The impact of aggregate uncertainty on herding in analysts' stock recommendations

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A B S T R A C T
This study examines whether aggregate uncertainty affects the herding tendency among analysts. The results show that, in addition to market risk and firm-level uncertainty, analysts' tendency to herd increases with aggregate uncertainty. These results are robust with respect to excluding common and earnings information, as well as using different measurements of consensus recommendation, risk and aggregate uncertainty. Herding among analysts is stronger when downgrading a stock. The tendency of herding clearly increases in tandem with aggregate uncertainty. The results are more prevalent for small stocks and inexperienced analysts.

1. Introduction

There is considerable experimental evidence that most people are uncertainty averse (e.g., Ahn, Choi, Gale, & Kariv, 2014; Bossaerts, Ghirardato, Guarnaschelli, & Zame, 2010); an increasing number of researchers have incorporated uncertainty into their studies on financial markets (e.g., Chen & Epstein, 2002; Dow & Da Costa Werlang, 1992; Gollier, 2006). Analysts are not immune to the aversion to uncertainty. Under uncertainty, analysts show judgment heuristics and biases such as conservatism (Edwards, 1968). Hirshleifer (2001) posits that greater uncertainty and a delayed feedback about the underlying fundamentals leave more room for psychological biases. This paper investigates whether the uncertainty of aggregate equity returns influences analysts' incentives to either hide in the comfortable consensus middle or go out on a limb with extreme recommendations.

Zhang (2006a) has found that analysts' herding tendency becomes exacerbated when firm-level information uncertainty is high. However, the uncertainty regarding the future prospects of the economy (i.e. aggregate uncertainty) will also affect analysts' recommendations. Stock recommendations require both aggregate and firm-specific information. If there is disagreement in the opinions on future aggregate equity returns, analysts have different herding propensities. In times of aggregate uncertainty, less-experienced analysts are more likely to herd to the consensus recommendation. Given that herding can lead to significant mispricing (Dong, Gu, & Han, 2010), my result that aggregate uncertainty intensifies analysts' herding tendency has implications for investors. In particular, although analysts convey information to investors through revising recommendations, their private information is suppressed when the market is uncertain.

This study makes several contributions to the literature. First, a strand of papers has found evidence that analysts have the herding tendency with respect to earnings forecasts (Clement & Tse, 2005; Gallo, Granger, & Jeon, 2002; Hong, Kubik, & Solomon, 2000; Lamont, 2002) and stock recommendations (Jegadeesh & Kim, 2010; Welch, 2000). Dong et al. (2010) also theoretically show that the probability of herding increases with the uncertainty in the distribution of individual stock returns. In contrast to these papers that address the uncertainty for individual stocks, this study emphasizes the impact of aggregate information uncertainty on analyst herding, while controlling for the
effect of risk and firm-level information uncertainty. Second, a variety of studies examine the herding of investors during periods of market stress (Christie & Huang, 1995; Hwang & Salmon, 2004; Kallinterakis, Gavrilidis, & Micciullo, 2007), such as stock market bubbles and crashes (Lux, 1995). However, little attention is paid to herding among analysts in times of aggregate uncertainty. My study contributes to the existing literature through an investigation of how aggregate uncertainty affects analysts’ tendencies to herd. Third, Williams (2009) explores the effects of ambiguity in the overall market for investors’ decision making on earnings releases. To the best of my knowledge, no study has addressed the effects of ambiguity on analysts’ recommendations; my study fills this gap.

In the following section I review the literature. Section 3 introduces the data and my method. Section 4 presents the empirical results. Section 5 relates market risk and firm-specific risk with aggregate uncertainty, and Section 6 discusses several robust tests. Section 7 relates analyst herding with firm and analyst characteristics, and Section 8 presents the conclusion.

2. Literature review

2.1. Uncertainty

Risk and uncertainty are two prevalent features in the equity returns of financial markets. Knight (1921) was the first to distinguish risk from uncertainty. Knight refers to risk as a situation that could be described by known probability distributions, and defines uncertainty or ambiguity as a situation where the probability distribution in a future state of nature is unknown. Uncertainty could arise from disagreement between expert opinions or the lack of confidence in the information’s quality (Hirshleifer, 2001). Ellsberg (1961) proposed a famous experiment, known as the “Ellsberg paradox,” that shows participants are averse to ambiguity, which is referred to as Knightian uncertainty. In other words, people tend to gamble with known-risk probabilities over an equivalent gamble with ambiguous probabilities.

The extant research refers to uncertainty as investors do not clearly know the probability measure governing future stock prices. A line of experimental research has confirmed that people are averse to uncertainty (e.g., Ahn et al., 2014; Bossaerts et al., 2010). This uncertainty averseness is commonly used as an explanation for asset pricing and is applied in financial markets. Camerer and Weber (1992) find that investors are uncertainty averse regarding certain economic environments and financial innovations. This tendency leads investors to require a larger risk premium for new financial products, which adds to the difficulty in introducing these products. Caskey (2009) argues that persistent pricing errors are consistent with a market where some investors are averse to uncertainty. Under uncertainty, investors prefer to trade on aggregate signals; this reduces uncertainty at the expense of a loss in information. Thus, in an uncertain situation, prices fail to fully reflect public information, and mispricing appears. Prices underreact to overall news, which is in line with several anomalies, such as the post earnings announcement drift and momentum.

The extant research also finds that uncertainty is a potential explanation for the equity premium puzzle raised by Mehra and Prescott (1985). This puzzle refers to findings in which an observed equity premium is too high to be explained by the standard asset pricing models (Rieger & Wang, 2012). Mehra and Prescott (1985) show that an implausibly high degree of risk aversion is needed for a standard expected utility theory to explain the high equity premium observed in the data, which results in the equity premium puzzle. Instead, Knightian uncertainty captures a sizable equity premium. Miao, Wei, and Zhou (2012) show that Knightian uncertainty helps generate about 96% of the mean variance premium, which is the difference between risk neutral and objective expectations of the variances in market returns.

Heath and Tversky (1991) and Fox and Tversky (1995) indicate that uncertainty is relatively strong when people cannot assess the relevant probabilities. Motivated by these findings, Boyle, Uppal, and Wang (2003) show that uncertainty may induce employees to hold the stocks of their own company. If an investor thinks that the expected return on his/her own company’s stock will outperform other firms in the market by just 1 to 2%, then this knowledge leads to an investment in his/her own company’s stock of about 10 to 25%.

Illeditsch (2011) shows that investors fall short in data or experience when processing new information; therefore, they do not know the return distribution conditional on this information. He further shows that the desire of investors to hedge against uncertainty results in portfolio inertia for risky portfolios and generates excess volatility. This result helps explain the stock price volatility spiking around earnings announcements (Dubinsky & Johannes, 2006), and shortly after very bad news, like the 9/11 terrorist attacks (Bloom, 2009).

Epstein and Schneider (2008) show that in times of uncertainty, prices react more to bad news than to good news. The reason is that uncertainty-averse investors respond asymmetrically to public signals. Specifically, investors take a worst case scenario when processing this information, and thus regard the signal as reliable if it contains bad news and as unreliable if it conveys good news. This behavior is empirically sustained by Williams (2009) who finds that following an increase in uncertainty, investors respond more strongly toward bad than toward good earnings announcements. Easley and O’Hara (2010) show that uncertainty can explain sudden market freezes.

Herding among analysts

Herding refers to the tendency of many investors to take similar actions at roughly the same time. Professional managers like stock analysts are not immune to having herding instincts (Clement & Tse, 2005; Gallo et al., 2002; Hong et al., 2000; Lamont, 2002). Analysts’ herding behaviors reduce the amount of private information available in the market.

There are several rational reasons to explain why analysts herd: informational herding, reputation-based and compensation-based herding. Information cascade leads to information-based herding (Froot, Scharfstein, & Stein, 1992; Hirshleifer, Subrahmanyam, & Titman, 1994). In this type of herding, analysts infer information from the recommendations of prior analysts, optimally decide to ignore their own beliefs, and hence make similar recommendations. Alternatively, stock analysts might herd for reasons unrelated to any new information. Scharfstein and Stein (1990) and Trueman (1994) present models where professional managers herd due to career or reputation concerns. In other words, to preserve or gain a reputation, analysts might either “hide in the herd” to share the blame or “ride the herd” to prove their quality. Analysts might leave their profession over poor performance. This career concern results in reputation-based herding (Graham, 1999; Hong et al., 2000; Hong & Kubik, 2003; Prendergast & Stole, 1996; Scharfstein & Stein, 1990; Trueman, 1994). Principal-agent problems reflect a compensation-based view of herding (Chakrabarti & Roll, 1999; Scharfstein & Stein, 1990). For instance, analysts with low abilities tend to mimic high-ability analysts and issue earnings forecasts that are close to those of these analysts to get better compensation (Trueman, 1994).

In the context of earnings forecasts, some papers find evidence that analysts demonstrate herding in their earnings forecasts (Clement & Tse, 2005; Gallo et al., 2002; Hong et al., 2000; Lamont, 2002). However, other researchers point out that analysts anti-herd in the US stock market. They do not follow the consensus, but rather prefer to issue forecasts based on their own private information (Bernhardt, Campbell, & Kutooati, 2006; Chen & Jiang, 2006; Zitzewitz, 2001).

In the case of stock recommendations, Welch (2000) finds that...
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