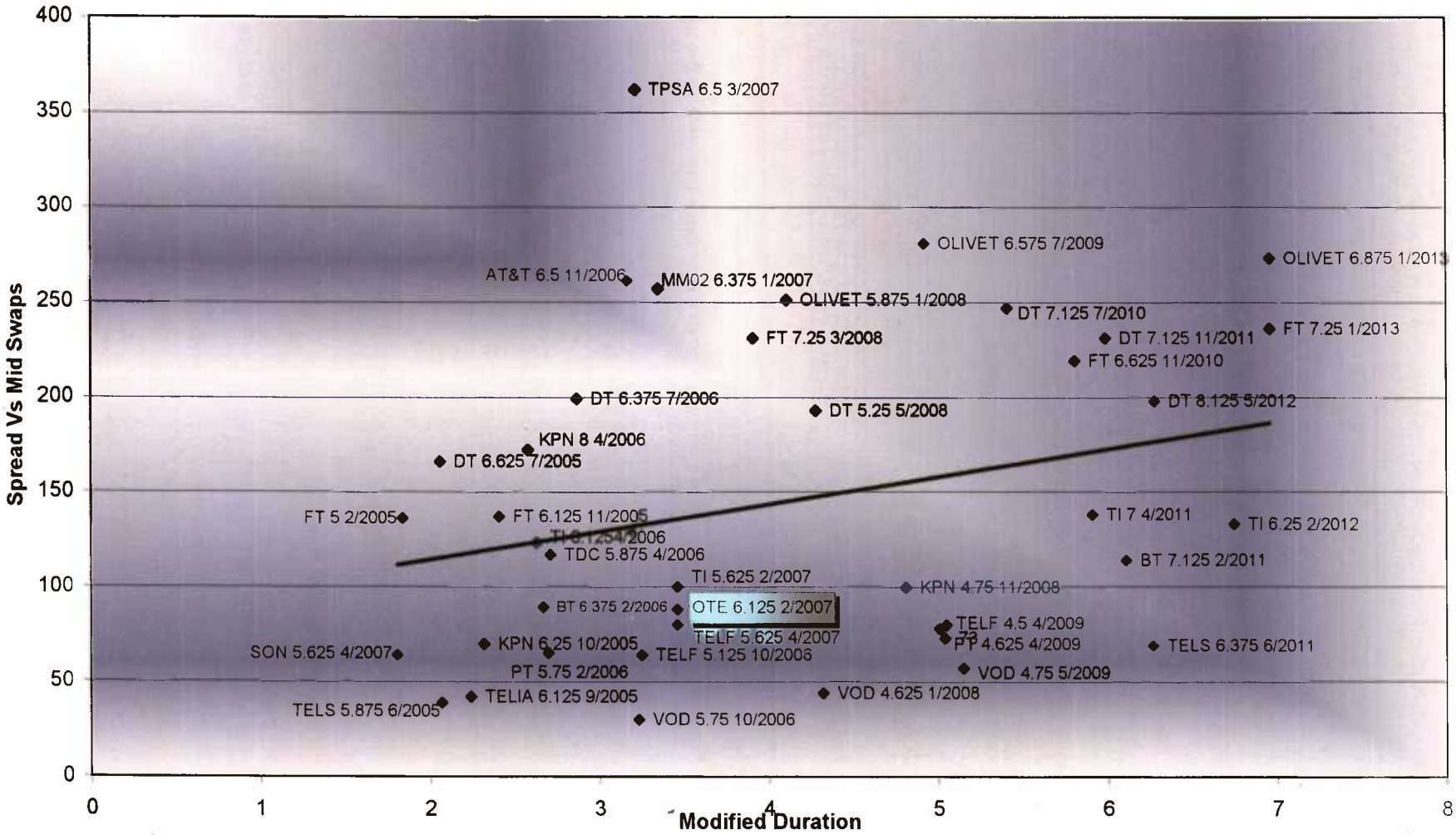
GARPH III: CORPORATE TELECOMS SPREAD AGAINS MID-SWAPS ACCORDING TO MODIFIED DURATION



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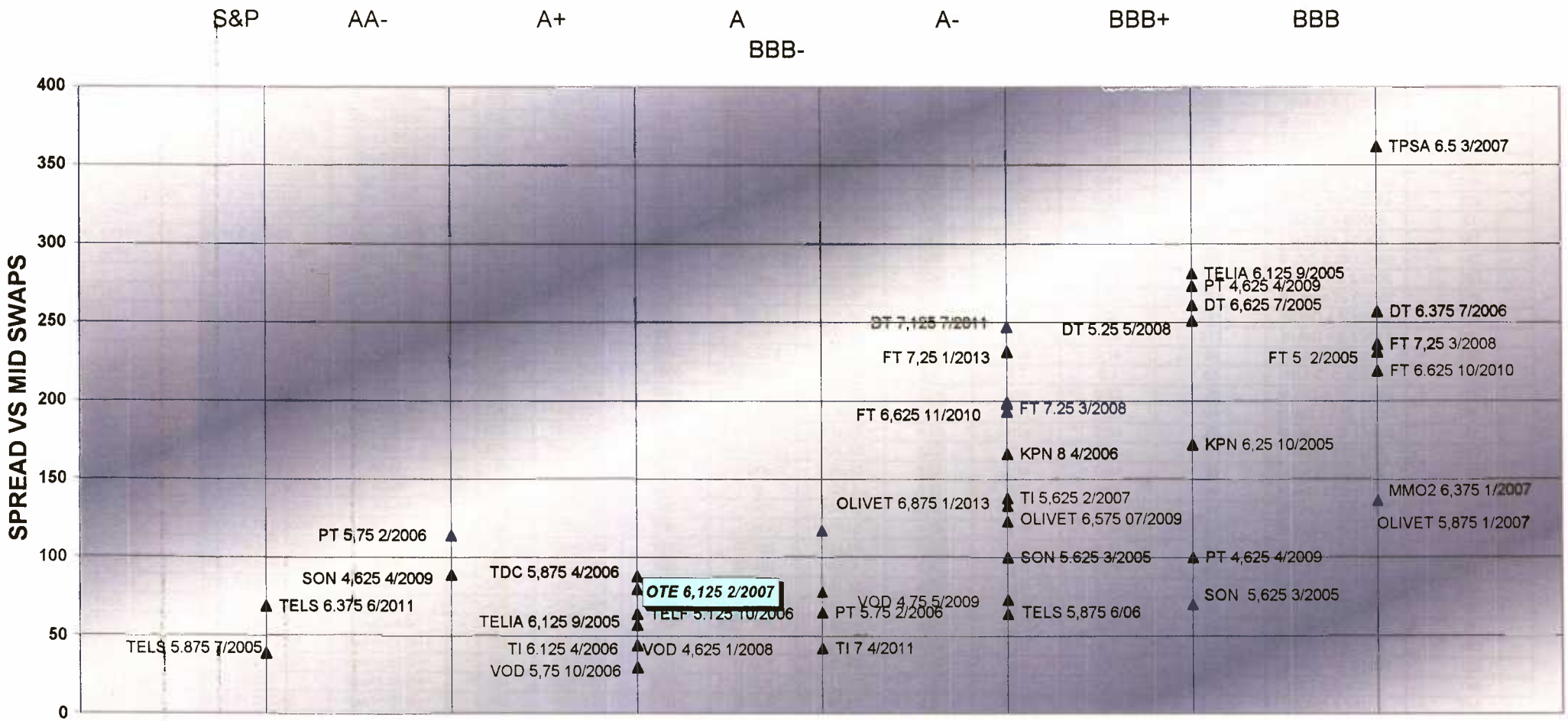

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ISSUER	SYMBOL	MOODY'S /S&P	COUPON	MATURITY	AMMOUNT	COUNTRY	PRICE	YTM (%)	MODIFIED DURATION	CONVEXITY	SPREAD VS MID SWAPS	BENCHMARK	SPREAD VS BENCHMARK
AT&T	ATT 6,5 11/2006	Baa2/BBB	6,500	21/11/2006	2000	USA	102,17	5,82	3,17	0,14	261	BUND 4,5 8/2006	309
BRITISH TELECOM	BT 6,375 02/2006	Baa1+/A+	6,375	15/2/2006	3000	UK	107,47	3,64	2,67	0,1	89	BUND 6 1/2006	106
BRITISH TELECOM	BT 7,125 02/2011	Baa1+/A+	7,125	15/2/2011	2250	UK	113,89	4,96	6,11	0,48	114	BUND 5,25 01/2011	130
DEUTCHE TELECOM	DT 6,625 07/2005	Baa3/BBB+	6,625	6/7/2005	2250	GERMANY	105,33	4,16	2,06	0,,06	166	BUND 5 05/2005	177
DEUTCHE TELECOM	DT 6,375 07/2006	Baa3/BBB+	6,375	11/7/2006	4500	GERMANY	104,88	4,75	2,87	0,12	199	BTAN 4,5 7/2006	204
DEUTCHE TELECOM	DT 5,25 05/2008	Baa3/BBB+	5,250	20/5/2008	2000	GERMANY	100,27	5,18	4,28	0,24	193	BUND 5,25 1/2008	214
DEUTCHE TELECOM	DT 7,125 07/2011	Baa3/BBB+	7,125	6/7/2010	750	GERMANY	105,69	6,13	5,41	0,39	247	BUND 5,25 7/2010	255
DEUTCHE TELECOM	DT 7,125 05/2012	Baa3/BBB+	7,125	11/7/2011	3500	GERMANY	106,3	6,13	5,99	0,48	231	OAT 6,5 4/2011	255
DEUTCHE TELECOM	DT 8,125 5/2012	Baa3/BBB+	8,125	29/5/2012	2000	GERMANY	115,09	5,95	6,28	0,55	198	BUND 5 1/2012	215
FRANCE TELECOM	FT 5 2/2005	Baa3/BBB-	5,000	26/2/2005	2750	FRANCE	102,87	3,85	1,84	0,05	136	BUND 4,25 2/2005	151
FRANCE TELECOM	FT 6,125 11/2005	Baa3/BBB-	6,125	10/11/2005	1000	FRANCE	104,94	4,12	2,41	0,08	137	BUND 5 8/2005	164
FRANCE TELECOM	FT 7,25 3/2008	Baa3/BBB-	7,250	14/3/2008	3500	FRANCE	111,51	5,56	3,91	0,21	231	OAT 5,25 4/2008	241
FRANCE TELECOM	FT 6,625 11/2010	Baa3/BBB-	6,625	10/11/2010	1400	FRANCE	103,61	6,02	5,81	0,44	219	BUND 5,24 7/2010	244
FRANCE TELECOM	FT 7,25 1/2013	Baa3/BBB-	7,250	28/1/2013	3500	FRANCE	105,7	6,45	6,96	0,64	236	BUND 4,5 1/2013	255
ROYAL KPN	KPN 6,25 10/2005	Baa3+/BBB	6,250	4/10/2005	1000	HOLLAND	106,74	3,45	2,32	0,08	70	BUND 5 8/2005	97
ROYAL KPN	KPN 8 4/2006	Baa3+/BBB	8,000	12/4/2006	2000	HOLLAND	109,97	4,47	2,58	0,1	172	BUND 5 2/2006	187
ROYAL KPN	KPN 4,75 11/2008	Baa3+/BBB	4,750	5/11/2008	1500	HOLLAND	101,39	4,46	4,81	0,3	100	BUND 5,25 1/2008	142
MM02	MMO2 6,375 1/2007	Baa2/BBB-	6,375	25/1/2007	1000	UK	102,69	5,58	3,35	0,15	257	BUND 4,5 8/2006	285
OLIVETTI	OLIVET 5,875 1/200	Baa2-/BBB	5,875	24/1/2008	1750	ITALY	100,46	5,76	4,11	0,22	251	BTAN 4,75 7/2007	279
OLIVETTI	OLIVET 6,575 7/200	Baa2-/BBB	6,575	30/7/2009	1750	ITALY	101,52	6,27	4,92	0,32	281	BUND 4,5 7/2009	288
OLIVETTI	OLIVET 6,875 1/201	Baa2-/BBB	6,875	24/0/2013	850	ITALY	100,42	6,81	6,96	0,64	273	BUND 4,5 1/2013	291
OTE	OTE 6,125 2/2007	A2/A	6,125	7/2/2007	1100	GREECE	107,96	3,89	3,46	0,16	88	BUND 6 1/2007	105
PORTGUAL TELECOM	PT 5,75 2/2006	A3/A-	5,750	21/2/2006	1000	PORTGUAL	106,49	3,4	2,7	0,1	65	BUND 6 1/2006	82
PORTGUAL TELECOM	PT 4,625 4/2009	A3/A-	4,625	7/4/2009	1000	PORTGUAL	102,05	4,24	5,01	0,33	78	BUND 3,75 1/2009	97
SONERA	SON 5,625 3/2005	Baa1/BBB+	5,625	14/3/2005	1000	FINLAND	104,78	3,14	1,81	0,05	64	BUND 7,375 1/2005	78
SONERA	SON 4,625 4/2009	Baa1/BBB+	4,625	16/4/2009	300	FINLAND	102,29	4,19	5,04	0,33	73	BUND 3,75 1/2009	93
TELE DANMARK	TDC 5,875 4/2006	A3-/A-	5,875	24/4/2006	1350	DENMARK	105,63	3,92	2,71	0,11	117	BUND 5 2/2006	132
TELIA	TELIA 6,125 9/2005	A2-/A-	6,125	1/9/2005	300	SWEDEN	106,89	3,18	2,24	0,07	42	BUND 5 8/2005	70
VODAFONE	VOD 5,75 10/2006	A2-/A	5,750	27/10/2006	1500	UK	108,2	3,31	3,23	0,14	30	BUND 6,25 4/2006	66
VODAFONE	VOD 4,625 1/2008	A2-/A	4,625	31/1/2008	500	UK	104,13	3,69	4,32	0,24	44	BUND 4,5 8/2007	69
VODAFONE	VOD 4,75 5/2009	A2-/A	4,750	27/5/2009	3000	UK	103,85	4,03	5,15	0,34	57	BUND 3,75 1/2009	77
TELEFONICA	TELF 5,125 10/2008	A3/A	5,125	30/10/200	1000	SPAIN	104,93	3,65	3,25	0,14	64	BUND 4,5 8/2006	92
TELEFONICA	TELF 5,625 4/2007	A3/A	5,625	6/4/2007	500	SPAIN	106,7	3,82	3,46	0,16	80	BUND 6 1/2007	97
TELEFONICA	TELF 4,5 4/2009	A3/A	4,500	14/4/2009	500	SPAIN	101,28	4,26	5,05	0,33	80	BUND 3,75 1/2009	99
TELESTRA	TELS 5,875 6/2005	Aa3-/AA-	5,875	21/6/2005	1000	AUSTRALIA	106,49	2,89	2,07	0,07	39	BUND 5 5/2005	50
TELESTRA	TELS 6,375 6/2011	Aa3-/AA-	6,375	29/6/2011	1500	AUSTRALIA	112,66	4,51	6,27	0,52	69	BUND 5 7/2011	77
TELECOM ITALIA	TI 6,125 4/2006	Baa1+/BBB++	6,125	20/4/2006	3000	ITALY	106,13	3,99	2,63	0,1	123	BTAN 5 1/2006	140
TELECOM ITALIA	TI 5,625 2/2007	Baa1+/BBB++	5,625	1/2/2007	1250	ITALY	105,68	4,02	3,46	0,16	100	BUND 4,5 8/2006	129
TELECOM ITALIA	TI 7 4/2011	Baa1+/BBB++	7,000	20/4/2011	2000	ITALY	111,67	5,2	5,91	0,47	138	OAT 6,5 4/2011	149
TELECOM ITALIA	TI 6,25 2/2012	Baa1+/BBB++	6,250	1/2/2012	1250	ITALY	106,61	5,3	6,75	0,59	133	BUND 5 1/2012	150
TPSA	TPSA 6,5 3/2007	Baa2-/BBB-	6,500	13/3/2007	475	POLAND	99,53	6,64	3,22	0,15	362	BUND 6 1/2007	379

FTSE CORPORATE BOND SPREAD VS MID SWAPS

DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB
2/1/2002	0,5	29,1	60,5	135,60	20/2/2002	5,1	26,2	64,4	157,70	12/4/2002	8,5	20,4	54,6	127,50	3/6/2002	6,9	27,1	43,4	145,80
3/1/2002	-0,8	29,1	58,2	127,90	21/2/2002	4,8	26,1	64,9	159,50	15/4/2002	9,6	20	54,7	128,30	4/6/2002	8,6	26,8	43,5	146,00
4/1/2002	-5,7	26,3	56,2	123,20	22/2/2002	2,9	26,2	67,6	157,60	16/4/2002	10,1	19,3	55	126,40	5/6/2002	8,2	25,4	42,8	144,70
7/1/2002	-0,6	26,2	55,5	123,60	25/2/2002	4,4	25,7	64,8	154,70	17/4/2002	9,7	21	54,6	121,30	6/6/2002	7,1	26,4	42,9	145,70
8/1/2002	-2,3	25,4	55	122,00	26/2/2002	3,6	24,4	63,9	150,00	18/4/2002	9,4	21,7	52,9	119,40	7/6/2002	8	26	43,3	150,00
9/1/2002	-0,5	23,7	54,7	120,60	27/2/2002	4,1	25,9	63,7	147,70	19/4/2002	9,4	20,8	53	119,10	10/6/2002	10,6	28,4	44,8	151,00
10/1/2002	0,8	23,6	54,4	120,70	28/2/2002	5,2	24,7	62,6	144,80	22/4/2002	8,8	20,6	58,6	121,40	11/6/2002	10,3	27,4	44,5	150,00
11/1/2002	-3,2	23,6	54,8	122,30	1/3/2002	8,6	24,7	62,2	143,80	23/4/2002	9,5	21,1	60,1	124,10	12/6/2002	9,8	26,8	43,9	153,10
14/1/2002	-1,5	24,3	56,6	126,50	4/3/2002	7,4	24,3	59,5	139,90	24/4/2002	11,2	22,1	60,9	124,90	13/6/2002	11,4	26,4	43,4	154,60
15/1/2002	-2,6	23,3	55,8	125,90	5/3/2002	7,3	24,4	59,8	136,00	25/4/2002	9,2	21	61,3	130,70	14/6/2002	10,5	25,5	43,8	160,30
16/1/2002	-2,4	25,3	57	127,10	6/3/2002	5,7	23,8	58,1	136,50	26/4/2002	10	21,4	62,6	135,10	17/6/2002	10,7	28,6	46,6	162,50
17/1/2002	-1,8	25	57,2	128,70	7/3/2002	6,1	22,8	56,7	130,50	29/4/2002	9,4	22,1	63,6	138,80	18/6/2002	11,1	27,1	45,3	160,90
18/1/2002	-2	24,7	56,6	127,80	8/3/2002	6,2	22,6	55,8	129,00	30/4/2002	9,7	22,7	64,7	144,40	19/6/2002	9,7	27,8	46,6	162,20
21/1/2002	-0,9	24,7	56,8	128,00	11/3/2002	6,3	23,4	56,3	127,50	2/5/2002	9,9	24	48,4	155,20	20/6/2002	9,1	27,6	46,2	162,40
22/1/2002	-3,2	25,1	56,8	128,60	12/3/2002	6,6	22,8	55	129,80	3/5/2002	9,2	23,5	49,7	159,60	21/6/2002	11	27,7	47	165,50
23/1/2002	-3,1	23,7	56,1	127,50	13/3/2002	6	22,5	55,8	129,30	6/5/2002	10	24,2	48,4	159,50	24/6/2002	11,3	28,9	49,2	174,60
24/1/2002	-3,5	22,4	55,8	125,20	14/3/2002	5,1	23	56,8	130,80	7/5/2002	9,1	24	49,8	161,70	25/6/2002	9,9	30,1	50,4	176,30
25/1/2002	-0,7	22,5	54,7	122,70	15/3/2002	6,7	22,7	55,6	129,80	8/5/2002	8,6	23,1	48,3	157,20	26/6/2002	9,7	31,8	52,8	190,10
28/1/2002	-0,2	25	55,6	124,10	18/3/2002	6,4	22,8	55,7	127,30	9/5/2002	8,6	23,3	48,5	154,90	27/6/2002	13	31,7	54,4	195,80
29/1/2002	-1	23,8	55,5	123,70	19/3/2002	5,7	21,7	53,5	125,30	10/5/2002	8,7	23	48,3	153,70	28/6/2002	12,5	31,8	54	201,90
30/1/2002	-0,6	24,6	57,6	127,20	20/3/2002	6,7	23	54,9	123,20	13/5/2002	8,8	22,7	47,9	153,40	1/7/2002	19,6	28,9	56,5	202,00
31/1/2002	-0,5	24,9	58,8	128,90	21/3/2002	8,6	23,3	54,3	121,70	14/5/2002	8,9	22,9	47,6	154,00	2/7/2002	20,3	29,3	56,6	202,30
1/2/2002	4,2	24,9	56,8	135,70	22/3/2002	8	23,7	53,3	117,90	15/5/2002	9,4	24,1	47,2	152,70	3/7/2002	20,3	30,1	57,6	204,70
4/2/2002	3,4	25,6	57,8	140,20	25/3/2002	6,4	23,8	53,3	117,40	16/5/2002	7,8	23,4	46,9	148,70	4/7/2002	20,6	30,9	57,7	207,00
5/2/2002	2,9	25,5	60,2	151,50	26/3/2002	7,5	23,8	53,4	118,20	17/5/2002	9,1	22,4	45,8	150,80	5/7/2002	20,3	30,3	57,9	203,60
6/2/2002	6,2	24,9	64	163,00	27/3/2002	7,2	23,7	53,8	116,20	20/5/2002	8,5	22,8	45,9	152,40	8/7/2002	19,6	30,8	58,2	196,60
7/2/2002	5,4	26,4	65,8	162,60	28/3/2002	9,1	22,4	52,8	118,00	21/5/2002	7,4	22,3	45,8	152,10	9/7/2002	19,5	29,5	58,2	194,80
8/2/2002	5,4	25,6	62,1	157,10	2/4/2002	7	20,8	51,6	117,80	22/5/2002	7,9	23,6	46	149,50	10/7/2002	18	31	58,2	194,80
11/2/2002	5,7	26,9	62,2	153,90	3/4/2002	8,5	19,7	50,9	115,00	23/5/2002	8	22,8	45,8	150,40	11/7/2002	18,1	31,3	58,8	201,20
12/2/2002	5,7	26,4	61,2	150,10	4/4/2002	6,5	19,7	50,1	114,90	24/5/2002	7,6	22,6	44,7	150,40	12/7/2002	18,7	31	59,8	202,00
13/2/2002	4,9	26	61,8	148,50	5/4/2002	8	19,4	49,8	116,40	27/5/2002	9	22	44,3	150,40	15/7/2002	19,4	31,5	60,3	209,00
14/2/2002	6,6	26,1	61,1	147,00	8/4/2002	9,1	19,1	48,2	117,70	28/5/2002	6,8	22,3	43,6	149,40	16/7/2002	18,6	32,8	61,3	210,60
15/2/2002	2,9	25,3	62,3	152,10	9/4/2002	7	19,9	50	119,30	29/5/2002	8,5	22,7	43,8	151,80	17/7/2002	18,9	33,6	60,9	203,70
18/2/2002	2,9	25,3	61,1	150,50	10/4/2002	7	19,3	51,6	121,70	30/5/2002	6,9	23,6	44	151,00	18/7/2002	19,9	31,9	60,3	200,50
19/2/2002	2,9	26,1	62,4	154,80	11/4/2002	7,9	20,2	53,2	124,00	31/5/2002	7,5	24,1	43,6	151,10	19/7/2002	19,2	32,9	59,6	199,70

FTSE CORPORATE BOND SPREAD VS MID SWAPS

DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB
22/7/2002	20,1	32,3	61,3	206,40	26/9/2002	16,1	40,6	69,7	194,40	3/12/2002	15,9	38,9	58,5	181,60	12/2/2003	9,9	39,4	57,4	168,60
23/7/2002	19,2	33,3	62,3	208,00	27/9/2002	16,5	39,5	69,4	192,80	4/12/2002	14,6	38,7	59,4	184,90	13/2/2003	10,9	40,1	56,7	169,00
24/7/2002	19,6	33,7	62,6	216,40	30/9/2002	17,4	41,6	70,7	200,60	5/12/2002	15,2	38,7	58	182,00	14/2/2003	10,4	39,8	56	168,10
25/7/2002	20,5	36,6	64,2	217,50	1/10/2002	17,7	43,1	71,2	201,40	6/12/2002	15	38,7	57,2	184,60	17/2/2003	11,3	40,3	56,1	168,30
26/7/2002	21,3	36	64,1	226,10	2/10/2002	16,9	42,7	70,6	199,10	9/12/2002	16	38,6	58,6	187,60	18/2/2003	11,6	39,9	55,7	163,40
29/7/2002	20,7	36,5	66,7	225,00	3/10/2002	16,9	42	70,3	200,30	10/12/2002	15,4	39,6	58,5	191,50	19/2/2003	13	41,6	56,1	161,60
30/7/2002	18,8	36,2	66,1	222,60	4/10/2002	17,3	42,3	69,1	202,50	11/12/2002	15,3	40,3	58,7	190,30	20/2/2003	11,5	40,7	55,3	160,70
31/7/2002	18,9	36	69,2	222,10	7/10/2002	18	43,5	72,5	210,60	12/12/2002	14,5	40,4	58,4	192,20	21/2/2003	11,7	39,5	55,9	158,60
1/8/2002	18,1	35,5	70,4	190,50	8/10/2002	18,3	45,7	74,7	215,80	13/12/2002	15,8	40,3	58,7	191,10	24/2/2003	12,6	41,6	58,1	170,80
2/8/2002	19	36,6	70,7	193,70	9/10/2002	19	49,2	80	243,00	16/12/2002	14,6	40,7	59,3	190,60	25/2/2003	12,3	41,3	60,3	181,30
5/8/2002	18,6	36,6	75	204,00	10/10/2002	19,6	50,9	82,7	249,90	17/12/2002	15,1	40,4	58,1	189,60	26/2/2003	12,4	41,4	61,6	183,10
6/8/2002	18,9	36,6	76	211,00	11/10/2002	20,1	50,4	82,2	244,80	18/12/2002	13,6	40,8	58,2	186,80	27/2/2003	10,2	39,2	63	186,80
7/8/2002	18,9	35,3	76,3	212,10	14/10/2002	17,4	50,3	82,7	244,60	19/12/2002	12,8	40,5	58,6	188,80	28/2/2003	11,5	40,6	63,3	184,30
8/8/2002	17,8	36,3	75,4	213,20	15/10/2002	19,1	50,3	80,4	238,50	20/12/2002	13,2	40,4	58,1	188,00	3/3/2003	11,1	41,3	64	167,10
9/8/2002	17,6	37,3	75,5	213,00	16/10/2002	19,6	48,9	79,7	234,80	23/12/2002	12,2	40,8	57,6	188,10	4/3/2003	13,6	42,3	64,4	167,70
12/8/2002	17,8	34,6	75,1	214,70	17/10/2002	21,6	49,2	79	235,00	24/12/2002	12,2	39,4	57,5	187,50	5/3/2003	12,6	41,9	66,7	172,60
13/8/2002	18,4	36,4	75,8	215,80	18/10/2002	18,4	47,7	77,8	236,70	27/12/2002	12,3	40,6	57,5	188,00	6/3/2003	12,3	42,3	66,4	173,00
14/8/2002	16,9	34,7	74,8	212,20	21/10/2002	20	48,2	78,5	235,10	30/12/2002	10,5	39,2	56,7	186,50	7/3/2003	13,4	43,4	68,5	177,00
15/8/2002	17	35,3	73,1	204,10	22/10/2002	17,6	46,1	76,6	227,80	31/12/2002	12	39	57,3	190,20	10/3/2003	12,2	43,4	68,7	178,90
16/8/2002	16,3	34,2	72	201,70	23/10/2002	18	45,9	75,8	226,10	2/1/2003	6,1	37,8	54,9	187,10	11/3/2003	12,4	43	71,1	186,30
19/8/2002	17	35	72,7	198,80	24/10/2002	20	45,4	76,1	226,80	3/1/2003	6,5	37,8	54,6	182,40	12/3/2003	11,8	42,8	72,8	190,50
20/8/2002	16,8	33,9	71,9	192,10	25/10/2002	20,7	47,1	76,3	228,90	6/1/2003	7	37,9	54,5	178,80	13/3/2003	13,2	44	72,9	187,30
21/8/2002	17,5	34	70,8	185,60	28/10/2002	18,2	45,6	76,3	223,50	7/1/2003	7,7	38,8	55,2	181,20	14/3/2003	12	41,8	72,7	186,20
22/8/2002	16,3	32,8	68,6	176,60	29/10/2002	19,7	44,3	74,6	222,10	8/1/2003	9,9	39,7	56,4	181,40	17/3/2003	12,2	42,5	74,2	189,40
23/8/2002	14,6	31,8	66,8	174,40	30/10/2002	20,4	45,3	75,7	223,40	9/1/2003	9,3	39,5	54,6	183,50					
26/8/2002	13,9	32,1	66,7	171,90	31/10/2002	20,5	45,5	73,3	223,80	10/1/2003	9,5	39,7	56	180,10					
27/8/2002	12,9	32,1	66,2	170,20	1/11/2002	19	45	72,1	221,90	13/1/2003	10,5	40,4	56,8	178,00					
28/8/2002	13,7	32	65,5	173,70	4/11/2002	17,2	43,9	71,3	217,80	14/1/2003	10	39,8	55,6	177,40					
29/8/2002	15,3	32,9	66,9	178,90	5/11/2002	18,5	42,6	69,5	218,40	15/1/2003	9,6	40,5	56,1	178,50					
30/8/2002	14,6	33,1	65,9	182,50	6/11/2002	17,7	38,8	66,2	210,70	16/1/2003	9,7	40,6	56,3	179,60					
2/9/2002	13,5	33,6	66,7	184,30	7/11/2002	17,4	39	67,1	210,00	17/1/2003	9,4	40,1	56,3	182,40					
3/9/2002	13,7	34,1	65,6	188,00	8/11/2002	17	38,9	66,5	212,60	20/1/2003	9,2	40,8	55,9	184,10					
4/9/2002	13,8	35,5	66,2	190,70	11/11/2002	18,3	39,2	67,6	215,20	21/1/2003	9,8	41,1	56,6	184,40					
5/9/2002	13,7	34,7	65,9	190,00	12/11/2002	15,3	39,8	67,8	220,70	22/1/2003	16,2	41,8	57	187,00					
6/9/2002	15,4	35,3	65,7	188,10	13/11/2002	18,7	43,6	69,8	223,20	23/1/2003	10,2	41,8	56,7	180,70					
9/9/2002	14	34,5	63,9	186,60	14/11/2002	17,8	43,3	69,2	218,70	24/1/2003	9,7	41,1	56	180,60					
10/9/2002	14,6	34,2	63,7	184,80	15/11/2002	19	41	68,7	210,60	27/1/2003	10	43,5	57,1	183,30					
11/9/2002	13,1	35,7	64,8	180,20	18/11/2002	17,5	40,9	66,6	209,10	28/1/2003	9,3	42,6	57,3	182,40					
12/9/2002	16	34,7	64	177,20	19/11/2002	17,3	42,5	67,4	209,00	29/1/2003	10,4	43,1	57,7	182,40					
13/9/2002	14	35,3	65	180,00	20/11/2002	17	42,1	65	206,30	30/1/2003	10	43,7	58,2	181,30					
16/9/2002	15	33,5	64	180,80	21/11/2002	18,4	41,8	65,3	200,90	31/1/2003	9,4	42	57,4	181,30					
17/9/2002	14,3	34,5	64,2	179,30	22/11/2002	16,6	41,5	64,5	199,10	3/2/2003	9,8	38,2	54,2	172,20					
18/9/2002	16,3	35,9	64,1	181,50	25/11/2002	15,4	40,6	63	198,40	4/2/2003	10,7	38,9	54,6	172,30					
19/9/2002	15	35,9	65	184,20	26/11/2002	17,3	41,5	64	199,90	5/2/2003	10,7	39,4	55,6	172,20					
20/9/2002	16	37,2	66,9	186,60	27/11/2002	15,4	39,8	62,6	198,10	6/2/2003	10,5	38,3	55,1	168,90					
23/9/2002	16,6	37,5	66,5	190,70	28/11/2002	16	40,7	63,2	193,20	7/2/2003	11,8	40	58,1	170,20					
24/9/2002	18	40	69,3	197,60	29/11/2002	16	39,5	61,9	192,50	10/2/2003	9,6	38,7	57	171,00					
25/9/2002	17,3	40,6	69	198,00	2/12/2002	16,3	39,6	60,9	184,90	11/2/2003	10,4	40,5	57,7	169,20					

FTSE CORPORATE BOND SPREAD VS GOVERMENT BONDS

DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB
2/1/2002	50,7	79,6	83,3	159,1	26/2/2002	47,5	89,2	88	179,1	24/4/2002	42,2	79,8	79,9	147,8
3/1/2002	48,9	76,7	79,6	153,4	27/2/2002	48,9	83,4	89,2	176,7	25/4/2002	40,3	79,5	79,8	147,2
4/1/2002	47,3	73	76,7	148,6	28/2/2002	44,7	79,5	83,4	167,4	26/4/2002	40,2	80,2	79,5	154,4
7/1/2002	45,3	73,9	73	142,3	1/3/2002	43,5	82,4	79,5	163,9	29/4/2002	39,8	81,8	80,2	158,2
8/1/2002	45,4	76,3	73,9	142,3	4/3/2002	46,2	78,5	82,4	165,6	30/4/2002	42,3	64,3	81,8	163,6
9/1/2002	48	74,1	76,3	144,1	5/3/2002	43,6	76,2	78,5	157,8	2/5/2002	40	68,9	64,3	170,9
10/1/2002	46,1	74,4	74,1	142,5	6/3/2002	42,5	79,8	76,2	156,4	3/5/2002	42	69,2	68,9	181,6
11/1/2002	46,4	77,5	74,4	139,7	7/3/2002	44,6	79,5	79,8	158,6	6/5/2002	43,2	65,9	69,2	185,3
14/1/2002	48,7	77,7	77,5	145,5	8/3/2002	46,6	73,5	79,5	156,2	7/5/2002	39,4	72,2	65,9	183,2
15/1/2002	45,5	76,3	77,7	148,4	11/3/2002	41,5	77,4	73,5	149,2	8/5/2002	46,1	72,4	72,2	191,4
16/1/2002	45,5	80,5	76,3	145	12/3/2002	45,5	77,3	77,4	151,8	9/5/2002	45,4	68,7	72,4	188,5
17/1/2002	49,3	79,6	80,5	150,9	13/3/2002	44,9	75,9	77,3	151,6	10/5/2002	43	66,4	68,7	181,6
18/1/2002	48,4	74,6	79,6	151,5	14/3/2002	42,7	76,8	75,9	150,5	13/5/2002	41,2	67,6	66,4	178,7
21/1/2002	45,3	77,9	74,6	147	15/3/2002	45	75,7	76,8	152,2	14/5/2002	42,8	67,3	67,6	182
22/1/2002	47	78,4	77,9	149,6	18/3/2002	43	74,4	75,7	149,1	15/5/2002	41,3	67,2	67,3	181,2
23/1/2002	45,8	77,6	78,4	151,2	19/3/2002	42,4	73	74,4	148,8	16/5/2002	43,3	65,6	67,2	177,7
24/1/2002	46,7	78,5	77,6	150,9	20/3/2002	40,4	72,8	73	144,6	17/5/2002	41,9	61,7	65,6	176,7
25/1/2002	46,2	75	78,5	149	21/3/2002	41,8	71,3	72,8	141,8	20/5/2002	39,4	66	61,7	171,9
28/1/2002	45,8	72,1	75	143,8	22/3/2002	39,8	71,3	71,3	139,8	21/5/2002	43,8	65,5	66	177,7
29/1/2002	42,9	76,8	72,1	141,5	25/3/2002	41,2	72	71,3	137,3	22/5/2002	42,5	63,8	65,5	178,2
30/1/2002	47,5	83,2	76,8	145,4	26/3/2002	42,1	73,1	72	138,2	23/5/2002	41,9	62,4	63,8	175,2
31/1/2002	49,2	77,6	83,2	152,3	27/3/2002	42,3	72	73,1	135,8	24/5/2002	39,3	65,2	62,4	172,7
1/2/2002	46,6	77,2	77,6	151,9	28/3/2002	42,1	73,6	72	137	27/5/2002	42,3	61	65,2	177,2
4/2/2002	46,6	75,9	77,2	157,3	2/4/2002	40,6	68,1	73,6	139,3	28/5/2002	39,5	63,9	61	174,6
5/2/2002	44	81,5	75,9	161,4	3/4/2002	37,3	67,6	68,1	133,5	29/5/2002	42,1	63,4	63,9	178,7
6/2/2002	46,7	85,4	81,5	176	4/4/2002	37,1	71,4	67,6	132,7	30/5/2002	42,7	60,7	63,4	176,3
7/2/2002	47,9	88,3	85,4	183,3	5/4/2002	41,7	72,6	71,4	137,6	31/5/2002	40,5	64,8	60,7	174,4
8/2/2002	50,3	82,6	88,3	187,6	8/4/2002	42,7	69,6	72,6	139,5	3/6/2002	47,2	61,8	64,8	168,9
11/2/2002	47,7	82,4	82,6	178,8	9/4/2002	41,5	73,2	69,6	141,4	4/6/2002	43,9	61,9	61,8	165,6
12/2/2002	47,1	80,7	82,4	175,1	10/4/2002	42	70,2	73,2	143,7	5/6/2002	44,3	61	61,9	166,2
13/2/2002	49,1	82,4	80,7	176,6	11/4/2002	39,7	73,6	70,2	141,9	6/6/2002	44,8	59,3	61	165,6
14/2/2002	47,9	80,1	82,4	171,7	12/4/2002	39,5	74,8	73,6	147,2	7/6/2002	42,9	61,8	59,3	168,7
15/2/2002	44,7	83,9	80,1	167,2	15/4/2002	40,6	75,1	74,8	148,5	10/6/2002	44,5	64,2	61,8	175,9
18/2/2002	47,8	83,8	83,9	176,1	16/4/2002	40	74,6	75,1	149,7	11/6/2002	46,8	57,9	64,2	178,5
19/2/2002	48	87,2	83,8	175,6	17/4/2002	40,2	75,2	74,6	146,2	12/6/2002	40,8	61,2	57,9	168,1
20/2/2002	50,7	84,3	87,2	181,1	18/4/2002	41,9	72,8	75,2	145,1	13/6/2002	43,7	65,3	61,2	172,7
21/2/2002	44,8	86,7	84,3	181,1	19/4/2002	39,5	73,9	72,8	139	14/6/2002	47,8	66,5	65,3	178,3
22/2/2002	47,9	88,8	86,7	181,4	22/4/2002	41,4	78,9	73,9	142	17/6/2002	47,2	64,1	66,5	186
25/2/2002	48,9	88	88,8	181,7	23/4/2002	41,9	79,9	78,9	146,2	18/6/2002	46,9	63,9	64,1	182,9

FTSE CORPORATE BOND SPREAD VS GOVERMENT BONDS

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DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB
19/6/2002	47,6	66,2	63,9	180,3	12/8/2002	60,4	99,7	99,3	243,5	3/10/2002	62,5	94,1	91,4	225,1
20/6/2002	48,6	67,3	66,2	186	13/8/2002	60,5	98	99,7	246,4	4/10/2002	65,3	93,3	94,1	224
21/6/2002	47,9	69	67,3	187,6	14/8/2002	58,4	102,2	98	245	7/10/2002	64,2	97,3	93,3	230,7
24/6/2002	48,5	71,1	69	193	15/8/2002	64,6	97,5	102,2	243,4	8/10/2002	67,1	96,8	97,3	236,1
25/6/2002	50,2	69,7	71,1	203,4	16/8/2002	59,9	96,3	97,5	236	9/10/2002	67,4	105	96,8	244,8
26/6/2002	50,5	76,5	69,7	204,3	19/8/2002	57,4	95,2	96,3	228,9	10/10/2002	72,3	105,3	105	273,6
27/6/2002	52,8	74,3	76,5	223,3	20/8/2002	56,5	94,7	95,2	224,2	11/10/2002	72,4	102,1	105,3	278,1
28/6/2002	50,4	76,4	74,3	227,6	21/8/2002	57,2	90,8	94,7	221,2	14/10/2002	69,6	103,9	102,1	270
1/7/2002	49,6	72,9	76,4	234,7	22/8/2002	53,7	87,7	90,8	209,7	15/10/2002	71,1	101,1	103,9	272
2/7/2002	47,8	77,9	72,9	229,1	23/8/2002	51,5	87	87,7	197,9	16/10/2002	69,4	101,7	101,1	264,5
3/7/2002	51,4	75,5	77,9	235,5	26/8/2002	51,8	86,8	87	196,9	17/10/2002	69,9	100,4	101,7	260,8
4/7/2002	49,7	80,9	75,5	232,2	27/8/2002	50,6	86,8	86,8	192,8	18/10/2002	67,8	98,4	100,4	261
5/7/2002	52,4	78,1	80,9	243,2	28/8/2002	51,4	87,2	86,8	193,7	21/10/2002	67,4	97,2	98,4	264,2
8/7/2002	50,9	76,1	78,1	234,8	29/8/2002	53,3	86,9	87,2	199	22/10/2002	65,6	96,2	97,2	257,7
9/7/2002	49,7	78,3	76,1	223,6	30/8/2002	51,8	85,7	86,9	200,9	23/10/2002	66,2	97,5	96,2	253,7
10/7/2002	49,7	72,2	78,3	225,3	2/9/2002	50,7	87,6	85,7	202,2	24/10/2002	66,2	92,4	97,5	253,5
11/7/2002	43	77,7	72,2	217	3/9/2002	53	89,2	87,6	207,3	25/10/2002	60,7	95,1	92,4	245,9
12/7/2002	49,9	77,8	77,7	229,8	4/9/2002	58,3	90	89,2	214,8	28/10/2002	63,8	96,4	95,1	253,2
15/7/2002	48,3	80,7	77,8	229,4	5/9/2002	57,3	89,4	90	215,9	29/10/2002	64,6	95,4	96,4	249
16/7/2002	52,4	85,1	80,7	240,9	6/9/2002	58	92,2	89,4	213,4	30/10/2002	63,4	94,1	95,4	250,1
17/7/2002	55,8	79,8	85,1	244,1	9/9/2002	59,5	88,8	92,2	216,3	31/10/2002	63	92,9	94,1	248,9
18/7/2002	50,6	76,2	79,8	233,2	10/9/2002	57,3	88	88,8	212,1	1/11/2002	65,1	92,4	92,9	247,1
19/7/2002	47,3	78,5	76,2	224,2	11/9/2002	57,7	84	88	210,2	4/11/2002	64,3	90,5	92,4	245,9
22/7/2002	48,8	81,6	78,5	225,4	12/9/2002	53,9	85,3	84	202,7	5/11/2002	62,9	91,1	90,5	243,1
23/7/2002	52,2	83	81,6	234,3	13/9/2002	55,1	85,7	85,3	199,8	6/11/2002	63,5	85,2	91,1	245,6
24/7/2002	53,1	88,8	83	235,6	16/9/2002	55,8	85,9	85,7	203,6	7/11/2002	59	86,9	85,2	234,9
25/7/2002	57,6	81,4	88,8	252,9	17/9/2002	55,2	84,3	85,9	203,6	8/11/2002	58,7	87,1	86,9	233,9
26/7/2002	53,7	87,1	81,4	249	18/9/2002	52,4	87,3	84,3	200,5	11/11/2002	59,6	87,7	87,1	239,3
29/7/2002	58,3	88,9	87,1	264,5	19/9/2002	57,9	87,7	87,3	206,8	12/11/2002	59,2	86,8	87,7	242,7
30/7/2002	57,6	90,7	88,9	262,5	20/9/2002	58,4	86,5	87,7	209,6	13/11/2002	61	87,5	86,8	245
31/7/2002	56,5	93,7	90,7	259,5	23/9/2002	55,3	88,8	86,5	208,7	14/11/2002	61,5	88,5	87,5	246,6
1/8/2002	59,6	93,8	93,7	220,4	24/9/2002	57	92,4	88,8	214,2	15/11/2002	63	85,6	88,5	243,6
2/8/2002	57	92,2	93,8	219,5	25/9/2002	64,3	91,9	92,4	224,7	18/11/2002	59,3	81,7	85,6	233,7
5/8/2002	54,5	99,7	92,2	218,9	26/9/2002	62,4	89,8	91,9	223	19/11/2002	55,7	82,1	81,7	231,5
6/8/2002	58,7	103,2	99,7	236,6	27/9/2002	61	93	89,8	215,9	20/11/2002	57,4	80,7	82,1	230,8
7/8/2002	62,7	101,8	103,2	243,9	30/9/2002	63,2	91,8	93	218,1	21/11/2002	56,8	77,5	80,7	226,4
8/8/2002	60,4	103,7	101,8	242,9	1/10/2002	62	90,7	91,8	224,7	22/11/2002	55,3	79,2	77,5	220,9
9/8/2002	64,1	99,3	103,7	244,5	2/10/2002	60,8	91,4	90,7	221,2	25/11/2002	56,4	80,3	79,2	219,1

FTSE CORPORATE BOND SPREAD VS GOVERMENT BONDS

DATE	AAA	AA	A	BBB	DATE	AAA	AA	A	BBB
26/11/2002	56,6	82,4	80,3	221,7	23/1/2003	53	69,4	67,6	199,5
27/11/2002	58,3	76,5	82,4	222,7	24/1/2003	54,1	66,6	69,4	195,2
28/11/2002	53,3	76,6	76,5	216	27/1/2003	53,1	67,7	66,6	193,3
29/11/2002	54	77,5	76,6	213,8	28/1/2003	52,6	68,3	67,7	196,2
2/12/2002	56	75,6	77,5	212,4	29/1/2003	53,9	68,4	68,3	195,4
3/12/2002	55,3	73,4	75,6	203,1	30/1/2003	54	69,6	68,4	194,8
4/12/2002	53,2	73,1	73,4	200	31/1/2003	54,2	66,4	69,6	193,9
5/12/2002	53,4	74	73,1	204,7	3/2/2003	50,6	67,9	66,4	188,6
6/12/2002	54,9	72,4	74	201,2	4/2/2003	52,1	68,4	67,9	186,5
9/12/2002	53	74,7	72,4	203,2	5/2/2003	52,9	67,5	68,4	186,9
10/12/2002	54,9	71,2	74,7	205,3	6/2/2003	52,5	70	67,5	184
11/12/2002	54,3	72,2	71,2	208,3	7/2/2003	53,2	71,6	70	184,5
12/12/2002	54,7	71,6	72,2	207,3	10/2/2003	54,7	70,2	71,6	184,1
13/12/2002	54,4	70,6	71,6	209,8	11/2/2003	53,5	68,2	70,2	185,3
16/12/2002	53,1	71,6	70,6	207,2	12/2/2003	52,8	68,9	68,2	181,5
17/12/2002	54,2	71,7	71,6	207,5	13/2/2003	53	68,5	68,9	181,3
18/12/2002	53,6	71,1	71,7	205,3	14/2/2003	53,1	67,4	68,5	181,3
19/12/2002	54,7	69,8	71,1	205,1	17/2/2003	50,9	67,8	67,4	179,6
20/12/2002	51,8	70,6	69,8	204,5	18/2/2003	51,9	66,7	67,8	180,3
23/12/2002	52,9	70,9	70,6	205,3	19/2/2003	51	67,4	66,7	175
24/12/2002	52,7	71,5	70,9	204,6	20/2/2003	52	66,1	67,4	172
27/12/2002	53,4	70,7	71,5	206,3	21/2/2003	50,7	66,2	66,1	170,4
30/12/2002	54,1	71,2	70,7	204,8	24/2/2003	50,6	67,7	66,2	168,5
31/12/2002	52,7	71,9	71,2	205,7	25/2/2003	50,3	73,3	67,7	188,3
2/1/2003	54,3	65,2	71,9	208,6	26/2/2003	52,4	74,5	73,3	196,1
3/1/2003	48,5	71,1	65,2	201,7	27/2/2003	53,7	74,4	74,5	198,2
6/1/2003	52,1	68,7	71,1	200,1	28/2/2003	50,6	79,8	74,4	202,9
7/1/2003	51,9	68,4	68,7	197,4	3/3/2003	56,4	74,6	79,8	187,2
8/1/2003	52	68,5	68,4	197,7	4/3/2003	51,5	74,5	74,6	177,6
9/1/2003	55	67,4	68,5	195,7	5/3/2003	51,7	75,6	74,5	178,3
10/1/2003	52,3	68,2	67,4	196,9	6/3/2003	51,6	74,9	75,6	186,2
13/1/2003	52,6	67,6	68,2	196	7/3/2003	50,6	78	74,9	183
14/1/2003	51,2	66,8	67,6	191,3	10/3/2003	52,8	80,2	78	186,4
15/1/2003	50,9	65,3	66,8	191,6	11/3/2003	54,2	81,7	80,2	192,6
16/1/2003	50,6	65	65,3	191,3	12/3/2003	53,7	82,7	81,7	200
17/1/2003	49,6	68,4	65	191,5	13/3/2003	53,2	84,6	82,7	204
20/1/2003	53	68,4	68,4	195	14/3/2003	55,7	83,6	84,6	202,7
21/1/2003	49,9	68,4	68,4	196,6	17/3/2003	53	77,1	83,6	199,5
22/1/2003	52,6	67,6	68,4	197,7	18/3/2003	46,2	81,3	77,1	196,9

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