

The Impact of Analyst Coverage on Corporate Innovation: A Literature Review

Zihui Huang^{1,*}

¹ Department of Management, University of Toronto, Mississauga, Canada

*Corresponding author. Email: zjihui.huang@mail.utoronto.ca

ABSTRACT

This literature review examines the impact of analyst coverage on corporate innovation. The effect of analyst coverage has been discussed more frequently in recent years with the development of social media. Financial analysts play an essential role as information intermediary agents and monitoring forces, effectively affecting corporate earning management, social responsibility, and equity valuation. Previous studies adopt different approaches, including OLS and 2SLS regression, and conclude the causal relationship between analyst coverage and those factors. Influencing factors on corporate innovation are also evaluated in terms of internal factors such as agency problem, firm structure, tolerance for early failure, as well as external factors including competition, labour laws, bankruptcy codes, hostile takeover, and governance provisions. More importantly, this review summarizes existing literature that investigates the relationship between analyst coverage and corporate innovation. Overall, the relation is discussed from the opposite perspectives. In short, analyst coverage has a “pressure effect” that impedes innovative activities and an “information effect” that fosters innovative activities.

Keywords: Analyst coverage, Innovation, Corporate governance

1. INTRODUCTION

Thousands of examples from business history show that companies that did not attach great importance to innovative activities were eliminated by the market regardless of their previous size. Kodak and Nokia are great examples. Corporate innovation has always been a vital determinant of the survival and longevity of companies; accordingly, influencing factors for corporate innovation have been investigated by many scholars from different perspectives. Unlike competition and laws that have been discussed for a long time, analyst coverage is an emerging research field that influences innovative activities externally. As the speed of information dissemination increases with the development of the internet, the issue of information asymmetry is reducing. Financial analysts, intermediary information agents affect the speed of information transmission and the quality of information. Therefore, it is necessary to study the relation between analyst coverage and corporate innovation. Hence, the purpose of this literature review is to collect and summarize the previously published research paper studying the impact of analyst coverage on corporate innovation.

To figure out their relationship, I find research papers investigating the relation between analyst coverage and any aspects of a company. Specifically, the causality between analyst coverage and earning management, corporate social responsibility, and equity valuation has been discussed in previous research. OLS regression analysis has been commonly used in the research paper to find the main effect of analyst coverage. Moreover, the exogenous variable problem was addressed using 2SLS regression. A negative effect of analyst coverage on earning management was found by Yu [1], while a positive effect of analyst coverage on corporate social responsibility was pointed out by Hu et al. [2]. Concerning the influence of analyst coverage on equality valuation, Doukas et al. [3] argue that analyst coverage positively affects equity valuation. The stock price will be overvalued because investors are over-optimistic on the equity covered by financial analysts. However, Li [4] believes that information asymmetry will be reduced with more extensive analyst coverage. Therefore, it negatively affects equity valuation in this case.

Next, I review literature that analyzes influencing factors for corporate innovation from the internal and external perspectives. Company structure and policy are the main factors that influence corporate innovation

internally. For example, bureaucracy in business impedes innovation because of reputation concerns and inflexible rules. Additionally, Manso [5] shows that severe punishment policy discourages managers from investing in long-term innovative activities, while substantial tolerance for early failure encourages innovative activities. As for external factors like competition and bankruptcy codes, no deterministic result can be concluded. The relations between them depend on the actual situations of different companies. Moreover, some external factors (such as stock liquidity and hostile takeover provision) would potentially increase the probability of hostile takeovers.

Finally, I summarize the impact of analyst coverage on corporate innovation based on existing studies. On the one hand, the “information effect” addresses the information asymmetry problem by processing and analyzing publicly disclosed documents. Financial analysts publish their research reports to the public, which enable investors to have more information to make their investment decisions. This effect fosters corporate innovation because covered companies have more financing opportunities to fund their long-term investment like innovative projects. On the other hand, the “pressure effect” impedes innovation because financial analysts as external monitoring forces exert pressure on managers. Hence, managers generally prefer to invest in projects with less risk to meet the near-term earning expectation rather than risky long-term projects like innovative projects.

The rest of the paper is organized as follows. Section 2 discusses the literature related to the impact of analyst coverage. Section 3 describes the literature related to influencing factors for corporate innovation. Section 4 summarizes views on the topic, the impact of analyst coverage on corporate innovation. Section 5 presents the conclusion and recommendations for further research.

2. THE IMPACT OF ANALYST COVERAGE

Based on previous research on analyst coverage, the impact of analyst coverage on several perspectives has been discussed individually. Some argue that financial analysts can be seen as a role in corporate governance that helps with monitoring the firm and financial market. The existence of financial analysts can potentially reduce the probability of corporate misconduct. For example, Yu [1] studies the influence of analyst coverage on managers' earning management decisions considering the financial factor. He finds that companies are less likely to manipulate their earning when the analyst coverage is broad.

On the one hand, analysts can be considered external monitoring forces that exert pressure on managers so that managers would not dare to make a fraudulent financial statement. On the other hand, high analyst coverage puts

pressure on managers to meet the forecasted earning benchmark. To draw this conclusion, Yu [1] runs OLS regressions to analyze the effect of analyst coverage on earning management. In addition, he uses 2SLS regression as an alternative approach to solving the potential problem of endogeneity of analyst coverage, and the results were robust. Hence, the accuracy and credibility of the conclusion are increased. In the end, he also notices that experienced analysts or analysts working in large brokers have a more significant impact on earning management.

Analyst coverage, in terms of the role in corporate governance, also has a significant impact on non-financial factors from the perspective of ESG, which are increasingly taken into consideration by investors. Hu et al. [2] study the effect of analyst coverage on companies' engagement in cooperate social responsibility through evaluating a company's CSR performance using five factors. They derive three remarkable outcomes from their research: analyst coverage increases cooperate social responsibility engagement, the association is moderated by ownership structure, political connection, corporate governance, and media coverage, and one reasonable explanation for analyst coverage increases CSR engagement can be that site investigations from institutional investors exert pressure on companies by increasing information exposure to the public to enhance their CSR engagement. Besides, the firm value can be increased potentially to a large extend by the interaction between analyst coverage and CSR engagement based on the analysis of the OLS regression model. Finally, they conclude that financial analysts' monitoring and information sharing are essential for companies and the public.

Financial analysts also act as intermediary information agents; they are not only the distributors of information but also an essential factor that influences the equity valuation for a company. For example, in 2005, Doukas et al. [3] explore the impact of analyst coverage on equity valuation and future return using databases between 1980 and 2001. They find a positive relation between excess analyst coverage and stock price, while weak analyst coverage is negatively related to stock price. A simple explanation for this finding is that investors are too optimistic about the companies on which financial analysts covered, leading to a higher demand for the stock; therefore, the stock price increases above its fundamental value. On the contrary, if the analyst coverage is weak for a particular company, the company may not be noticed by the public. Even if it is a company with high potential to grow, few investors know its existence, leading to low demand for the stock. Hence, the stock price trades below its intrinsic value.

Unlike the study conducted by Doukas et al. [3] that excess analyst coverage will boost the stock price, leading to a high probability of equity misvaluation, Li

[4], focusing on the information asymmetry problem, holds an opposite opinion. Li studies the causal effect of analyst coverage on equity misvaluation in 2020. His research is conducted based on the crucial hypothesis that an increase in analyst coverage decreases information asymmetry, which was validated by Kelly and Ljungqvist [6] in 2012. Hence, a decrease in information asymmetry will reduce the possibility of equity misvaluation. He finds a negative relation between analyst coverage and equity misvaluation and uses the instrumental variable approach for robustness testing. Since Polk and Sapienza [7] find that equity misvaluation impacts companies' investment decisions, a change in analyst coverage will ultimately affect companies' decision-making behaviours.

3. INFLUENCING FACTORS FOR CORPORATE INNOVATION

Plenty of literature regarding the influencing factors of corporate innovation has been published in the past decades. In general, they can be categorized into internal and external factors. Internally, agency cost is an inevitable factor to be considered in corporate finance. For example, in 1989, Holmstrom [8] focuses on innovative activities in the private sector. He argues that large firms might be less innovative because they always concentrate on production and marketing goals rather than innovation. In this case, innovative activities need to be sacrificed to fulfill the firm's primary objectives because of the budget constraint. Another reason large firms might innovate less is that small firms are forced to compete with large firms. However, bureaucratization that inflexible rules and less discretion exist in large firms impede innovation. Externally, reputation is a big concern for large firms. They prefer not to invest in long-term investments with high risk and uncertainty, which could negatively affect the access of the capital market in the future.

Similarly, bureaucratization and hierarchy in the conglomerate is another factor that discourages corporate innovation. In 2007, Seru [9] studies the relationship between Conglomerate and innovation, concluding that conglomerates do stifle innovation. Using the information in the Compustat files and 423,640 patents granted by USPTO, he shows that conglomerates with more active internal capital conduct less novel research. He also conducts a quasi-experiment that eliminates the endogeneity concern and finds that incentive conflicts lead to considerable costs to research incentives. Furthermore, additional tests show that centralized control in conglomerates does impede firm innovation.

Apart from the corporate structure, the internal policy made by policymakers would also affect a firm's innovativeness to a large extent. In 2011, Manso [5] shows that substantial tolerance for early failure and long-term success rewards could motivate innovation.

Moreover, in terms of executive compensation, a combination of stock options with lengthy vesting periods, option repricing, golden parachutes, and managerial entrenchment is considered the optimal contract that motivates firm innovation. Using a class of Bayesian decision models, Manso [5] investigates and concludes the optimal incentives for exploration and exploitation, respectively.

As for external factors that influence corporate innovation, an explicit one to think of is competition. In 2005, Aghion et al. [10] explore the relationship between product market competition and innovation. Using data from the UK-listed firms over 1968-1997, they find a strong inverted U relationship and an exponential quadratic model that fits the data extremely well when industry and time effects are allowed. The Schumpeterian growth model developed in the research shows a positive relationship between competition and innovation since competition possibly leads to an increase in profit, meaning that more funds can be invested in R&D activities. However, it may end up with another situation that competition may negatively affect innovation because incentives for laggards may be reduced. Furthermore, the inverted U-shaped relationship at the industry level tends to be steeper for firms in more neck-and-neck industries. In the end, the study also shows that firms facing a higher threat from bankruptcy are affected by the escape-competition effect strongly. Hence, they are more innovative on average, especially when the level of competition is low.

Legal and regulatory factors are the other aspects that need to be considered carefully. In 2009, Acharya and Subramanian [11] raise whether legal institutions governing financial contracts affect innovation. They evaluate two opposite aspects of bankruptcy codes: debtor-friendly code and creditor-friendly code, depending on the possession of all control rights when it comes to bankruptcy. The study shows that a creditor-friendly code impedes innovation in contrast to a debtor-friendly code when the company's financial structure is given. Moreover, it concludes that the nature of bankruptcy codes depends not only on the firm's financial structure but also on the nature of its real activity. This implication is supported by analyzing the intensity of patent creation and patent citations in industry-level, cross-country analysis, and around within-country code changes in accordance with control rights to creditors.

Likewise, in 2013, Acharya et al. [12] study the effect of labour laws on firm innovation. Using patents and citations as proxies for innovation and time-series variation in dismissal laws, they find that stringent labour laws governing the dismissal of employees foster innovation and economic growth, especially in the more innovation-intensive sectors. To consider the concern of the endogeneity of the dismissal law changes, they examine robustness to such concerns by two separate

tests. They find that the influence of dismissal laws on firm innovation remains positive and significant after considering the government's political leanings.

From the perspective of corporate governance provisions, Becker-Blease [13] investigates the relationship between governance provisions and firm innovation in 2011, using data from firms between 1984 and 1997. The paper examines four related hypotheses: Managerial Myopia, Quiet Life Hypothesis, the hypothesis proposed by Danielson and Karpoff [14], and Bebchuk and Cohen [15], respectively. The study shows that the influence of provisions varies, depending on the actual circumstances that managers are facing. Becker-Blease [13] finds that four proxies for firm innovation positively affect the broad Gompers, Ishii, and Metrick Index [16], but only when officers and directors actively adopt those provisions will the provisions positively affect firm innovations. More importantly, the paper emphasizes the visibility of officers' and directors' actions, which is the critical point why such a relationship can be observed.

Since corporate innovation requires long-term investment with high risk, it means managers may not meet the near-term earning expectation, leading to a decrease in stock price. The portability of hostile takeovers may increase at the same time. Hence, Atanassov [17] studies the extent to which exposure to hostile takeover affects innovation, using data of 13,339 firms over the 1976-2000 period and a difference-in-differences approach. He finds a reduction in innovation for firms in states that pass anti-takeover laws on innovation compared with firms in states that do not pass the laws. Moreover, Atanassov [17] notices a causal effect between anti-takeover laws and firm innovation two or more years after the laws were enacted in most cases. He also finds that anti-takeover laws have no impact on innovation one or two years before the law's enactment. Furthermore, the study shows that the negative effect of anti-takeover laws can be alleviated by other governance mechanisms such as significant shareholders, pension fund ownership and product market competition

Correspondingly, Chemmanur and Tian [18] explored the effect of anti-takeover provisions on innovation in 2013. They test the contradicting hypothesis including "long-term value creation" and "management entrenchment" to analyze whether ATPs foster or impede firm innovation. They find that ATPs affect innovation positively using a regression discontinuity approach. Specifically, firms with a more significant number of ATPs generate more patents not only in terms of the numbers but also in respect of quality. Next, they notice that ATPs affect firm innovation more obviously for firms with considerable information asymmetry and encounter higher market competitiveness.

In addition, stock liquidity is related to hostile takeover to a certain extent. Fang et al. [19] examine the effect of stock liquidity on firm innovation in 2014. They find that an increase in liquidity leads to a reduction in firm innovation in the future. To address the endogeneity situation that stock liquidity and firm innovation are mutually and simultaneously influential, they run tests examining how exogenous shocks affect liquidity, using a difference-in-differences approach. Additionally, they conclude two factors contributing to the causality that liquidity impedes innovation: increased probability of hostile takeovers and lack of monitoring and active information gathering by institutional investors.

4. THE IMPACT OF ANALYST COVERAGE ON CORPORATE INNOVATION

At this stage, there are relatively few studies investigating the impact of analyst coverage on corporate innovation. Some argue that analyst coverage fosters corporate innovation for companies with more financing opportunities because they have more extensive exposure to their potential investors. Hence, their investment in innovative projects is not constrained by funds anymore. However, others believe that analyst coverage has a pressure effect on managers. Managers would decide to focus on meeting the near-term earning expectation instead of investing in risky long-term projects like innovative projects. Even though scholars have opposite opinions and conclusions on this topic, they all show empirical evidence in their studies. Referring to the existing articles about the impact of analyst coverage on corporate innovation, it is noticed that scholars do not have a unanimous agreement regarding this topic at this stage.

In the early period, the study by Barth et al. investigates the relation between analyst coverage and innovation [20]. The innovativeness is measured by research and development expenses at that time. They find that relatively more extensive research and development expenses can attract financial analysts' attention because the value of intangible assets is not fully recognized in their fair value. Therefore, analysts have considerable incentives to cover companies with relatively larger research and development expenses.

In 2005, Bernstein [21] studies the impact of going public on innovation. Even though I do not find literature that strongly supports the relation that going public leads to higher analyst coverage, I believe it is reasonable to assume that going public firms can potentially draw more attention from financial analysts than firms being private because they can be publicly traded and more likely to be covered by financial analysts. He finds that going public discourages internal innovation but encourages external innovation because public firms can better access the

capital to acquire funds for innovative activities like firms covered by analysts do.

Supported by the research showing that excessive analyst coverage causes equity overvaluation [3], Dong, et al. [22] study the relation between market overvaluation and corporate innovation in 2017. They argue that market overvaluation positively affects R&D. An explanation for this causality is that overvalued stock price encourages managers to pursue more investment opportunities, including innovative projects, in the long-term without worrying too much about the hostile takeover.

Regarding the impact of analyst coverage on corporate innovation regarding the emerging market, Pan [23] provides empirical evidence in her research. She studies the effect of analyst coverage on companies' innovation in 2021, focusing on the emerging market in China. She uses data from China in 1999 and 2015 to conduct a regression analysis using the OLS approach. In addition, she adopts the 2SLS approach to address the potential endogeneity concern of reverse causality. Finally, she finds that the result derived from the OLS approach is consistent with the result derived from the 2SLS approach, concluding that analyst coverage helps listed companies to draw public attention and find potential investors so that companies are more likely to invest in R&D and promote innovation, which was limited by the financing constraints previously.

While some scholars advocate the positive relation between analyst coverage and corporate innovation with empirical evidence, others argue that analyst coverage discouraged innovative activities because of the so-called pressure effect. Specifically, He and Tian [24] explore the effect of analyst coverage on firm innovation in the real world. The number and quality of patents are used as proxies to measure firms' innovativeness. The baseline tests show that analyst coverage negatively affects firm innovation, which is consistent with their pressure hypothesis that extra attention paid by financial analysts exert too much pressure on managers. Hence, managers hesitate to make long-term investments like innovation, which has high uncertainty, and it might potentially hurt managers' wealth, career, and reputation. Based on these concerns, they are more likely to choose to meet the short-term earning benchmark rather than invest in long-term projects like innovation. To address the concern that innovation could affect analyst coverage, they conduct several robustness tests. Besides the pressure hypothesis, which impedes firm innovation, they try to explore other factors that impede firm innovation in the aspect of underlying economic mechanisms, including dedicated institutional investors and non-dedicated institutional investors and stock illiquidity.

To further analyze the relation on this topic, some researchers provide a more comprehensive analysis, considering both sides. For example, Guo et al. [25]

explore the effect of analyst coverage on companies' innovation strategy and outcome in 2019. They conclude that two effects influence the companies' innovative strategy: a pressure effect and an information effect. Concerning the pressure effect, they find that strong analyst coverage exerts pressure on managers when making decisions on R&D investment. Managers are punished by investors when they fail to meet the earning expectation issued by financial analysts. Hence, they tend to cut R&D expenses, which require a long period to generate a return to high uncertainty. However, instead of investing in R&D as one approach for fostering innovation organically, decision-makers can choose external approaches for innovation that they acquire innovative companies and invest in corporate venture capital. The reason for investing in innovation externally is that innovative acquisitions and CVC investments are more verifiable and quantifiable, while R&D expenses are less transparent. Even though they are reported on the financial reports, it requires investors to have higher professional skills to interpret the numbers. Retail investors are less sensitive to the change of R&D expense in the financial statement but more responsive to the acquisition news published on social media. Overall, they believe that the information effect fosters corporation innovation because financial analysts act as an information intermediary that reduces information asymmetry between companies and retail investors. However, the pressure effect impedes internal innovative activities but encourages external innovative activities.

5. CONCLUSION AND RECOMMENDATION FOR FURTHER RESEARCH

5.1. Conclusion

This literature review discusses the impact of analyst coverage on corporate innovation. Few studies related to the relation between analyst coverage and corporate innovation can be found. Based on existing research papers, scholars have not reached a consensus on the causality between them. Some studies show that increasing analyst coverage encourages innovative activities by reducing the impact of the information asymmetry problem. The probability of innovative projects is underestimated, and the risk of hostile takeover can be reduced at the same time by the existence of financial analysts as information intermediaries. Also, internal innovative activities like R&D expense decrease while external innovative activities like acquiring innovative companies increase. Another series of studies show that managers are generally punished by failure to meet the near-term earning benchmark. Innovative projects are always long-term investments that do not generate short-term returns. Under such pressure, managers focus more on investments that generate short-term returns, unsurprisingly.

5.2. Recommendation for further research

Since corporate innovation is vital to a company, other influencing factors for corporate innovation are meaningful to be discussed. Besides, the impacts of analyst coverage on other firm behaviours such as the information disclosure quality and earnings management are also worth to be investigated deeply. Lastly, the impact of analyst coverage on corporate innovation might differ among different capital markets. For example, the influence analyst coverage on corporate innovation might be smaller in developed countries than in developing countries since accessing information might be less costly in developed countries. Therefore, the impact of analyst coverage will be more negligible. This discrepancy is worthwhile to be explored in the future.

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