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## Beating market expectations and the pricing of firms' probability of default



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### ABSTRACT

This study explores the impact of beating analysts' forecasts on investors' perceptions about firms' default probability. The information contained in analysts' forecasts, both earnings and revenues, provides additional information to investors in pricing CDSs. While previous research has focused on the impact of beating analysts' earnings forecasts, this study shows that firms that beat analysts' revenue forecasts also experience, on average, a decrease in the CDS premium around the earnings announcement date. This study also documents that the effect is stronger when firms beat/miss both earnings and revenue forecasts. When firms beat (miss) earnings and miss (beat) revenues, the effect of earnings is the dominant signal. These effects are stronger for firms with high levels of default risk.

### 1. Introduction

A credit default swap (CDS) is the most commonly utilized type of credit derivative in the market. Similar to an insurance contract, a CDS is a bilateral agreement that offers the buyer protection against a firm's credit default risk. A CDS provides a measure of the value of a firm's default risk because it is the compensation required by market participants if they are to bear that specific risk. In addition, CDS spreads tend to respond more quickly to credit conditions in the short term (Zhu, 2006).<sup>1</sup> Consequently, CDSs provide a specific measure that allows one to test the impact of beating analysts' expectations on the pricing of firms' default probability.

At the earnings announcement date, the market receives information about whether a firm has met or missed analysts' earnings forecasts. Investors also receive information about firms' missing or beating revenue forecasts. The literature has focused on the stock price reaction of these two signals (e.g., Rees and Sivaramakrishnan, 2007). However, this information might also help investors assess firms' credit default risk. The purpose of this study is to provide evidence about the impact of beating or missing earnings and revenue forecasts on investors' perceptions of firms' default probability. This study also explores the CDS price reaction when these two signals are consistent or when one signal provides good news and the other signal provides bad news. In addition, previous research shows that investors' reaction to earnings surprises is more pronounced for firms with higher default risk. This study attempts to provide evidence of whether in pricing CDSs, investors react differently to firms' missing or beating analysts' forecasts between firms with high and firms with low default risk.

Several models have been developed to study the pricing of CDSs. This study relies on hybrid models (Duffie and Lando, 2001) that assume that the expected future cash flows and thus default probability partially depend on firms' future asset value and capital structure. These variables are not observable a priori. Consequently, investors might rely on a firm's periodic accounting information (Callen et al., 2009; Das et al., 2009; Skinner and Nuri, 2002) and on the communications of other market participants, such as credit

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<sup>1</sup> Further details about CDS contracts are presented in the next section.

rating agencies (Daniels and Jensen, 2005; Hull et al., 2004) and sell-side analysts, to value firms' credit default risk. Because financial analysts are information intermediaries with a relative advantage in processing and disseminating firm, industry and market information, whether firms meet or exceed their expectations (in the form of analysts' earnings and revenue forecasts) provides additional information about their future performance and therefore helps investors price firms' CDSs. In addition, previous literature finds that an increase in investors' expectations for firms' profitability results in an increase in firms' equity value and a decrease in their default probability (Black and Scholes, 1973; Merton, 1974). I expect that meeting or beating analysts' expectations affects firms' CDS prices.

This study extends this literature in several important ways. First, previous literature has extensively studied the impact of meeting or beating sell-side analysts' earnings and revenue forecasts on the equity market. There is also some initial evidence of the impact of meeting earnings benchmarks on debt and CDS prices (Callen et al., 2009; Greatrex, 2009; Jiang, 2008). This study differs from previous research in that it documents the impact of beating revenue forecasts on the prices of CDSs. Additionally, this is the first study to explore the joint impact of beating or missing earnings and revenue forecasts on the debt market, especially on the market perception of firms' probability of default.

Studying the impact of beating accounting numbers on CDS prices is important for at least two reasons. In recent years, CDSs have dramatically increased in popularity, rising from \$180 billion in 1996 to more than \$54.6 trillion in the second quarter of 2008.<sup>2</sup> This amount represents more than two times the size of the U.S. stock market according to the International Swaps and Derivatives Association (ISDA). The rapid development and lax regulation of the CDS market have been implicated as some of the causes behind the 2008 financial crisis, raising a number of policy concerns about market stability. Given the amount of resources allocated in the economy in the form of CDSs and the composition of most investor portfolios, studying the determinants of CDS pricing has become an important task in recent years. Second, although there is some initial evidence of the impact of beating earnings forecasts on CDS prices, when accounting numbers are released, CDS holders balance not only whether firms beat or miss earnings market expectations but also whether firms beat or miss analysts' revenue forecasts. The accounting literature has found that the stock market reaction to earnings and revenues is different for value and growth firms (Ertimur et al., 2003). As cash flow is one of the components of earnings, CDS investors might value the earnings signal more than the revenue signal. This is an open empirical question that this paper aims to answer.

The paper proceeds as follows. Section 2 presents the literature review and hypotheses. Section 3 describes the research design and sample selection. Section 4 presents the descriptive statistics and test results. Section 5 concludes the paper.

## 2. Literature review and hypothesis development

### 2.1. Credit default swaps

CDSs are financial instruments that protect against a default on a particular bond or security. A CDS is a bilateral contract between the buyer and the seller of protection in which the buyer, who is not required to but often owns the underlying credit asset, pays a periodic (quarterly or annual) fee or premium to the seller. CDS spreads are the annualized premium rate quoted as a percentage of the notional value of the underlying debt. The seller agrees to pay the buyer a set amount if there is a credit event, such as bankruptcy, failure to pay, and restructuring. Once the specified credit-related event, such as the insolvency of an underlying corporate entity, occurs, a credit event notice is delivered by either the buyer or seller. Usually, the settlement conditions for the default payments are established when the relevant CDS contract is written. These conditions typically take the form of physical or cash settlements. If a physical settlement is agreed upon, then the protection buyer has to deliver the underlying bond in exchange for compensation. If a cash settlement is agreed upon, then the protection buyer receives the difference between the bond value at the time of the settlement and the bond's nominal value in cash. CDS contracts are usually traded in maturity periods ranging from 6 months to 30 years.

In contrast to other types of derivatives, such as interest rate swaps, but similar to options, the risk assumed in a CDS by the protection buyer and the protection seller is not symmetrical. The buyer effectively takes a short position in the credit risk of the reference entity, which thus relieves the buyer from exposure to default. In contrast, the seller takes a long position in the credit risk of the reference entity, which is essentially the same as the default risk taken on when lending directly to the reference entity. The motivation for this paper comes from two sources within the literature: (i) the impact of beating or meeting analysts' expectations on investors' perceptions of firm performance and (ii) the impact of accounting information on perceptions of firms' credit default risk.

### 2.2. Analysts' forecasts and the capital markets

Previous literature provides evidence that investors, boards of directors, and creditors use analysts' forecasts as points of reference in evaluating firms' future performance. Accordingly, whether firms meet or beat analysts' earnings and revenue forecasts has an important impact on their stock prices (Bartov et al., 2002; Brown and Caylor, 2005; Ertimur et al., 2003; Jiang, 2008; Rees and Sivaramakrishnan, 2007). Providing evidence of the impact of meeting analysts' earnings forecasts on equity returns, Lopez and Rees (2002) and Brown and Caylor (2005) find that after they control for earnings forecast errors, firms that beat current analysts' earnings expectations enjoy a higher return than firms that fail to meet such expectations. Bartov et al. (2002) also find that avoiding negative

<sup>2</sup> <http://www.isda.org/statistics/pdf/ISDA-Market-Survey-historical-data.pdf>.

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