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significant variation. Certain periods are particularly volatile, with fluctuations in the risk premium reaching a magnitude of 100 basis points within the span of one year. In the majority of these cases, sharp changes in the risk premium occur subsequent to shocks related to political

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This study examines the influence of financial and political shocks on the short run variability in the risk premium for 10-year corporate bonds from 1998 to the present. The

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* Comments by Cliff Stone and Paula Malone as well as by discussants at the Midwest Economics Association undergraduate session are gratefully acknowledged.

I. Introduction

Changes in the risk premium on 10-year corporate bonds vis-à-vis government bonds are negatively correlated with the business cycle. Expansionary cycles are associated with a gradual descent in the risk premium due to rising corporate profits that reduce the likelihood of default. [1] Conversely, a contraction is associated with a sudden rise in the risk premium due to declines in profits. In response to a decline in corporate profits, credit ratings companies such as Standard's and Poor's and Moody's downgrade the credit ratings of companies that face increased risk of defaulting on their debt payments. Default risk for firms rises during an extended contraction, causing the slope of the risk premium to become increasingly steep. As market conditions become more favorable, the premium gradually narrows and the business cycle pattern repeats.

Although it has historically moved with the business cycle, the risk premium has exhibited two other trends over time. Over the long run, the premium has drifted upward, implying that corporations have become more risky. Between the 1950s and the early 1990s, the spread between Aaa corporate bonds and Treasury bonds ranged from 0 to 150 basis points. More recently, this differential has shifted upwards such that the premium ranges from 100 to 250 basis points. The onset of this shift occurred between 1997 and 1999, a period noted for the fall of Long-Term Capital management and the irrational exuberance present in the financial markets. While the financial position of corporations was questionable during this period, there were few doubts about the health of the economy. GDP had been growing at a sustainable rate and unemployment was held to a reasonable level, all while maintaining a budget surplus. Given these conditions, the upward trend in the premium correctly identified the growing disparity in risk of corporate bonds vis-à-vis government bonds.

[1] Figure 1 in the appendix plots the risk premium on Aaa bonds from 1954 through 2005. Per business cycle data from the NBER, dates of troughs generally coincide with relative maxima and minima in the risk premium.

Periods similar to the late 1990s may explain the long-run upward trend in the risk premium, and are consistent with the hypothesis that the risk premium narrows during an expansionary period. However, the business cycle pattern fails to account for the high variability the premium exhibits in the short-run. At various points in time, the risk premium has become highly volatile such that sudden changes of 50 to 100 basis points occur throughout the year. Although infrequent in occurrence, the continued existence of these short-run spikes suggests that other exogenous factors besides corporate and government health affects the risk premium.

Since these spikes have occurred randomly over time, some of the variability can be explained by the occurrence of political unrest and financial shocks influencing the debt markets. Shocks related to political and financial uncertainty have generally led to increased levels of uncertainty and systematic risk in the capital markets. Stocks and bonds respond to this uncertainty by becoming increasingly volatile as the market tries to incorporate new information into the price of securities. As additional information emerges in the aftermath of the shock, the volatility in security prices will gradually disappear until the risk premium reverts to its equilibrium range.

This study utilizes a simple strategy to test the validity of the shock hypothesis. Using prior movements in the premium and trends in monetary policy, I construct a multivariate model to analyze the monthly variation in the risk premium from 1998 through 2005. Dummy variables are incorporated into the model to control for shocks related to major political events and financial scandals. A sample period of April 1998 through April 2005 is used due to the high incidence of shocks during this period. Results from this analysis show that political and financial shocks are significant in explaining short-run variability in bond risk premiums between 1998 and 2005.

II. Literature Review

There is a voluminous literature that explains the composition of the risk premium. Due to advances in econometric modeling, recent studies are able to decompose the risk premium and express its components in percentage terms. Longstaff, et al. (2004) constructs such a model, by using credit-default swaps to isolate the default and non-default components in the spread. Credit-default swaps are financial instruments that offer returns contingent upon the borrower defaulting on bond payments. Because of this characteristic, Longstaff suggests that swaps can be used as a proxy for default risk. Results from this study support this assumption, with default risk accounting for greater than 50% of the premium. The non-default component, which is representative of disparities in liquidity, is also found to be statistically significant. Tax effects, however, are shown to be insignificant in explaining variation in the risk premium.

Elton, et al. (2001) finds further evidence of tax benefit insignificance by decomposing the risk premium on zero coupon bonds. Since the tax code provides for a stated marginal rate, the effects of taxation on a bond represent a constant. Consequently, controlling for the effect of favorable tax treatment fails to significantly explain variation in the risk premium. In contrast to the Longstaff study, Elton finds that only 20-30% of the premium relates to default risk, and concludes that the premium is primarily determined by systematic factors and market liquidity. Furthermore, he suggests that the residual components of the regression may be correlated with Fama-French risk factors used to measure systematic risk in stock markets.

Research by Colin-Dufresne, et al. (2001) reiterates the importance of systematic market risk in explaining risk premium variability. Microeconomic level variables that should theoretically determine risk premium changes are shown to have limited explanatory power, and residuals of the analysis are highly cross-correlated. Aggregate level factors, which are often

dismissed by structural models, are found to be significant in determining risk premium changes. Colin-Dufresne further concludes that the catalysts of risk premium variability are not associated with equity or Treasury markets. Since financial variables are not responsible for the variation, market segmentation and the liquidity concerns and transaction costs encountered by bond market institutions are likely explanations of premium changes. The existence of these factors could lead to supply and demand shocks in debt markets that drive the spread in bond yields.

Political uncertainty could be another cause of supply and demand shocks. Findings by Voth (2002) showed that political uncertainty contributes significantly to volatility in stock prices during the 1920s and 1930s. A high incidence of strikes, demonstrations, and riots caused equity prices in 10 developed countries to fluctuate wildly throughout the period. Movements led by radicals influenced economic conditions, as countries with a high degree of political upheaval experienced the most severe economic shocks. This trend of chaos across nations led to expectations of sustained social unrest, with investors fearing a repeat of the Russian Revolution and questioning the viability of capitalism. Successive strikes and riots perpetuated these fears, and investors responded by becoming more erratic with their securities trading. Consequently, stock prices became increasingly volatile around the time of events associated with political upheaval and chaos. Controlling for these factors in a GARCH model demonstrates that political unrest is able to explain the volatility in stock prices during this era.

Since stocks and bonds respond to similar factors, a shock that increases the level of political uncertainty or financial instability may also affect the risk premium. Figure 1 in the appendix shows that there is an upward trend in the risk premium over the long run. However, Figure 2 shows an extraordinarily high level of variability in the risk premium from April 1998 through 2005. Variability in the risk premium during late 2001 and throughout 2002 is

particularly high, with fluctuations of more than 100 basis points occurring multiple times during this period. Applying the shock hypothesis, I examine variability in the risk premium from April 1998 through April 2005. The high incidence of financial scandals and war- and terror-related events during this period provide a sufficient sample to test the explanatory power of shocks.[2] Based upon findings from previous studies, I anticipate that shocks will be significant in explaining the variation in the risk premium.

III. Risk Premium Framework

The risk premium is defined as the difference in basis points for 10-year corporate bonds vis-à-vis government bonds of the same maturity. Two risk premiums are calculated for the purpose of this study[3]:

(1) $$AP = A - UST$$

Where A is the monthly average of 10-year Aaa corporate bonds, UST is the monthly average of 10-year Treasury constant maturity bonds, and AP represents the risk premium for 10-year Aaa corporate bonds. Equation 2 is calculated as

(2) $$BP = B - UST$$

Where B is the monthly average of 10-year Baa corporate bonds, UST is the monthly average of 10-year Treasury constant maturity bonds, and BP represents the risk premium for 10-year Baa corporate bonds[4].

Indices of higher quality bonds are chosen because of the potential for measurement errors in lower quality bonds. Corporate debt that is less than investment grade is expected to react to a wider array of events than would investment grade debt. This sensitivity leads to a

[2] Rigobon and Sack (2005) recently demonstrated that the conflict in Iraq influenced the capital markets during the weeks prior to and during the war.
[3] Monthly data were obtained from the Federal Reserve Bank of St. Louis FRED II Database.

causation problem due to the difficulty in identifying which event contributed to the increased variability in premiums. In contrast, high quality corporate debt should be less sensitive to exogenous events and show less variability in returns. If Aaa bonds were to become more risky due to a shock, all grades of bonds would be affected as well. Conversely, it cannot be assumed that an event affecting junk bonds will affect Aaa bonds. For measurement purposes, using higher quality bonds reduces the likelihood of incorrectly assessing the significance of a shock.

A risk premium results from the different characteristics of corporate and government bonds. One reason for this difference is that government bonds are less likely to default than bonds issued by corporations. Congress is granted legislative powers to levy taxes and print money. Since these powers enable debt obligations to be repaid amidst periods of financial duress, government bonds are classified as risk free investments. Corporations, however, lack these powers and are thus more vulnerable to default when earnings decline. To compensate investors for this risk disparity, a corporate bond generally offers a higher yield than a government bond of similar maturity.

Differences in yield may also result from disparities in liquidity. Liquidity premiums arise due to the number of buyers and sellers present in the market for a particular bond. For example, U.S. Treasuries are widely held by institutional investors and governments across the world. Due to the large number of buyers and sellers present in the market, U.S. Treasuries can be traded with relatively low transaction costs. In contrast, investors of corporate bonds are more likely to encounter liquidity concerns. Because corporations differ in financial health and long-term outlook, credit ratings are used to assess the default risk of an individual company. As its probability of default rises, a company's credit rating declines and investors demand a greater

[4] Duffee (1996) suggests that debt indices may present biased findings. Potential biases resulting from the use of debt indices are noted in the findings section. As the goal of this study is to suggest factors that may have been

return for lending money. However, some investors are risk averse and may avoid trading bonds of a low quality for fear of being left with a worthless security. Similarly, strategies at some mutual funds and pension funds are based upon trading debt instruments of a particular credit rating. Due to these differences in investor preferences, the market for corporate bonds is more likely to become segmented across credit ratings. In the presence of market segmentation, the probability of holding an illiquid will rise since the cost of locating buyers and sellers has increased. Supply and demand shocks are thus more likely to develop as some corporate bonds become more concentrated among investors. Since it is more difficult to sell in an illiquid market, a premium is offered to investors for holding the bond.

The final reason for a risk premium is due to differences in tax treatment. Currently, the tax code provides that interest income from U.S. Treasuries is excluded from taxation by municipalities and states. Corporate bonds, however, are subject to taxation by local governments. Depending upon the municipality or state, the marginal tax rate for a corporate bond ranges from 5% to 10%. Earnings lost from taxation represent a constant floor for the risk premium. Holding liquidity and risk concerns equal, a corporate bond will offer a higher yield to offset its unfavorable tax treatment. While theoretically important in explaining the risk premium, empirical studies have demonstrated that the explanatory power of the tax difference is limited.[5] Relative to liquidity and risk components of the risk premium, the explanatory power of tax benefits for U.S. Treasuries is insignificant.

Part of this insignificance stems from the fact that risk and liquidity components will be more sensitive to shocks than the tax component. Whereas it could take months for Congress to pass new tax legislation, the market reaction to a shock will be immediate. Following a shock,

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omitted in prior research, the presence of bias should not materially influence results.

[5] See Longstaff (2004), Amato (2003) and Elton (2001) for more on tax effects.

the changes in (1) and (2) should reflect greater risk and/or reduced liquidity in corporate bond markets.[6] Theoretically, a flight to quality should occur in which investors purchase government bonds while selling corporate bonds. This sudden change in supply and demand reduces the yield on Treasury bonds and increases the yield on corporate bonds, thus expanding the spread between the two debt instruments.

Shocks at the political level, such as terrorism and war, will generally have a more profound effect upon financial markets. Acts of terror and war increase systematic risk throughout the economy, and therefore positively affect the risk of holding corporate and government bonds. As systematic risk increases, risk averse investors begin to sell bonds of corporations and governments that are at risk of default. This change in preferences toward less risky bonds thus leads to a secondary shift in the risk premium. Although the secondary shift generally increases the risk premium due to increased demand for government bonds, there have been periods, such as in the late 1970s, when the risk premium narrowed amidst fears of the government's solvency. Consequently, analyzing movements in the bond market subsequent to a shock provides insight into unexpected changes to the risk premium.

IV. Empirical Testing

A. Data and Methodology

Table 1 presents descriptions of the explanatory variables utilized in the regression analyses. Monthly samples are taken from the Federal Reserve Bank of St. Louis FREDII Database from April 1998 through April 2005, for a total of 85 observations per variable. The following equations were constructed to explain the risk premium for 10-year corporate bonds:

(3) $\Delta AP = \beta 0 + \beta 1 \Delta APt\text{-}1 + \beta 2 \Delta APt\text{-}2 + \beta 3 \Delta FF + \beta 4 ENR + \beta 5 IRAQ + \beta 6 SEPT + \varepsilon$

[6] However, the use of debt indices to calculate the credit spread may underestimate the liquidity component. Currently, there is not a definitive proxy to account for liquidity concerns with respect to bonds.

(4) $\Delta BP = \beta 0 + \beta 1 \Delta BPt\text{-}1 + \beta 2 \Delta BPt\text{-}2 + \beta 3 \Delta FF + \beta 4 IRAQ + \beta 5 SEPT + \varepsilon$

Where ΔAP and ΔBP represent the annualized monthly change in the Aaa and Baa risk premiums[7]. Equation (3) and (4) control for stochastic factors in the risk premium by incorporating changes in the risk premium from the prior two months. The monthly change in the federal funds rate accounts for the influence of monetary policy on bond yields and economic growth. Finally, I introduce exogenous shocks to the model by specifying dummy variables for September 11th, the Enron scandal, and the Iraq war.[8]

B. Results

Results of the regressions are summarized in Tables 2 and 3. Equation (3) and (4) are able to explain approximately 24% and 31% of the variation in the risk premiums for 10-year Aaa and Baa corporate bonds. These findings support the hypothesis that shocks are significant in accounting for variability in risk. Furthermore, the magnitude of the unexplained portion is consistent with findings from other studies that imply the existence of a systematic component in the risk premium[9].

The signs on the coefficients of prior month data and the federal funds rate are intuitive and consistent with earlier assumptions. Consider the implications of the relationship between the risk premium in the present month relative to prior month data. A rise in the premium one-month ago suggests that the premium will rise during the current month. Conversely, a rise in the premium that occurred two months ago suggests that the premium will decline at the present. Rises in the premium over consecutive months generally offset each other such that there is a

[7] The equations presented represent the final result after statistical testing. Omitted and redundant variable tests were performed to determine the inclusion of explanatory variables and reduce multicollinearity. As a result, there are some differences in the variables included in each model, most notably among the shocks.

[8] Other variables considered include changes in the slope of the yield curve and price of oil. Both variables were eliminated through redundant variable tests. Shocks that were considered include natural disasters, Y2K, the WorldCom scandal, and the Afghanistan war. The high probability of measurement error and the presence of cross correlation with variables already present in the model warrants their exclusion.

marginal increase in risk. Referring back to Figure 1, this marginal increase in risk is consistent with evidence that states corporate bonds have grown more risky across time.

Similarly, the positive sign on ΔFF is consistent with the relationship between bonds and the federal funds rate. The regression results show that a one-percent rise in the federal funds rate will increase the risk premium by an annualized 0.19% to 0.21%. In general, the Federal Reserve raises the federal funds rate to slow down the growth rate of the economy. As the economic growth decelerates, corporate earnings decline such that there is a greater likelihood that a firm will default on its outstanding debt. To compensate investors for this default risk, the interest rates on corporate bonds will rise, thus increasing the size of the risk premium.

Of the exogenous events in (3) and (4), only September 11th leads to a rise in the risk premium. Per the regression results, September 11th resulted in significant annualized increases in the risk premium that range from 160% to 190%. Given the impact this event had on the nation, such a finding is to be expected. Uncertainty stemming from the attack led to fears of further terrorist actions in the U.S., thus increasing investor anxiety in a manner similar to the political unrest of the 1920s and 1930s.[10] However, investors were unable to act on these fears as the close of the financial markets suspended the trading of securities. Once the markets reopened, trading volume increased heavily across the major exchanges as investors transferred their wealth to safer securities. Although yields on Treasury bonds also increased, the increased risk among corporate bonds more than offset the change, leading to a sharp spike in the risk premium.

A shock to investor confidence occurred when it was revealed that public corporations such as Enron were employing fraudulent accounting practices. Whereas the Internet companies

[9] Collin-Dufresne (2001).
[10] Voth (2002).

were relatively small, Enron was a well-respected Fortune 500 company. The resulting bankruptcy signaled that there was a systemic problem among corporations and the accounting profession. With the validity of financial statements questioned, corporations should have been viewed as increasingly risky and the credit spread should increase. However, controlling for Enron in the model leads to a result suggesting that months tied to the shock led to an annualized decline in the risk premium of 57%.

Since it is unlikely that the Enron scandal made corporate bonds less risky, there could be some bias or extraneous factor affecting the results. One possibility for this finding is that the debt indices reflect a survivor mentality present in credit ratings. As changes in economic conditions and corporate earnings occur, organizations such as Moody's adjust their credit ratings to reflect whether a corporation has become more or less risky. During downward cycles, more firms are downgraded from high quality debt until only the strongest corporations remain. In response to the scandal, banks and other corporations dependent on Enron as a client or customer could have been downgraded due to their inability to collect on an outstanding account. Similarly, Enron's competitors were affected amidst fears of whether accounting irregularities were systemic throughout the energy services industry. As additional downgrades would preserve only the healthiest corporations in Aaa bonds, the decline in the risk premium is partially related to a survivorship bias present in credit ratings.

Expectations of corporate reform may also contribute to the negative sign on the coefficients. Due to the magnitude of the bankruptcies, investors may have anticipated federal intervention into financial markets. In this case, Congressional intervention led to the creation of the Sarbanes-Oxley Act. Under Sarbanes-Oxley, corporations were subject to stricter financial reporting requirements. Noncompliance with requirements may lead to an investigation by the

SEC, and may place management at risk for fines and prosecution. Penalties for noncompliance were an effective deterrent for fraudulent behavior, and were beneficial in restoring investor confidence. As investor confidence improved, corporations may have been viewed as less risky and the credit spread should have declined.

In March 2003, a second political shock occurred when the U.S. declared war on Iraq. Similar to Enron, the Iraq conflict unexpectedly had a negative influence on the risk premium. Part of the effect may relate to investors anticipating the war. During the conflict in Afghanistan, it became clear that the government was considering an invasion of Iraq. Links between Saddam Hussein and al-Qaeda began to surface, as well as evidence suggesting Iraq was accumulating weapons of mass destruction (WMD). War expectations were further fueled by disagreements between the United Nations and President Bush in the fourth quarter of 2002. Whereas President Bush demanded immediate intervention in Iraq, the U.N. advocated obtaining sufficient evidence of WMDs before considering sanctions or other actions. As the debates continued, expectations of a conflict continued to grow up to the date that war was declared.

Uncertainty regarding the length of combat and its effect upon the economy also influenced the market for U.S. Treasuries. President Bush's economic plan to stimulate the economy through tax cuts resulted in lower tax revenues for the government. Without these revenues, the U.S. had to float more Treasuries to attain sufficient funds for government programs and war efforts, which would exacerbate the budget deficit. Confronted with a rising budget deficit, a looming war, and a stagnant economy, it is not unexpected that investors viewed the U.S. Treasury as an increasingly risky investment.

Investor risk perceptions are confirmed in Figure 3, which plots the movement of 10-year Treasury yields between 1998 and 2005. Note the increase in basis points leading up to the war,

and coinciding with the military's occupation of Baghdad. A rise in basis points at these times is indicative of investor uncertainty and fear of the ramifications of a prolonged engagement. Some of this uncertainty may relate to the terror alert system utilized by the Department of Homeland Security during this period. The terror alert system relied upon five colors to provide a likelihood of risk of a terrorist attack on a given date. In practice, the terror alert system remained largely unchanged throughout the war. Since the terror level soon became mundane, reporters focused on more relevant news in their coverage of the war. Only on dates where the Department of Homeland Security increased the terror alert level did the media networks devote significant coverage to the likelihood of an attack. Although the terrorist actions never materialized, the change in the terror level influenced investor expectations about the health of the U.S. economy.

Amidst the uncertainty surrounding the economy, corporations were becoming less risky as earnings growth had begun to accelerate. In the period prior to the war, the major stock indexes declined rapidly due to the failure of the Internet companies and the high incidence of financial scandals. After declining throughout 2002, the major stock indexes recovered in early 2003 from firms exceeding earnings expectations. As more firms beat estimates and raised guidance levels, there was less risk that a corporation would default on its bond payments. Since corporate bonds had become less risky, the yields on these instruments declined as the increased demand led to higher prices. Combined with the rise in the risk of government bonds, the decline in yields on corporate bonds contributed to the diminishing risk premium.

IV. Conclusion

In this study, evidence is presented that financial scandals and war- and terror-related shocks contribute to changes in the risk premium on 10-year corporate bonds. Depending upon the credit rating used, the shock-based model explains 24-31% of the variation in the risk premium between 1998 and 2005. These findings help explain why risk premiums fluctuated considerably during the early 2000s. Corporate fraud at Enron resulted in increased skepticism towards corporations and accounting practices. Subsequent scandals at HEALTHSOUTH, WorldCom and Tyco, and the high incidence of earnings restatements further reduced levels of investor confidence, and provided evidence of a systemic problem at corporations. Investor fears of corporate malfeasance ran high, and rumors of SEC investigations could cause the price of a security to plummet. Concerns about governance practices and the financial position of corporations were heightened by economic conditions at the time. Rising deficits and unemployment levels, and fears of deflation led some to wonder if the U.S. had entered into a period of stagnation similar to Japan. With the government engaged in wars in Afghanistan and Iraq, investor uncertainty about the health of the U.S. economy resulted in high levels of variability in the risk premium.

These findings provide grounds for future research of the effects of shocks. One potential bias of this study was the survivorship mentality of the aggregate bond indices. Decomposing the indices into individual bonds could eliminate this bias, and may explain more of the variation in the premium. Performing a cross-sectional regression on samples from different industries could show how shocks affected risk in different sectors of the economy. The shock hypothesis could also be explored further in a long run study or additional event

studies of other periods. For the long run study, a GARCH model could be used to analyze risk premium volatility resulting from shocks.

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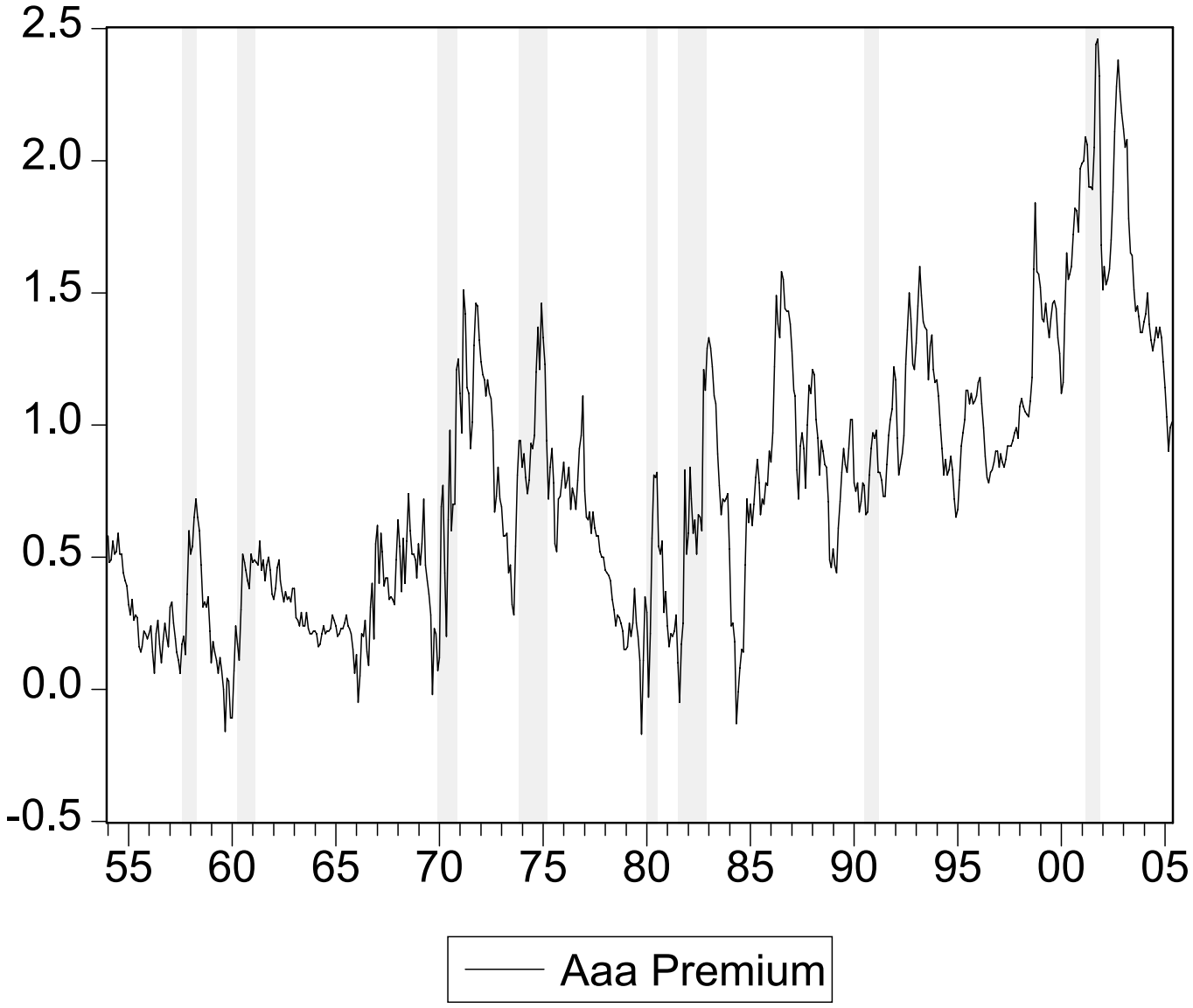
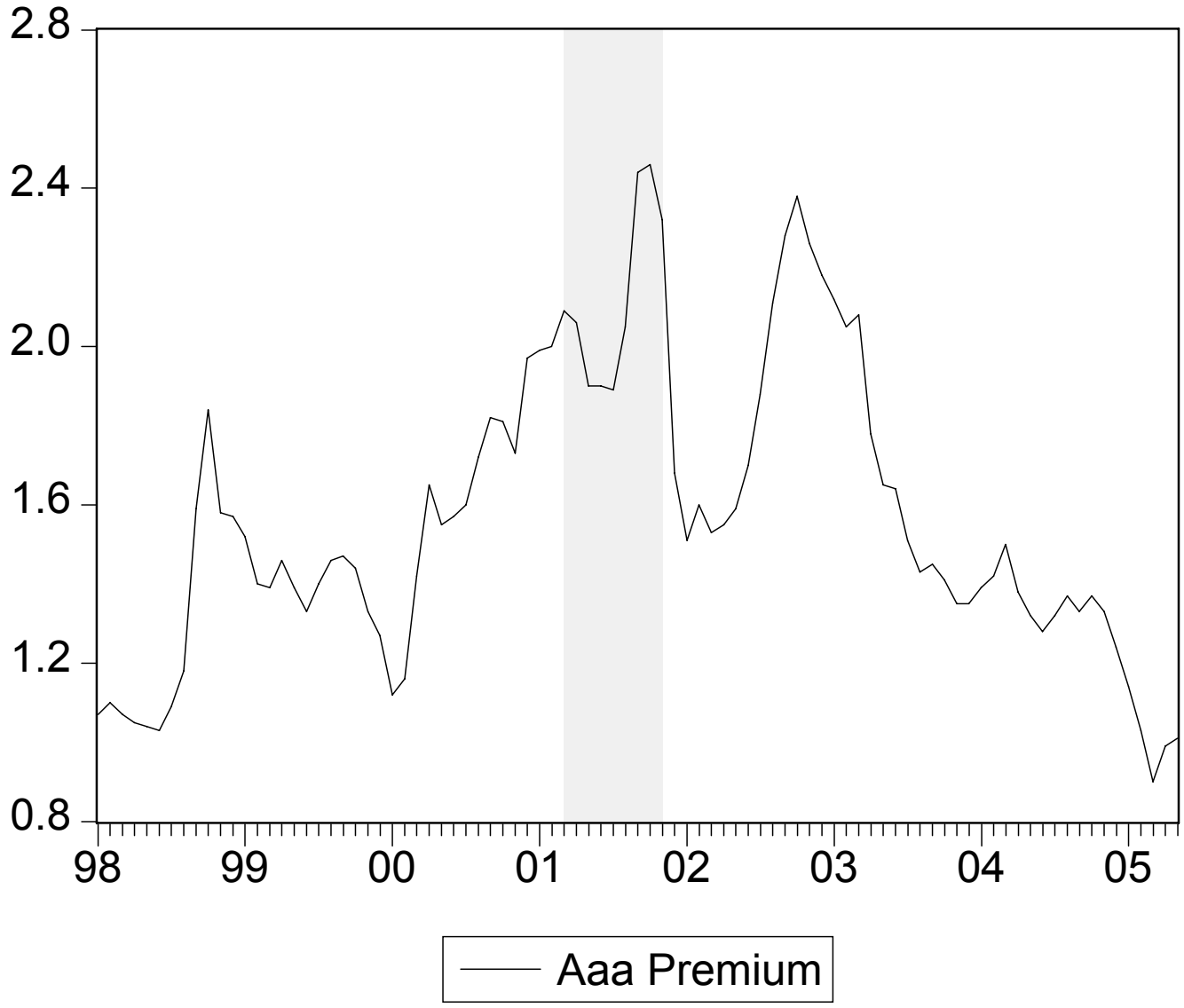
Appendix

Figure 1: Aaa Credit Spread and Troughs, 01/1954 – 04/2005



Note: Shaded regions denote periods of recession.

Figure 2: Aaa Risk Premium, 01/1998-04/2005



Note: Shaded regions denote periods of recession.

Table 1: Explanations of Data in Regression Models

Variable	Description
$\beta_1 \Delta AP_{t-1}$	First lag of the change in the Aaa spread
$\beta_2 \Delta AP_{t-2}$	Second lag of the change in the Aaa spread
$\beta_3 \Delta FF$	Change in Federal Funds rate
$\beta_4 ENR$	Enron dummy variable; 1 if 10/01 - 6/02, 0 if not
$\beta_5 IRAQ$	Iraq war dummy variable; 1 if 11/02 - 4/05, 0 if not
$\beta_6 SEPT$	September 11th dummy variable; 1 if 9/01, 0 if not

Table 2: Results of Regression on the Aaa Premium

N = 85

Variable	Coefficient (S.E.)
β_0	25.27
	(13.59)
$\beta_1 \Delta AP_{t-1}$	0.37
	(0.11)
$\beta_2 \Delta AP_{t-2}$	-0.24
	(0.11)
$\beta_3 \Delta FF$	0.21
	(0.13)
$\beta_4 ENR$	-51.01
	(34.53)
$\beta_5 IRAQ$	-57.32
	(22.20)
$\beta_6 SEPT$	190.54
	(93.70)
Adj. R^2	0.2423

Significance Levels:

*: 1%

**: 5%

***: 10%

Table 3: Results of Regression on the Baa Premium

Dependent Variable: ΔBP			
Method: Least Squares			
Sample: 1998M04 2005M04			
Included observations: 85 after adjustments			
Variable	Coefficient	Std. Error	Prob.
C **	15.8412	8.9013	0.0790
ΔBP_{t-1} *	0.4761	0.1059	0.0000
ΔBP_{t-2} *	-0.2544	0.1056	0.0183
ΔFF **	0.1890	0.0878	0.0344
δSEPT *	160.7087	65.8644	0.0169
δIRAQ *	-42.7648	15.5096	0.0072
Adjusted R^2		0.3058	
Durbin-Watson stat		1.9248	
Breusch-Godfrey Serial Correlation LM Test			
F-stat	0.3209	P. F(2,77)	0.7265
Obs. x R^2	0.7026	P. χ^2 (2)	0.7038

Significance Levels:

*: 1%

**: 5%

***: 10%

Figure 3: 10-year Treasury, 4/1998 – 4/2005