MOTIVATION AND INFORMATION CONTENT OF CONSISTENCY IN NON-GAAP REPORTING

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ABSTRACT

An observation in the literature is that managers tend to opportunistically use non-GAAP disclosures to manipulate investors' perceptions of firm performance. Their opportunistic incentives in this regard are noted to lead them to excluding recurring items from non-GAAP earnings to portray a more favorable picture of operating results, or to use non-GAAP earnings to achieve important earnings benchmarks that would be missed on a GAAP basis.

Consistency is an important qualitative characteristic of corporate reporting. The discretionary nature of non-generally accepted accounting principles (non-GAAP) disclosures and the numerous ways such disclosures are made have led regulators to question the violation of the consistency concept of corporate reporting. Results of later studies show that, managers are becoming more consistent in excluding items used for computing non-GAAP earnings. However, as the consistency of use of non-GAAP exclusion items is increasing the usefulness of these consistently excluded items, which is measured as its forecasting relevance to future operating performance, is receding. The question that arises in this regard, is what is causing this decline in the usefulness of non-GAAP earnings disclosures in spite of increasing consistency in the use of exclusion items.

Prior literature focuses more on the consistency of exclusion of items used for computing non-GAAP earnings. This thesis examines both the use and magnitude of exclusions and examines the relation between management's motivations behind the use of non-GAAP earnings exclusions, the relation of such motivations with the usage consistency and magnitude consistency of such exclusions, and the information content of non-GAAP earnings disclosed based on such exclusion items.

Using a sample of hand-collected non-GAAP earnings data of S&P 500 firms from 2010 to 2016, my research finds that the management's opportunistic incentive for non-GAAP disclosures is positively associated with the consistency in the use of non-GAAP exclusion items (usage consistency) and negatively related to the value

steadiness of those items (magnitude consistency). The results indicate that opportunistic managers attempt to impress investors with high usage consistency, but elude them by managing the values of those items. In other words, these managers manipulate the magnitude of the excluded non-GAAP items under the guise of consistent exclusion of those items to alter investors' perceptions of firm performance. However, with regard to the capital market impact of such reporting, investors appear to place less weight on non-GAAP earnings disclosures with relatively high magnitude consistency of non-GAAP exclusion items, while the usage consistency of non-GAAP exclusions items does not incrementally draw the attention of the investors.

This result challenges the common belief that investors view information consistency as a signal of informative financial disclosures. In fact, additional tests reveal that the weak reaction of investors to non-GAAP earnings is primarily attributable to the opportunistic adjustments of recurring item exclusions. Further, market reaction tests suggest that investors are unable to see through the intentions of managers regarding the consistency in calculating non-GAAP earnings and are misled by non-GAAP disclosures that are consistently defined over time because they only make efficient decisions in some cases of opportunistic non-GAAP reporting. These findings suggest that the regulators' focus on the consistency of item use does not help improving the informativeness of non-GAAP disclosures to investors.

This research contributes to the literature on the consistency of non-GAAP earnings by adding empirical evidence on the management's opportunistic incentives behind the increasing consistency of non-GAAP earnings and the incremental information content of this growing consistency to investors. Further, the findings of the research are informative for the regulators charged with crafting guidelines on non-GAAP financial disclosures. The results indicate that they should be wary of the issue that while the consistency in non-GAAP reporting is being achieved through the consistent use of non-GAAP exclusion items, opportunistic reporting is being conducted more through the variation in the magnitude of non-GAAP exclusion items. Finally, the results of this

research are informative for managers. It informs them of the fact that the potentially misleading non-GAAP disclosures do not affect the perceptions of investors in assessing the financial performance of firms.

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LIST OF ABBREVIATIONS

C&DIs	Compliance & Disclosure Interpretations
CDSB	Climate Disclosure Standards Board
EBS	Everything but Bad Stuff
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
GICS	Global Industry Classification Standards
IASB	International Accounting Standards Board
OLS	Ordinary Least Squares
SEC	Securities and Exchange Commission
SOX	*Sarbanes-Oxley Act of 2002*
THCR	Trump Hotels & Casino Resorts Inc.
VIF	Variance Inflation Factors

ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any degree or diploma of a university or other institution of higher learning.

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Date: 17 June 2020

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1 INTRODUCTION

1.1 Overview

This thesis is an empirical study of the management's motivation for consistent non-generally accepted accounting principles (non-GAAP) reporting and of the information content of consistency in reporting non-GAAP earnings. The disclosure of non-GAAP earnings is a type of voluntary disclosure that allows managers to reveal their private information about the firm's core operating performance that is obscured by the "one-size fits all" GAAP earnings. Over time, the rapid proliferation of non-GAAP disclosures has continuously fueled an intense debate in the extant literature about whether managers are motivated by informative or opportunistic incentives to provide these disclosures.[1,2]

Consistency is an important qualitative characteristic of corporate reporting and matters for investors' decision-making. To be consistent, reporting entities should use the same methods for the same items across reporting periods (Financial Accounting and Standards Board [FASB], 2010). Under the existing regulations by the US Securities and Exchange Commission (SEC), the great level of discretion that is afforded to managers in deciding the components of non-GAAP earnings brings about a lack of consistency in non-GAAP reporting. However, managers become consistent in defining non-GAAP disclosures following the increasingly consistent use of non-GAAP items, but the usefulness of non-GAAP earnings with high consistency in excluding non-GAAP items becomes lower (Black, Christensen, Ciesielski, & Whipple, 2020).

Since the evidence on the increasing consistency in calculating non-GAAP earnings challenges the findings in the literature that the informative incentive motivates non-GAAP disclosures, the objective of this thesis is to provide evidence on whether the management's opportunistic motive behind non-GAAP disclosures drives the

[1] Bradshaw and Sloan (2002) note that analyst tracking services are increasingly interested in definitions of earnings that exclude one-time and non-cash items.
[2] Analyst Analytics reported that 480 of S&P 500 companies (96.0%) presented at least one non-GAAP metric in their earnings releases during the fourth quarter in 2016 (Coleman & Erickson, 2017).

consistency in non-GAAP earnings reporting. Further, this thesis proposes to examine whether the consistency in non-GAAP reporting has additional information content for investors. Thus, this thesis contributes to the extant literature on non-GAAP earnings by adding evidence on the drivers and economic consequences of consistency in non-GAAP reporting and sheds light on the existing regulations on non-GAAP disclosures.

1.2 Motivation

Regulators and standard setters have continuously attached importance to consistency in corporate reporting (Climate Disclosure Standards Board [CDSB], 2012; FASB, 2010; Golden, 2017; Leone, 2010; Tysiac, 2018; White, 2016). Although the SEC has been continuously scrutinizing non-GAAP disclosures (Castillo, 2017; SEC, 2003, 2018), the existing regulations on non-GAAP reporting still afford managers with a high level of flexibility in deciding the components of non-GAAP earnings.[3] This flexibility leads to fluctuation in the use of non-GAAP exclusion items, and, in turn, changes in the composition of non-GAAP earnings per se (Bhattacharya, Black, Christensen, & Mergenthaler, 2004; Campbell & Pitman, 2009; Sek & Taylor, 2011). The variation in defining non-GAAP earnings has raised regulators' concerns about the lack of consistency in non-GAAP reporting (Ernst & Young, 2018; Leone, 2010; SEC, 2018; White, 2016).

Although managers continue to deviate from the historical definitions of non-GAAP earnings, research suggests that this deviation has reduced in light of the increasingly consistent exclusion of earnings components from non-GAAP earnings (Black, Christensen, Ciesielski, & Whipple, 2020). However, non-GAAP earnings with relatively more consistent exclusion items are less useful in predicting future performance, because items that are consistently excluded are significantly relevant in forecasting operations (Black, Christensen, Ciesielski, & Whipple, 2020). The reducing

[3] Howard Scheck, the former chief accountant of the Enforcement Division of the SEC, regarded non-GAAP metrics as a "fraud risk factor" (Leone, 2010).

usefulness of consistent non-GAAP earnings seems to challenge the rationale behind policymakers' emphasis on consistency in non-GAAP reporting. If that is the case, the question that arises is what is the management's incentive behind the increasing consistency in defining non-GAAP earnings?

The rapid proliferation of non-GAAP disclosures has continuously fueled an intense debate about whether managers are motivated by informative or opportunistic incentives in providing non-GAAP earnings disclosures. In this regard, managers claim that non-GAAP earnings metrics better reflect the firm's core operating performance, because they exclude transitory or one-time earnings components from GAAP earnings to arrive at non-GAAP earnings. In other words, managers intend to better inform the markets with non-GAAP disclosures. Since the usefulness of non-GAAP earnings reduces when the consistency of use of non-GAAP exclusion items increases, the management's informative incentive for such disclosures is not justifiable.

Conversely, much of the related literature provides evidence on the management's opportunistic non-GAAP disclosures. Specifically, managers manipulate investors' perceptions of firm performance through the use of non-GAAP earnings to achieve earnings benchmarks that would be missed on reporting GAAP earnings (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017), or through the exclusions of recurring items to arrive at the greater non-GAAP earnings that portray a more favorable picture of operation results (Black & Christensen, 2009; Black, Christensen, Ciesielski, & Whipple, 2018; Black, Christensen, Kiosse, & Steffen, 2017; Doyle, Jennings, & Soliman, 2013). Since policymakers have conveyed a good impression as regards reporting consistency to the market, this might provide managers the chance to mask their opportunistic use of non-GAAP disclosures with consistent non-GAAP earnings reporting. Alternatively, the consistent non-GAAP disclosures possibly strengthen investors' belief in these disclosures by diverting their attention from the opportunism of such disclosures. Therefore, my thesis examines whether the increasing consistency in non-GAAP earnings reporting, suggested by the literature (Black,

Christensen, Ciesielski, & Whipple, 2020), is associated with managers' opportunistic motive of non-GAAP disclosures.

Until Black, Christensen, Ciesielski, and Whipple (2020) provided empirical evidence on the degree of consistency in non-GAAP yearly reporting, research on non-GAAP earnings consistency was limited. In their study, the time-series consistency of non-GAAP earnings is measured by the total amount of consistently excluded non-GAAP items.[4] However, their consistency measurement only includes seven types of exclusion items, while they categorize management's adjusted non-GAAP items into fifteen common types. This approach potentially leads to an incomplete picture of consistency in non-GAAP earnings reporting, because they leave the remaining nice types of non-GAAP items unexamined when calculating non-GAAP earrings consistency. In addition, the evidence based on yearly data on non-GAAP reporting may not fully meet investors' information demand. The reason is that non-GAAP reporting is commonly disclosed at quarterly intervals, and the interim quarters' financial reporting catches investors' attention similarly as the fourth fiscal quarter or yearly release of financial performance does (Drake, Roulstone, & Thornock, 2012). To provide a more precise picture of consistency in non-GAAP reporting, my study intends to examine the consistency of use of all the above-the-line non-GAAP exclusion items that reflect the management's intentional non-GAAP exclusions on a firm-quarter basis. Thus, the first research question is whether or not the consistent use of non-GAAP exclusion items (usage consistency) in defining non-GAAP earnings from quarter to quarter associates with management's opportunistic incentives for non-GAAP earnings disclosures.

Moreover, the magnitude of earnings items is useful for investors' decision-making (FASB, 2010). The prior research on financial reporting in other contexts suggests that the time-series consistency between annual growth rates (Alwathainani, 2009) or earnings benchmarks (Tan, Wang, & Zhou, 2015) plays a dominant role in

[4] Specifically, an consistent non-GAAP exclusion item is a non-GAAP adjustment that is excluded by a firm in year t, and was also excluded in the prior year, year t-1 (Black, Christensen, Ciesielski, & Whipple, 2020).

affecting investors' pricing of firms with consistent financial reporting. Therefore, it is important to ascertain whether opportunistic managers guide investors' perceptions of firm performance by manipulating the value steadiness of excluded non-GAAP items (magnitude consistency) in reporting non-GAAP earnings.

Further, voluntary disclosure is theoretically informative to users of disclosures (Grossman & Hart, 1980; Milgrom, 1981) because it alleviates the information asymmetry between the management and outside users (Diamond & Verrecchia, 1991; Kim & Verrecchia, 1994). Consistent with this theoretical reasoning, investors positively react to the perceived informative non-GAAP earnings disclosures (Bhattacharya, Black, Christensen, & Larson, 2003; Black, Black, Christensen, & Heninger, 2012; Brown & Sivakumar, 2003; Marques, 2006). In addition, research suggests that reporting consistency in other contexts of financial disclosures positively drives investors' investment decisions and results in higher stock returns (Alwathainani, 2009; Hilary, Hsu, & Wang, 2014; Peterson, Schmardebeck, & Wilks, 2015; Tan et al., 2015; Tang & Venkataraman, 2018). If reporting consistency offers additional information content to investors, it is important to ascertain whether investors that are susceptible to reporting consistency possibly put more weight on consistent non-GAAP earnings reporting. Therefore, the second research question is whether or not the consistency in non-GAAP reporting, either measured by the usage consistency or magnitude consistency of non-GAAP exclusion items, has information content to investors around the time of earnings announcements.

The study of consistency in non-GAAP earnings disclosures is interesting for several reasons. Since this thesis rigorously documents the motivation and consequence of consistency in non-GAAP reporting, it extends the prior literature on non-GAAP disclosures. This evidence would be of interest to the regulator who continuously expresses concerns about the consistency issue in non-GAAP earnings reporting. It also sheds light on the existing governance issue related to non-GAAP disclosures regarding whether the current high level of discretion in non-GAAP reporting opens the door for

management's opportunistic use of non-GAAP disclosures. In addition, the evidence presented in this thesis provides insights for report preparers that self-correct potentially opportunistic non-GAAP disclosures and users that distinguish between informative and opportunistic non-GAAP disclosures.

1.3 Research questions

The objective of this thesis is to conduct an empirical study of consistency in non-GAAP earnings disclosures. It aims to provide evidence on the management's motive and the economic consequence of consistency in non-GAAP earnings disclosures. Specifically, I address the following two research questions:

1. Is the consistency in the use of non-GAAP exclusion items (usage consistency) or the value steadiness of excluded items (magnitude consistency) in defining non-GAAP earnings associated with managers' opportunistic incentives for non-GAAP disclosures?
2. Does the usage consistency or magnitude consistency in non-GAAP earnings reporting have information content to investors that rely on non-GAAP earnings announcements?

1.4 Major findings

Using a sample of hand-collected non-GAAP earnings data for 2010–2016 on S&P 500 index firms, I find that nearly 90.0% of the observations in the sample consistently disclose quarterly reconciled non-GAAP earnings for the same quarter(s) over consecutive years. In addition, on average, 66.9% of non-GAAP exclusion items that are excluded in the current reporting periods were also excluded in the prior corresponding periods, indicating a high time-series consistency in the use of non-GAAP exclusion items in defining non-GAAP earnings. Moreover, the value variation of those consistently excluded non-GAAP items across the same quarter(s) for consecutive years is US$1.088 on a per share basis. With regard to individual non-GAAP exclusions, stock-

based compensation charge is the most consistent recurring item exclusion and stock trading related charge is the most consistent non-recurring item exclusion.

Next, the results suggest that managers' opportunistic incentive for non-GAAP disclosures is positively and significantly associated with the consistent use of non-GAAP exclusion items (usage consistency), whereas it is negatively associated with the value steadiness of non-GAAP exclusion items (magnitude consistency). Thus, the results indicate that opportunistic managers attempt to impress investors through high consistency in excluding non-GAAP items, but they engage in managing the values of those items. Additionally, these managers prefer to use particular recurring item exclusions, such as stock-based compensation charges and investment gain or loss, to manipulate the consistency in non-GAAP earnings reporting. Overall, the consistency of non-GAAP earnings is significantly associated with the management's opportunistic incentives for non-GAAP disclosures.

Moreover, I find that investors that reward non-GAAP earnings disclosures react negatively to the magnitude consistency of non-GAAP earnings, while they are not incrementally sensitive to the consistency of use of non-GAAP exclusion items. I also find that investors' negative response to the magnitude consistency of non-GAAP exclusion items is primarily attributable to the value smoothness of recurring item exclusions, particularly in light of the steady values of stock-based compensation exclusions, interest expenses or income exclusions, investments gain or loss exclusions, and foreign currency exchange exclusions. In sum, the magnitude consistency of non-GAAP earnings reduces the information content of non-GAAP earnings disclosures to investors.

Further, I find that investors react more to the consistent use of non-GAAP exclusions in some cases of opportunistic non-GAAP disclosures by the management (i.e., using non-GAAP earnings to meet or beat analysts' earnings expectations that would be missed on reporting GAAP earnings or excluding a relatively high number of recurring items), suggesting that they do not appreciate the opportunism-driven

consistency in non-GAAP reporting. In contrast, investors appear to understand the negative effects of managers' opportunistic motive of non-GAAP disclosures in driving the magnitude consistency of non-GAAP earnings, since they incrementally reward firms with steady non-GAAP exclusion items in defining non-GAAP earnings when firms move a position from missing the consensus analyst forecast based on GAAP earnings to meet the earnings benchmark on a non-GAAP basis. Overall, investors do not fully understand managers' opportunistic incentives for violating consistency in non-GAAP reporting when they react to the consistency of non-GAAP earnings.

In sum, the findings of my research indicate that opportunistic managers manipulate the magnitude of excluded non-GAAP items under the guise of consistent use of those items to guide investors' perceptions of firms' performance and such management of the consistency of non-GAAP disclosures influences at least one important stakeholder group, investors. While the results of this research are generally drawn based on the measurement of consistency in non-GAAP reporting, one must be cautious in drawing a counter-inference (as opposed to the reported results) from these results. While the consistent non-GAAP exclusion items in my study capture managers' intentional adjustments, the remaining "inconsistent" non-GAAP exclusions either result from managers' intentional selection of exclusion items to achieve reporting targets or the factual non-occurrence of the same items in the prior corresponding periods. Thus, it is too inclusive to decide there is the opposite association between the inconsistency of non-GAAP earnings and managerial opportunism of non-GAAP disclosures, because the inconsistency of non-GAAP earnings is not overwhelmingly due to the management's intentional adjustments. Moreover, the magnitude consistency of non-GAAP exclusion items only catches the value steadiness of consistently excluded items from non-GAAP earnings. It ignores the value variation of inconsistently excluded items that is ineligible to be calculated owing to the missing benchmarks. Therefore, one needs to be careful in interpreting these results.

1.5 Contributions

My study contributes to the extant literature on non-GAAP earnings by adding evidence on the consistency of non-GAAP earnings reporting in several aspects. First, my study extends the prior literature on this topic by providing empirical evidence on the extent to which managers consistently exclude non-GAAP items in the quarterly earnings releases over time. I examine all the above-the-line non-GAAP exclusion items that reflect the management's intentional adjustments. This evidence is useful in addressing the concerns of interested parties about the lack of consistency in non-GAAP reporting, such as regulators, standard setters, the financial press, and academics. Further, it satisfies investors' information demand that is not fully served by the evidence based on yearly data.

Second, my study provides evidence on the *ex ante* drivers of consistency in non-GAAP reporting by focusing on the association between the consistency of non-GAAP exclusion items and the managerial opportunism of non-GAAP disclosures. Compared with the *ex post* quality indicators of non-GAAP earnings consistency, this evidence is more useful for assisting investors in making efficient investment decisions when they rely on non-GAAP disclosures.

Third, I provide evidence on the extent to which opportunistic managers consistently exclude individual non-GAAP items. The results somewhat help investors to disentangle informative non-GAAP exclusion items from opportunistic exclusions of non-GAAP items. As a result, they might be less likely to be fooled by opportunistic non-GAAP disclosures.

Fourth, my research provides evidence on whether the consistency in non-GAAP reporting provides incremental information content to investors that rely on non-GAAP earnings disclosures. This evidence not only provides some insights into the economic consequences of non-GAAP disclosures with different degrees of consistency, but also is useful for the regulators and non-GAAP reporting managers to understand how investors process non-GAAP information.

Lastly, I report whether investors that place weight on the consistency of non-GAAP earnings understand the management's reporting incentives behind the consistent use or steady values of non-GAAP exclusion items. Since the opportunistic non-GAAP disclosures are potentially misleading to investors, this evidence is helpful to them in avoiding reliance on misleading non-GAAP earnings disclosures.

1.6 Thesis structure

The remainder of this thesis is structured as follows (see Figure 1-1). Chapter 2 discusses the consistency theme in the context of corporate reporting. The theoretical framework for the way in which information consistency influences users' information processing is outlined. The chapter then explains the regulators and standard setters' attention to consistency in corporate reporting. The effects of consistent corporate reporting on the capital markets are also discussed.

Chapter 3 provides a discussion on the reason that the inconsistency issue in non-GAAP earnings disclosures arises even though the environment of corporate reporting has laid great emphasis on reporting consistency. It summarizes the development of the regulatory framework for non-GAAP disclosures. Then, it discusses the potential causes of the consistency issue in non-GAAP earnings reporting in the current regulatory environment. Next, policymakers' concern about the lack of consistency in non-GAAP earnings disclosures is discussed.

Chapter 4 reviews the relevant literature on non-GAAP disclosures. It first discusses the characteristics of non-GAAP earnings disclosures. Then, it summarizes prior studies on the management's informative and opportunistic incentives for non-GAAP disclosures. Lastly, the investors' pricing of non-GAAP earnings disclosures is discussed.

Chapter 5 examines the association between the consistency of non-GAAP earnings and managers' opportunistic incentives for non-GAAP disclosures. Using data

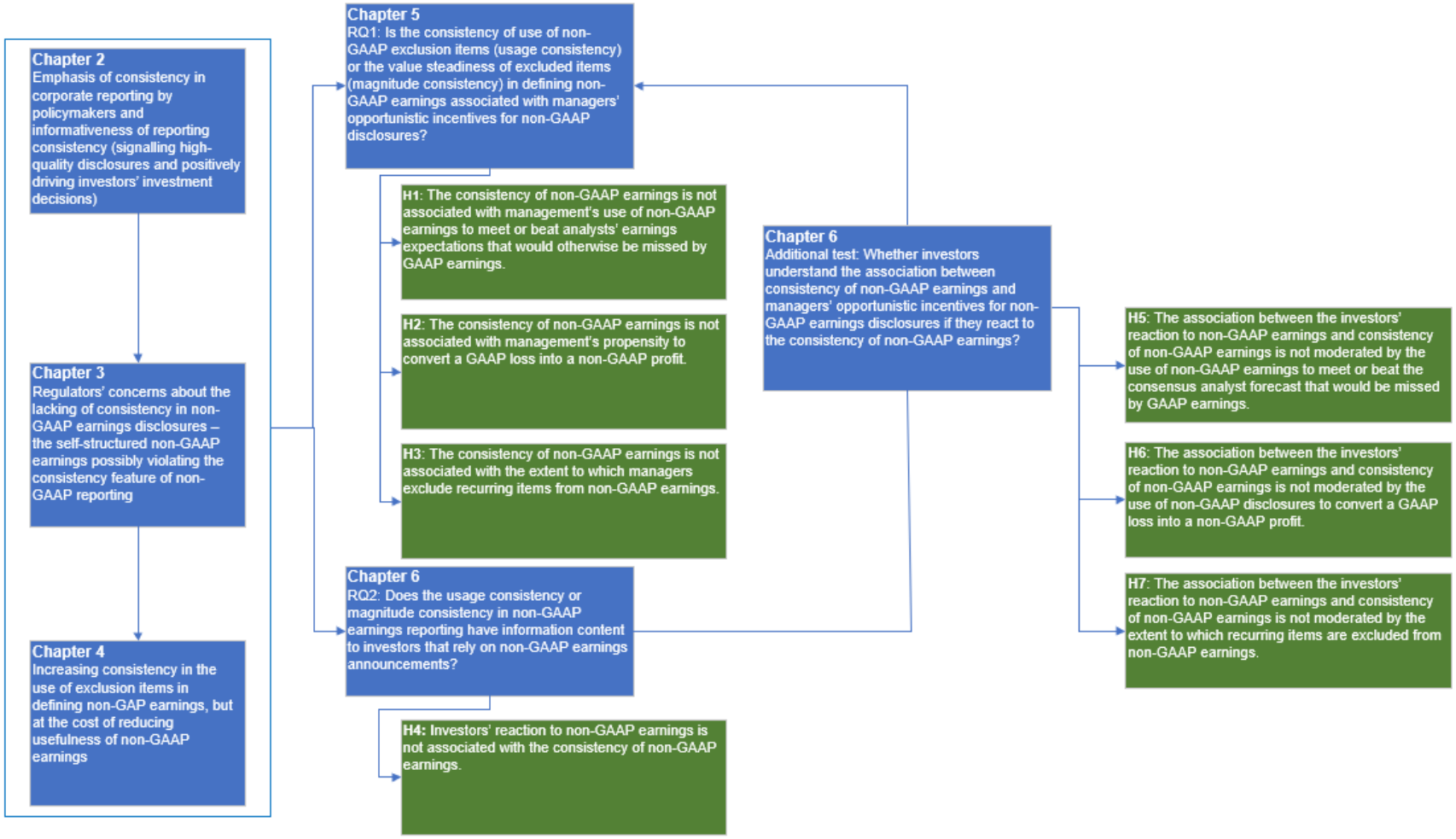
on a sample of non-GAAP reporting firms, I test how these opportunistic incentives *ex ante* drive the consistent use and magnitude consistency of non-GAAP exclusion items in defining non-GAAP earnings. In additional tests, I examine how individual exclusion items and the non-GAAP reporting frequency affect managers' violation of consistency in non-GAAP reporting.

Chapter 6 examines the information content of non-GAAP earnings consistency to investors. Drawing on the prior literature, tests are conducted on abnormal returns around the earnings announcement period. A variety of supplemental tests are undertaken, including whether the consistency of different non-GAAP exclusion items influences the investors' investment decisions differently. I also examine whether investors understand the management's incentives behind the consistency in non-GAAP reporting when they incorporate the non-GAAP earnings consistency in their pricing of non-GAAP earnings disclosures.

Chapter 7 summarizes the thesis. Findings from the previous chapters are discussed along with the potential limitations of the research design. It indicates the implications of the research and provides some suggestions for future research.

1.7 Chapter 1 Figures

Figure 1-1 Structure of thesis



2 CONSISTENCY IN CORPORATE DISCLOSURES

2.1 Introduction

The objective of this chapter is to provide a review on the consistency theme in the corporate reporting context, as shown by Figure 2-1. It summarizes the emphasis on, and the importance of, consistency in corporate reporting. The chapter establishes the theoretical reasoning of the thesis.

The rest of this chapter is structured as follows. Section 2.2 explains the theoretical framework on the way in which information consistency influences users' information processing. Section 2.3 discusses the regulators and standard setters' attention to consistency in corporate reporting. The informativeness of consistent corporate reporting is outlined in Section 2.4. Lastly, the chapter is summarized in Section 2.5.

2.2 Theoretical framework

Kintsch and Van Dijk's (1978) comprehension theory suggests that the referential coherence or the consistency of a text is fundamental to influencing information processing because people cognitively correlate new incoming information with the information they already have. Specifically, the authors note that the referential coherence of a text corresponds to overlap among propositions of a consequence. They argue that information processors accept a text base for further processing once they find the referential coherence of the propositions, whereas they initiate inference processes, which they use along with their general or contextual knowledge, to make the text coherent if they find gaps in the propositions. Alternatively, information users intend to find the referential coherence of information, or consistent provisions of information, before they process information.

Certain studies also explore how the coherence or the consistency of information influences users' information processing. Albrecht and O'Brien (1993) find that consistent information assists users' comprehension of information, since the coherence

or consistency between pieces of information leads to users spending significantly less time in coping with such information compared with the time they spend on understanding inconsistent information. In addition, information consistency enhances judgment fluency, which, in turn, enhances the speed and subjective ease with which judgments can be constructed by decision-makers (Gill, Swann, & Silvera, 1998). Moreover, information consistency boosts users' confidence that their judgments are correct (Peterson & Pitz, 1988).

In sum, information consistency plays a vital role in influencing users' information processing through improving their comprehension of information and boosting their confidence in the correctness of judgments.

2.3 Attention to consistency

Given the significance of information consistency to users, the corporate reporting environment attaches importance to consistent disclosures. In the Conceptual Framework for Financial Reporting, the FASB (2010) explicitly suggests consistency as the basis to achieve comparability that enhances financial information quality. Moreover, the FASB (2010) requires the use of the same methods for the same items, either across reporting periods within a reporting firm or across firms in a single period, to ensure consistency.

Apart from being important in mandatory reporting, information consistency has been a focal point in voluntary corporate disclosures. For example, the CDSB (2012) has released a working paper to advance consistency in climate change-related reporting. Specifically, it suggests that reporting firms should increase the consistency between the requirements of reporting schemes and their application of these requirements. While such greater consistency reduces the complexity and reporting burdens for reporting firms, it also benefits users through enhanced information usefulness and comparability.

Information consistency has also been a focal issue in non-GAAP voluntary disclosures. The SEC chairman, Jay Clayton and its chief accountant, Wesley Bricker,

jointly urged firms to ensure a similar consistency in the reporting of non-GAAP numbers as expected in the reporting of GAAP numbers (Tysiac, 2018).[5] The purpose of the demand for consistency in non-GAAP disclosures is to protect investors, because inconsistent non-GAAP reporting is potentially misleading to investors (SEC, 2018).

Overall, the issue of consistency in corporate disclosures has attracted the attention of a variety of regulators and standard setters that have significant influence on guiding corporate reporting. To enhance the usefulness and effectiveness of information to users, these entities have appealed to firms for greater consistency in corporate reporting. Consequently, the environment related to corporate reporting creates a good impression regarding reporting consistency among market participants.

2.4 Informativeness of consistency

In line with the discussion in the previous section, prior research has examined whether consistency in financial reporting is informative to users. Based on Kintsch and Van Dijk's (1978) argument, financial reporting with referentially coherent or consistent financial information would be immediately accepted by financial statement users for further processing. Thereby, the consistency of financial information would play a significant role in influencing users' information processing.

Research suggests that consistency in financial reporting signals high-quality financial disclosures. Based on the results from a survey of the chief financial officers of public companies, Dichev, Graham, Harvey, and Rajgopal (2013) report that the highest number of respondents agree that high-quality earnings are achieved by consistent reporting choices. Peterson et al. (2015) provide consistent empirical evidence on the importance of consistency to earnings quality. They investigate how the time-series accounting consistency, measured by the similarity of words used in the accounting

[5] Although, from a user's viewpoint, non-GAAP performance measures might signal where improvements of GAAP standards could be considered, the FASB chairman, Russell G. Golden (2017), emphasized that the FASB will not act on inconsistent, misleading, and noncomparable non-GAAP measures developed by the management that do not enhance consistency and credibility in financial reporting.

policy footnotes disclosed in 10-K filings across time, associates with earnings quality. They find that accounting consistency over time is positively related to many proxies for earnings quality, including earnings persistence, predictability, accrual quality, and absolute discretionary accruals.

Moreover, empirical research, by employing a variety of consistency measures, provides evidence on the positive role of financial reporting consistency in driving investors' investments. For instance, Tang and Venkataraman (2018) measure the provision consistency of earnings guidance by whether guidance is issued for the same quarter(s) across consecutive years. They find that guidance provision consistency increases investors' confidence in their own earnings forecasts and their likelihood of investing because investors attribute consistent guidance patterns to lesser managerial opportunism, which improves their confidence in their judgment. In the same vein, Peterson et al. (2015) find that the textual consistency of accounting policy positively influences stock trading in terms of reducing information asymmetry, as proxied by bid–ask spreads and illiquidity. Additionally, Hilary et al. (2014) suggest that managers who make consistent forecast errors, estimated as the standard deviation of signed forecast errors, have a greater ability to move prices upward.[6] In particular, they find that institutional investors react more to consistent management forecasts than do retail investors, because institutional investors build greater confidence through drawing inferences from consistent guidance with their professional knowledge.

Moreover, benchmark consistency that provides referential coherence and builds investors' confidence in judgments is also a key message to investors. Alwathainani (2009) proves the usefulness for investors of consistency in firms' past financial performance in predicting future stock returns. He defines the consistency of a firm's past financial performance as whether a firm achieves average annual growth rates. Tan et

[6] Hilary et al. (2014) argue that the standard deviation of signed forecast errors is better at capturing the uncertainty in a management forecast, which is not considered by the forecast accuracy, that is, the absolute forecast error.

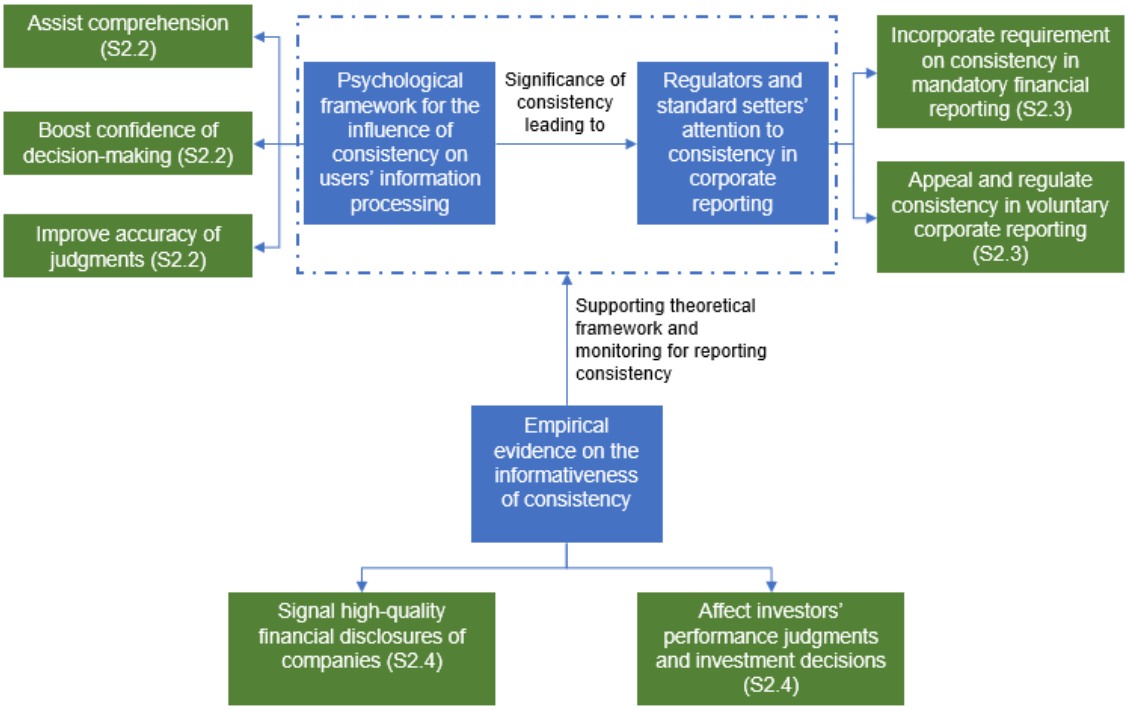
al. (2015) examine the information processing effects of consistency between two performance benchmarks. Their measurement of the benchmark performance consistency is based on whether the differences between actual earnings performance and two performance benchmarks, prior management guidance and year-ago quarter performance, are in the same direction. They find that consistency between performance benchmarks has a moderating effect on the positive relationship between information readability and investors' performance judgments, suggesting that financial information consistency plays a dominant role in investors' decision-making.

2.5 Summary

This chapter discusses the theoretical framework of information consistency and reviews consistency in corporate reporting. Information consistency improves users' comprehension of information and boosts their confidence in the correctness of judgments. To enhance the usefulness and effectiveness of information to users, regulators and standard setters have attached importance to consistency in corporate reporting. Consistent with the regulators and standard setters' intention, the related empirical research provides evidence on the informativeness of consistency in financial disclosures, suggesting that consistent financial reporting delivers high-quality information and increases investors' confidence in their investment decisions.

2.6 Chapter 2 Figures

Figure 2-2 Summary of literature review on consistency in corporate reporting



3 BACKGROUND OF CONSISTENCY ISSUE IN NON-GAAP DISCLOSURES

3.1 Introduction

The objective of this chapter is to provide background information on the consistency issue in the context of non-GAAP disclosures. It discusses the causes and concerns regarding this issue in non-GAAP earnings reporting. Further, the chapter explains the importance of this thesis to practitioners.

The rest of this chapter is structured as follows. Section 3.2 explains the development of the regulatory framework for non-GAAP disclosures. Section 3.3 discusses how the existing regulations on non-GAAP reporting potentially lead to a consistency issue in non-GAAP earnings reporting. The concern and debate surrounding the consistency issue in non-GAAP earnings disclosures are outlined in Section 3.4. Lastly, the chapter is summarized in Section 3.5.

3.2 Governance of non-GAAP disclosures

In the late 1990s, US public companies initiated the voluntary provision of “pro forma” financial information, which is presented on the basis of methods other than GAAP (Halsey & Soybel, 2002; Weil, 2001). Anecdotal evidence suggests that managers intend to focus investors’ attention on results of their firms’ core operations. In the early days when there was little guidance or oversight on non-GAAP voluntary disclosures, the SEC's former chief accountant, Lynn Turner, ironically referred to such disclosures as "Everything but Bad Stuff" or "EBS" (Turner, 2000).[7] Over time, the popularity of non-GAAP earnings has continued to increase (Bradshaw & Sloan, 2002; Coleman & Erickson, 2017), and managers have become proactive in promoting “pro forma” or non-GAAP earnings by emphasizing it earlier than GAAP earnings in press releases (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002). The increasing prominence of non-

[7] Turner made this colorful characterisation of non-GAAP disclosures during a speech at the 39th Annual Corporate Counsel Institute conference. His colorful characterisation has been commonly quoted in the prior literature on non-GAAP earnings disclosure (Bhattacharya et al., 2004; Black & Christensen, 2009; Bradshaw & Sloan, 2002; Miller, 2009; Webber, Nichols, Street, & Cereola, 2013).

GAAP disclosures caught the SEC's attention because these disclosures have the potential to distort actual company performance numbers and mislead the investing public. Table 3-1 summarizes the regulatory setting timeline of the consistency issue in non-GAAP financial disclosures.

3.2.1 Cautionary statements

In 2001, the SEC, (2001a, 2001b), intervened in non-GAAP reporting for the first time by issuing two statements, cautioning companies not to mislead investors when presenting non-GAAP financial information.[8] Meanwhile, the SEC (2001c) alerted investors to the potential dangers of such information and reminded them to retain appropriate and healthy skepticism when analyzing non-GAAP financial information.

3.2.2 Passage of Regulation G and amendments to Regulation S-K

In 2003, the SEC began scrutinizing non-GAAP disclosures through the passage of Regulation G. By responding to section 401 (b) of the *Sarbanes-Oxley Act of 2002* (SOX, 2002), the SEC (2003) enacted Regulation G,[9] in which it broadly defines a non-GAAP financial measure.[10] Additionally, Regulation G requires non-GAAP reporting firms to include a quantitative reconciliation of the disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure (SEC, 2003).

Further, the SEC (2003) intends to impose more restrictions on non-GAAP

[8] In the statement, the SEC (2001a) encouraged public companies to consider and follow the recommendations on non-GAAP financial disclosures of the Financial Executives International and the National Investor Relations Institute before issuing non-GAAP results. Specifically, the two institutions (Financial Executives International & National Investor Relations Institute, 2001) advocate non-GAAP reporting firms to include a tabular reconciliation between GAAP and non-GAAP earnings.

[9] The US Congress directed the SEC to issue rules governing non-GAAP disclosures through section 401 (b) of SOX, stating that non-GAAP financial measures shall not contain an untrue statement of material fact or omit to state a material fact, and shall be reconciled with operation results under GAAP.

[10] The SEC (2003) defines a non-GAAP financial measure as:

> "A non-GAAP financial measure is a numerical measure of a registrant's historical or future financial performance, financial position or cash flows that excludes amounts, or is subject to adjustments that have the effect of excluding amounts, that are included in the most directly comparable measure calculated and presented in accordance with GAAP in the statement of income, balance sheet or statement of cash flows (or equivalent statements) of the issuer; or includes amounts, or is subject to adjustments that have the effect of including amounts, that are excluded from the most directly comparable measure so calculated and presented."

disclosures through amendments to Item 10 of Regulation S-K. For example, the SEC prohibits non-GAAP reporters from excluding recurring items if the same or similar items were excluded in the previous two years or are likely to be excluded in the following two years. In addition, the SEC restricts the emphasis on non-GAAP metrics, requiring firms to provide a presentation of the comparable GAAP financial measures with equal or greater prominence.

3.2.3 Guidelines through C&DIs

Since 2010, regulators have continuously updated their guidelines for non-GAAP reporting through the Compliance & Disclosure Interpretations (C&DIs) on non-GAAP disclosures (SEC, 2018).[11] The main purpose of the C&DIs is to address common questions regarding the application of new rules on non-GAAP disclosures, because the SEC's broad guidelines on non-GAAP reporting have been raising concerns from managers when they apply the new regulations.[12]

While the staff of the SEC's Division of Corporation Finance (the Staff) are making efforts to rein in firms' problematic practices involving the use of non-GAAP financial measures, the SEC to some extent, has been relaxing its position on non-GAAP disclosures. For instance, the SEC has relaxed the prohibition of recurring item exclusions. In particular, the C&DIs illustrate that the judgment of whether an item is recurring or not is based on its description rather than its nature and recurring items could be excluded as long as they are not inappropriately described as non-recurring (SEC, 2018).[13] In other words, managers have the discretion to decide whether the exclusion

[11] The most recent update of the C&DIs was on April 4, 2018 (SEC, 2018).
[12] The former SEC chairman, Mary Jo White (2016), strongly advised that when providing non-GAAP disclosures, firm managers should carefully consider the C&DIs of the rules and regulations on the use of non-GAAP financial measures and should self-correct their non-GAAP disclosures.
[13] While the SEC (2018) initially enforced stringent guidance on exclusions of recurring items, the issuance of C&DIs illustrates that the prohibition of recurring item exclusions is based on the description of adjusted items, rather than their nature (Question 102.03):

items are unrelated to their firms' core operations.

3.2.4 Scrutiny on abuse of non-GAAP disclosures

Along with the issuance of regulations on non-GAAP disclosures, the SEC has continuously penalized firms' misuse of non-GAAP disclosures. In 2002, the SEC (2002) took the first-ever enforcement action by addressing the abuse of non-GAAP earnings figures by Trump Hotels & Casino Resorts Inc. (THCR). In the third-quarter 1999 earnings release, THCR expressly stated that non-GAAP net income excluded a US$81.4 million one-time charge, implying that no other significant one-time items were included. However, THCR's non-GAAP earnings figure included an undisclosed one-time gain of US$17.2 million, without which THCR could not exceed earnings expectations. In this case, Stephen M. Culter, Director of the Commission's Division of Enforcement, expressed concern about the method of presenting non-GAAP numbers and the misleading impression that these can cause.

In 2009, the SEC (2009) announced its first enforcement action under Regulation G against SafeNet, Inc. (SafeNet) and alleged that SafeNet improperly classified ordinary operating expenses as non-recurring integration expenses in its non-GAAP earnings calculation to meet or exceed its targeted quarterly earnings per share. The SEC ordered SafeNet to pay a civil penalty of US$1 million for the abuse of non-GAAP earnings disclosures. The enforcement action to some extent provides important reminders to firms issuing non-GAAP disclosures and cautions firms not to make misleading non-GAAP disclosures.

Since the May 2016 update of the C&DIs by the SEC, the Staff have issued over 200 publicly available comment letters related to inappropriate non-GAAP financial

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"The prohibition is based on the description of the charge or gain that is being adjusted. It would not be appropriate to state that a charge or gain is non-recurring, infrequent or unusual unless it meets the specified criteria. The fact that a registrant cannot describe a charge or gain as non-recurring, infrequent or unusual, however, does not mean that the registrant cannot adjust for that charge or gain. Registrants can make adjustments they believe are appropriate, subject to Regulation G and the other requirements of Item 10(e) of Regulation S-K."

disclosures (Castillo, 2017). The common themes of concern the Staff identified in these comment letters include the incorrect reconciliation of non-GAAP financial measures to the most directly comparable GAAP financial measures, the greater prominence of non-GAAP financial measures than GAAP measures, and the implicit discussion on the reasons for the usefulness of non-GAAP disclosures.

Overall, non-GAAP disclosures have constantly been on the SEC's radar. When non-GAAP financial disclosures began to gradually gain popularity in the early 2000s, there was little related guidance or oversight. Consistent with their primary mission to protect investors in the capital market, in 2001, the SEC started intervening in non-GAAP disclosures by cautioning companies not to mislead investors when presenting non-GAAP financial information. Since then, the SEC has been formally governing non-GAAP disclosures by issuing Regulation G and making amendments to Item 10 of Regulation S-K to impose more stringent regulations on non-GAAP reporting. In addition, the Staff have been scrutinizing non-GAAP disclosures through C&DIs and issuance of comment letters related to these disclosures.

3.3 Causes of inconsistency

The mandatory requirements under Regulation G, the guidelines imposed by the C&DIs, and the *ex post* scrutiny by the Staff have together led to non-GAAP disclosures becoming more transparent (Bond, Czernkowski, Lee, & Loyeung, 2017; Kolev, Marquardt, & McVay, 2008; Marques, 2010).[14] However, the SEC's governance on non-GAAP disclosures has not completely frustrated managers' opportunistic use of such disclosures, as evidenced by the SEC's continuous issuance of comment letters. The broad guidance on these disclosures still allows a high degree of flexibility to managers.

[14] For example, consistent with the intentions of regulators, the quality of non-GAAP exclusions has increased after Regulation G (Kolev et al., 2008). Bond et al. (2017) provide consistent evidence that such exclusions are more transitory and have less predictive power for future operating earnings after the issuance of Regulation G and C&DIs, suggesting that the SEC's scrutiny improves the quality of non-GAAP disclosures. Moreover, Marques (2010) finds that the quality of reconciliation has increased after the governance on non-GAAP financial disclosures.

One issue that such discretion raises is the violation of consistency in non-GAAP reporting.

3.3.1 Self-structured non-GAAP exclusions

The discretion to managers in deciding the composition of non-GAAP earnings possibly leads to the consistency issue in non-GAAP reporting. Since the SEC aims to guide all non-GAAP disclosures, including on non-GAAP earnings, a precise definition of non-GAAP earnings and its composition is unavailable yet (Shumsky, 2016).[15] In addition, the SEC (2018) has relaxed its position on non-GAAP reporting by softening the requirements on exclusions of recurring items, illustrating that the judgment of whether an item is recurring or not is based on the management's explanation. Together, such flexibility leads to the fluctuating use of non-GAAP item exclusions (Bhattacharya et al., 2004; Campbell & Pitman, 2009; Sek & Taylor, 2011). When managers use their discretion to vary the usage of non-GAAP exclusion items, the composition of non-GAAP earnings per se possibly becomes inconsistent.

3.3.2 Implicit requirements on reconciliation

The discretion granted to managers in deciding the format and granularity of reconciliation tables potentially brings about inconsistency in reconciling items. Under Regulation G, non-GAAP reporters shall present a quantitative reconciliation of disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure (SEC, 2003). However, it does not provide guidance on the level of disclosure on reconciling items. Managers might either disclose each non-GAAP adjustment separately in the reconciliation or disclose an aggregate amount of several non-GAAP

[15] Nearly two decades ago, the SEC chairman, Harvey Pitt, suggested adopting new accounting standards that define the components of non-GAAP earnings (Pitt, 2002). However, until date, there is no accepted definition of non-GAAP earnings or accepted standard for including or excluding earnings components in calculating non-GAAP earnings (Shumsky, 2016b).

adjustments as a single reconciling item.[16] Thus, the varying granularity of reconciling items possibly causes inconsistency in non-GAAP earnings reporting.

3.4 Concerns about lack of consistency

Regulators have long expressed concerns about the lack of consistency in non-GAAP reporting. This lack is one of the "troublesome practices" that can make non-GAAP earnings misleading (White, 2016). Therefore, the SEC has been paying close attention to, and spending "a significant amount of time" on, seeking consistency in non-GAAP reporting to ensure such information is not misleading (Leone, 2010).

The inconsistent treatment of similar gains or losses ranks among the top issues in the SEC's comment letters on non-GAAP financial measures (Ernst & Young, 2018). Since the disclosure of earnings components is useful to investors in interpreting the current earnings (Scott, 2011), the SEC's former chief accountant, James Schnurr (2016) specifically suggested that firms must practice "keeping watchful eyes on the extent and nature of the adjustments" in arriving at non-GAAP earnings, to ensure the appropriateness of controls and oversight procedures in the preparation of non-GAAP reporting. As a result, the SEC (2018) ascribes inconsistency in non-GAAP reporting to the inconsistent use of "individually tailored" non-GAAP adjustments.

To reduce potentially misleading non-GAAP disclosures, the SEC chairman, Jay Clayton, and its chief accountant, Wesley Bricker, jointly urged firms to ensure a similar consistency in the reporting of non-GAAP numbers as expected in GAAP numbers (Tysiac, 2018). As a way to improve consistency in non-GAAP reporting, Christine Davine, a deputy managing partner of Deloitte, suggested that firms need to "have a documented policy of their defined non-GAAP measures and consistently apply that policy" (Cohn, 2016).

[16] In fact, the Staff gave a significant number of comments on the granularity required when presenting reconciliation tables and asked firms to present each non-GAAP adjustment separately in the reconciliation (Castillo, 2017).

3.5 Summary

Regulators primarily intend to improve the transparency of non-GAAP disclosures by issuing regulations and guidelines on non-GAAP reporting. However, they still afford a high level of flexibility to managers in deciding the composition of non-GAAP earnings and the granularity of reconciling items. Unexpectedly, this flexibility opens the door for the management's inconsistent treatment of non-GAAP exclusion items. As a result, consistency in non-GAAP reporting has long been a focal issue of regulators. Thus, empirical studies on this issue would be informative to regulators that express concerns about the consistency issue in non-GAAP reporting practices.

3.6 Chapter 3 Tables

Table 3-1 Regulatory timeline of the consistency issue in non-GAAP financial disclosures

Date	Description	Source
10/12/2000	SEC's chief accountant, Lynn Turner, characterizes pro forma earnings as "Everything but Bad Stuff" or "EBS", expressing concerns about pro forma earnings disclosures.	https://www.sec.gov/news/speech/spch418.htm
12/4/2001	SEC intervenes in non-GAAP reporting for the first time by issuing two cautionary statements.	https://www.sec.gov/rules/other/33-8039.htm
1/16/2002	SEC takes the first-ever enforcement action, by addressing the abuse of pro forma earnings figures by Trump Hotels & Casino Resorts Inc.	https://www.sec.gov/news/headlines/trumphotels.htm
1/17/2002	The former SEC chairman, Harvey Pitt, suggests adopting new accounting standards defining components of non-GAAP earnings.	https://www.sec.gov/news/speech/spch535.htm
7/30/2002	Present Bush signs SOX into law. Section 401 of SOX directs the SEC to issue formal rules within 180 days.	https://legcounsel.house.gov/Comps/Sarbanes-oxley%20Act%20Of%202002.pdf
3/28/2003	Regulation G, amendments to Item 10 of Regulation S-K, and amendments to Item 10 of Regulation S-B become effective.	https://www.sec.gov/rules/final/33-8176.htm
11/12/2009	SEC announces its first enforcement action under Regulation G against SafeNet, Inc.	https://www.sec.gov/litigation/litreleases/2009/lr21290.htm
1/11/2010	SEC issues Compliance & Disclosure Interpretations (C&DIs) on non-GAAP disclosures to address common questions regarding the application of new rules on non-GAAP disclosures, and issues updates in July 2011, May 2016, and April 2018.	https://www.sec.gov/divisions/corpfin/guidance/nongaapinterp.htm
9/29/2010	SEC's chief accountant of the Enforcement Division, Howard Scheck, regards non-GAAP metrics as a "fraud risk factor."	http://ww2.cfo.com/accounting-tax/2010/09/whats-on-the-secs-radar/
3/22/2016	SEC's former chief accountant, James Schnurr, suggests that firms should practice "keeping watchful eyes on the extent and nature of the adjustments" to arrive at non-GAAP earnings.	https://www.sec.gov/news/speech/schnurr-remarks-12th-life-sciences-accounting-congress.html
6/27/2016	SEC's former chairman, Mary Jo White, includes the lack of consistency in non-GAAP disclosures as one of the "troublesome practices" that can make non-GAAP earnings misleading.	https://www.sec.gov/news/speech/chair-white-icgn-speech.html
3/6/2017	The staff of the SEC's Division of Corporation Finance have been persistently scrutinizing the disclosures of non-GAAP figures by issuing over 200 publicly available comment letters related to non-GAAP financial measures.	http://www.mondaq.com/unitedstates/x/574200/Accounting+Standards/Practice+Pointers+Anticipating+And+Addressing+SEC+Comments+On+NonGAAP+Financial+Measures
9/24/2018	Inconsistent treatment of similar gains or losses ranks among the top issues in the SEC's comment letters on non-GAAP financial measures in the period ended June 30, 2018.	https://www.ey.com/publication/vwluassetsdld/secreportingupdate_04322-181us_commentstrends_24september2018/$file/secreportingupdate_04322-181us_commentstrends_24september2018.pdf
12/11/2018	The SEC chairman, Jay Clayton and its chief accountant, Wesley Bricker, jointly urge a similar consistency in the reporting of non-GAAP numbers as expected in GAAP numbers.	https://www.journalofaccountancy.com/news/2018/dec/sec-urges-consistency-non-gaap-reporting-201820253.html

4 LITERATURE REVIEW ON NON-GAAP DISCLOSURES

4.1 Introduction

The objective of this chapter is to present a review of the studies on non-GAAP disclosures that are relevant to this thesis. It mainly summarizes the characteristics of non-GAAP earnings disclosures, the management's incentives to provide these, and the investors' perceptions of these disclosures. The chapter provides a fundamental overview of non-GAAP disclosures and sets the scene for the empirical studies that follow.

The rest of this chapter is structured as follows. Section 4.2 provides a review on the characteristics of non-GAAP disclosures. It briefly discusses the frequency of managers' provision of non-GAAP disclosures, the presentation of the non-GAAP metrics in the earnings releases, and the constituents of non-GAAP earnings. Section 4.3 discusses the incentive that *ex ante* drives managers to provide non-GAAP disclosures. Section 4.4 outlines the investors' pricing of non-GAAP earnings disclosures. Lastly, the chapter is summarized in Section 4.5.

4.2 Characteristics of non-GAAP disclosures

4.2.1 Frequency of non-GAAP reporting

Managers have demonstrated an increasing propensity to provide non-GAAP disclosures. Bhattacharya et al. (2004) are the first examine the frequency of firms' issuance of non-GAAP earnings. They find that most of their sample firms report non-GAAP quarterly earnings only once (53% of sample firms) or twice (23% of sample firms) during the 12 quarters of the1998–2000 period. Johnson and Schwartz (2005) find that about 25% of their sample firms disclosed non-GAAP earnings for the first time during June–August 2000, and only 11% had reported non-GAAP earnings for more than four quarters out of eight quarters prior to their sample period.

Nearly a decade later, non-GAAP reporting has become widespread among publicly listed firms. Based on a constant sample of S&P 500 firms, Black, Christensen,

Ciesielski, and Whipple (2020) report that nearly two-thirds of their observations disclosed non-GAAP earnings in 2009–2014. During the fourth quarter of 2016, 96% of S&P 500 firms presented at least one non-GAAP metric in their earnings releases (Coleman & Erickson, 2017).

Overall, the management's preference for non-GAAP disclosures continues to rise. The growing intensity of the management's non-GAAP reporting has fueled the interest in research on different aspects of non-GAAP disclosures.

4.2.2 Placement of non-GAAP earnings

While the management's willingness to provide non-GAAP reporting is increasing, academics have shown intensive interest in understanding the way in which non-GAAP information is disclosed. Prior studies suggest that managers, when providing non-GAAP earnings metrics along with GAAP earnings results, are proactive in promoting non-GAAP earnings by placing the related disclosures earlier than the GAAP earnings disclosure in press releases (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002). After the passage of Regulation G in 2003, the SEC (2003) amended Item 10 of Regulation S-K, which requires non-GAAP reporting firms to present non-GAAP financial measures with equal or less prominence relative to comparable GAAP financial measures. The changes to regulations reduce the management's emphasis on non-GAAP earnings to some extent. For example, Marques (2010) finds that the relative prominence of a non-GAAP measure to the comparable GAAP measure decreased over her sample period of 2001–2003. Nonetheless, some managers still place non-GAAP earnings figures more prominently than they do the counterpart, the most comparable GAAP earnings metrics (Bowen, Davis, & Matsumoto, 2005).

In sum, managers intend to communicate non-GAAP earnings, rather than GAAP earnings, earlier to investors, even though the flexibility of their emphasis of non-GAAP earnings is frustrated by the regulators' governance.

4.2.3 Magnitude of non-GAAP earnings

The emphasis of non-GAAP earnings is possibly because of the favorable financial performance conveyed by non-GAAP disclosures. In general, managers exclude expense items in arriving at a higher non-GAAP earnings figure. For example, by examining 1,149 non-GAAP earnings releases by 596 firms over 1998–2000, Bhattacharya et al. (2004) find that the mean non-GAAP earnings is a net income of 8.5 cents per share, while the mean GAAP operating earnings is a net loss of 14.7 cents per share. Despite the passage of Regulation G, the non-GAAP earnings (22.0 cents per share profit) that managers reported in 1998–2003 continued to be higher than the actual GAAP operating earnings (6.0 cents per share profit), on average (Black & Christensen, 2009). A recent study using data on yearly earnings releases over 2009–2014 finds that this larger magnitude of non-GAAP earnings relative to GAAP operating earnings continued among the sample (Black, Christensen, Ciesielski, & Whipple, 2020). Moreover, non-GAAP earnings are also greater than the actual I/B/E/S pro forma earnings (Black & Christensen, 2009).

In sum, managers commonly exclude income-increasing items from GAAP earnings, which makes their non-GAAP earnings metrics greater than those of database providers, such as Compustat and I/B/E/S.

4.2.4 Total non-GAAP exclusions

In addition to restricting the greater emphasis on non-GAAP earnings relative to comparable GAAP earnings, the SEC (2003) requires non-GAAP reporting firms to present a quantitative reconciliation of disclosed non-GAAP financial measures to the most directly comparable GAAP financial measures. The regulators' governance on the provision of reconciliation aims to assist users of non-GAAP reporting to evaluate financial performance more accurately, and, in turn, results in more accurate pricing of securities. In fact, managers have become more inclined to provide reconciliation tables

since the regulator's mandatory requirements (Marques, 2010).[17] Moreover, the reconciliations have been effective in curbing mispricing (Zhang & Zheng, 2011).[18] In addition to enhancing the transparency and usefulness of non-GAAP disclosures, the provision of reconciliation tables provides the opportunity of examining the constituents of non-GAAP figures.

In the reconciliation tables, managers list the items excluded from non-GAAP earnings. The total non-GAAP exclusion is commonly defined as the difference between non-GAAP earnings and GAAP earnings before extraordinary items and discontinued operations, and it has an income-increasing effect on non-GAAP earnings (Black & Christensen, 2009; Black et al., 2018; Kolev et al., 2008). While non-GAAP earnings purportedly portray better operating results by excluding transitory items (Halsey & Soybel, 2002), Doyle, Lundholm, and Soliman (2003) find that non-GAAP exclusions are far from non-recurring and consume cash in the future. Specifically, they suggest that while a dollar of non-GAAP earnings in the current quarter is associated with US$2.698 of future cash inflows from operations over the next four quarters, a dollar of total exclusions is associated with US$1.120 of the next four quarters' operating cash outflows. Moreover, non-GAAP exclusions are predictive of future operating income (Frankel, McVay, & Soliman, 2011; Seetharaman, Wang, & Zhang, 2014), although their predictive ability is moderated when firms have more independent board members (Frankel et al., 2011) or after accounting experts are appointed on the audit committee (Seetharaman et al., 2014).

In sum, the total non-GAAP exclusion is income-increasing in nature. Its forecasting relevance to future operating performance limits the forecasting preciseness of non-GAAP earnings. As a result, the predictability of non-GAAP exclusions possibly

[17] Although the number of firms with non-GAAP disclosures has decreased over 2001–2003, Marques (2010) finds a clear increase in the number and quality of reconciliations disclosed by firms.

[18] Zhang and Zheng (2011) find that there is no mispricing for non-GAAP earnings with different reconciliation qualities after the passage of Regulation G, consistent with the SEC's intention, while there is mispricing for firms with low reconciliation quality prior to the enactment of Regulation G. Moreover, they find a significant reduction in mispricing for firms that improve their reconciliation quality across the Regulation G period, suggesting that Regulation G is effective in reducing the mispricing of non-GAAP earnings.

casts doubt on managerial assertions that exclusions from non-GAAP earnings are transitory or irrelevant to core performance.

4.2.5 Categorization of non-GAAP exclusions

The conflict discussed in the previous section raises the interest of academics in examining the management's use of non-GAAP exclusions. Prior studies group the items excluded from non-GAAP earnings into different categories and their classification of non-GAAP exclusions varies, as shown in Figure 4-1. One stream of literature classifies total exclusions into two broad categories, recurring item exclusion and non-recurring item exclusion, based on the Compustat-defined variables (Brown, Christensen, Elliott, & Mergenthaler, 2012; Doyle et al., 2003; Kolev et al., 2008). They define the recurring non-GAAP exclusion as the difference between non-GAAP earnings (EPS_{NG}) and GAAP earnings from operations (EPS_{GAAP_OP}), and the non-recurring non-GAAP exclusion as the gap between GAAP earnings from operations (EPS_{GAAP_OP}) and GAAP earnings before extraordinary items and discontinued operations (EPS_{GAAP_BXT}).

Another stream of literature categorizes non-GAAP exclusions based on the management's actual non-GAAP reconciling items. The categorization of groups of recurring and non-recurring item exclusion is pre-determined (Black & Christensen, 2009; Black et al., 2018; Christensen, Drake, & Thornock, 2014). Recurring exclusions include individual adjustments related to depreciation and amortization (D&A), stock-based compensation (SBC), interest (INTEXP), research and development (R&D), investment gain or loss (INVEST), pension expenses (PENSION), and foreign currency exchange (FCEX). Non-recurring exclusions generally involve individual adjustments related to charges for restructuring (RESTRUCT), merger and acquisition (M&A), early extinguishment of debt (EXDEBT), charges related to stock trading (STOCKTRD), impairment (IMPAIR), litigation (LITIGATION), and tax (TAXCHG). Apart from the common items categorized as recurring or non-recurring exclusions, there are some items infrequently adjusted by firm managers. These infrequent items that are not routine

enough to warrant their own categories are grouped into the uncommon exclusion (UNCOMMON) category. Lastly, the adjustments pertaining to income tax related to other non-GAAP adjustments (ITOADJ) are grouped as a separate category.

4.2.5.1 Recurring item exclusions

Recurring item exclusions are far from non-recurring, and, thus, are predictive of future operations (Black & Christensen, 2009; Doyle et al., 2003; Gu & Chen, 2004; Kolev et al., 2008). For example, Doyle et al. (2003) suggest that a dollar of recurring item exclusions (non-GAAP earnings) is associated with US$2.185 (2.795) of future cash outflows (inflows) from operations over the next year, which is almost as predictive as non-GAAP earnings. Further, Kolev et al. (2008) find that recurring item exclusions are significantly and negatively associated with future operating income, even though this negative association has become weaker following the SEC's governance on non-GAAP reporting.

As a result, the use of recurring item exclusions that managers have claimed to be "non-operating" or "non-cash" in nature has long raised concerns from academics. Some studies define low-quality non-GAAP reporting as the exclusion by managers of one or more recurring items in arriving at their adjusted, or non-GAAP, earnings metrics (Black & Christensen, 2009; Kolev et al., 2008), because recurring item exclusions significantly reduce the efficiency of non-GAAP earnings in forecasting firms' future performance.

Overall, exclusions of recurring items are likely to continue in future periods. Consequently, managers overstate their current performance when they exclude recurring items.

4.2.5.2 Non-recurring (special) item exclusions

In contrast to the exclusions of recurring items, non-recurring or special item exclusions have no significant explanatory power in predicting future operating

performance (Doyle et al., 2003). Given the assertion that determining the extent to which the current earnings map into future operating results is a reasonable test of the usefulness of earnings disclosures, special item exclusions are consistent with the portrayed informative purpose of non-GAAP reporting by managers.

Gu and Chen (2004) add evidence on the usefulness of non-GAAP earnings with special item exclusions. They examine the differences in forecasting relevance between special items excluded from, and included in, non-GAAP earnings. They find that excluded special items have less predictive power for future operating earnings and future operating cash flows compared with included special items. If the primary use of non-GAAP earnings is to better inform investors, then separating less predictive special items from core earnings appears to be justifiable.

However, the decreasing quality of special item exclusions attenuates the management's informing incentives. Following the SEC's intervention on non-GAAP reporting, special items have become of lower quality over time (Kolev et al., 2008). This decreasing quality is partially on account of managers' opportunistic shifting of core expenses (recurring expenses) into special items (Kolev et al., 2008; McVay, 2006; Yun, Barua, Cready, & Thomas, 2010). As a result, special items would contain items that are predictive of future operations.

However, prior research suggests that although the quality of special item exclusions has been decreasing, the exclusion of transitory gains is more likely to highlight recurring core earnings than to overstate current operating performance. Curtis, McVay, and Whipple (2014) find that the exclusion of transitory gain items is significantly associated with a reduction in earnings over the next four quarters. Since the exclusion of these items lowers income in the reporting period, the most pervasive incentive to disclose non-GAAP earnings in the presence of transitory gain exclusions is to better inform investors.

In sum, non-recurring item exclusions are generally not forecasting relevant to future operating performance, enhancing the usefulness of non-GAAP earnings in

predicting future operating results. While some managers intend to disclose non-GAAP earnings in a misleading way by shifting recurring items into special items, others still desire to better inform investors of sustainable core earnings by excluding transitory gain items.

4.2.6 Individual items of non-GAAP exclusions

In addition to providing the total amounts of recurring and non-recurring exclusions that are calculated from database-provided GAAP earnings metrics, prior research that uses the management's actual non-GAAP announcements provides more information on the exclusions of non-GAAP items. For the sample period of 1998–2000, Bhattacharya et al. (2004) note that the most frequently excluded item is D&A that is adjusted by 30.0% of observations, which is immediately followed by SBC that is excluded by nearly a quarter of the observations. By comparing with the magnitude of sales for the same firm-quarters, they also find that the adjustment of the largest relative magnitude is INTEXP (2.08 times of sales), while D&A and SBC, the two most frequent exclusions, are 1.77 times and 33.4% of sales, respectively.

On including three more years' earnings releases in the sample (1998–2003) than included by Bhattacharya et al. (2004), Black and Christensen (2009) find similar trends regarding the management's use of non-GAAP adjustments. Although R&D is the most frequently excluded item, managers still have a high propensity to exclude D&A and SBC. Additionally, Black and Christensen (2009) find that the presence of RESTRUCT, D&A, SBC, TAXCHG, and UNCOMMON are positively and significantly associated with the magnitude of total non-GAAP exclusion.

However, Black, Christensen, Ciesielski, and Whipple (2020) reveal a change in the management's use of individual non-GAAP exclusions. They suggest that RESTRUCT becomes the most frequently excluded item that is adjusted in almost half of their observations. Regarding magnitude, the largest adjustment is IMPAIR with an

average mean value of 84 cents per share, which is immediately followed by D&A at an average 56 cents per share.

Moreover, prior research suggests that fluctuations occur in the usage of non-GAAP adjustments (Bhattacharya et al., 2004; Campbell & Pitman, 2009; Sek & Taylor, 2011). For example, Bhattacharya et al. (2004) report that 68% of "repeat announcers", who report non-GAAP earnings more than once during their sample period, define non-GAAP earnings differently by using different non-GAAP adjustments. Additionally, Campbell and Pitman (2009) compare the usage of 12 common categories of non-GAAP adjustments by their sample firms in 2005 with those used by the sample firms in Bhattacharya et al.'s (2004) study over 1998–2000. They find that the frequency of all 12 categories experiences moderate to dramatic fluctuation in usage over time.

Further, Black, Christensen, Ciesielski, and Whipple (2020) provide empirical evidence on the consistent use of non-GAAP items between adjacent reporting years. They measure how firms consistently exclude particular non-GAAP items from year to year. They define a consistent non-GAAP exclusion item as a non-GAAP adjustment excluded by a firm in year t that was also excluded in the prior year, year t-1. They find that, on average, 88% of firm-year observations in their sample exclude same items from non-GAAP earnings across years. In addition, they suggest that the items that are inconsistently excluded are less likely to be used in the future. In other words, the usefulness of non-GAAP earnings in forecasting future performance improves when managers vary their use of individual exclusions of non-GAAP items.

Overall, managers have different perspectives as regards individual exclusions of non-GAAP items. While the frequency of the use of non-GAAP items has varied over time, the exclusions of non-GAAP items have become increasingly consistent between consecutive reporting years. The evidence on the management's use of individual non-GAAP items is useful for investors to form their own earnings metrics.

4.3 Management's incentives for non-GAAP disclosures

Voluntary disclosure is theoretically informative to users of disclosures (Grossman & Hart, 1980; Milgrom, 1981), because it alleviates information asymmetry between the management and outside users (Diamond & Verrecchia, 1991; Kim & Verrecchia, 1994). Therefore, managers intend to inform investors when they voluntarily disclose information on firm performance. Conversely, firms committing to increased levels of disclosure garner economically and statistically significant benefits, such as lower bid–ask spreads and higher share turnover (Leuz & Verrecchia, 2000). Such benefits very likely induce managers to provide voluntary disclosures as a supplement of mandatory disclosures. The empirical evidence supports this notion that firms conducting voluntary disclosures are awarded lower adverse selection costs (Diamond & Verrecchia, 1991) and lower cost of capital (Botosan, 1997; Easley & O'Hara, 2004). Thus, the management's willingness to engage in voluntary disclosures is possibly motivated by the opportunistic incentive of achieving economic benefits. Overall, managers might propose to alleviate information asymmetry between the management and outside users or opportunistically benefit themselves when engaging in voluntary disclosures.

While the popularity of non-GAAP earnings continues to increase, the related research has focused on the management's motivation behind non-GAAP disclosures. Specifically, the intense debate is about whether non-GAAP disclosures are *ex ante* motivated by the informative or opportunistic incentives of management. The evidence on the management's motivation behind non-GAAP disclosures would help investors understand the implications of non-GAAP earnings regarding firm performance and value.

4.3.1 Informative incentive

In this regard, some managers voluntarily share private information with investors through non-GAAP earnings reporting to present a more accurate picture of firms' core

performance. When managers exclude special items from non-GAAP earnings based on their professional knowledge of firm performance, the preciseness of non-GAAP earnings in predicting future operating results increases (Curtis et al., 2014; Doyle et al., 2003; Gu & Chen, 2004). In other words, the exclusions of special or non-recurring items improve the usefulness of non-GAAP disclosures. In particular, prior studies suggest that the exclusion of non-recurring or transitory gain items is significantly associated with a reduction in earnings over the next four quarters (Curtis et al., 2014). That means the exclusion of transitory gain items is more likely to highlight core earnings than to overstate the current operating performance. Therefore, the presence of transitory gain exclusions indicates the management's informative incentives.

Overall, managers' altruistic incentive of making non-recurring item exclusions, especially when they exclude non-recurring gain items, is to inform investors.

4.3.2 Opportunistic incentive

By contrast, most prior studies provide evidence on the managerial opportunism behind non-GAAP disclosures. Managers utilize non-GAAP disclosures as the last resort for earnings management. Black, Christensen, Joo, and Schmardebeck (2017) find that managers are more likely to disclose non-GAAP earnings when they are less able to manage earnings through other means, such as accruals, suggesting that managerial opportunism motivates the provision of non-GAAP reporting.

Further, managers are more prone to manipulate investors' perceptions of firm performance by reporting non-GAAP earnings when their GAAP performance is unfavorable. Walker and Louvari (2003) suggest that firms are enthusiastic about providing non-GAAP disclosures when they make GAAP losses. In addition, Entwistle, Feltham, and Mbagwu (2005) find that firms are more inclined to disclose non-GAAP earnings metrics when their GAAP earnings fall short of analysts' earnings expectations. Moreover, Lougee and Marquardt (2004) find that the propensity of managers to report non-GAAP earnings is positively related to not only missing the consensus analyst

forecast on a GAAP basis, but also to the lower GAAP earnings in the current quarter compared with that of the same quarter in the prior year. Consistent with the prior evidence, Isidro and Marques (2015) find that the likelihood of non-GAAP earnings disclosures increases when GAAP earnings fail to meet analysts' earnings expectation, change negatively compared with the prior period's GAAP earnings metrics, or indicate a loss in terms of firm performance. Overall, the unfavorable GAAP performance that fails to meet strategic earnings benchmarks positively drives the probability of non-GAAP earnings disclosures, suggesting the management's opportunistic use of non-GAAP disclosures.

In addition to providing non-GAAP disclosures, managers use the emphasis of non-GAAP earnings to manipulate investors' perceptions of firm performance when they have less favorable GAAP results.[19] Bowen et al. (2005) measure the management's emphasis of non-GAAP earnings in two ways: the level of emphasis, which is identified through the first-mention places and a score assigned to each GAAP and non-GAAP earnings disclosure, and relative emphasis, which is the difference between the level of emphasis scores for GAAP and non-GAAP earnings. They find that managers of firms that have a history of prior losses are more inclined to display non-GAAP earnings in a more prominent place within the earnings releases than they do the GAAP earnings. Hence, managers opportunistically impress investors with favorable non-GAAP results by disclosing it earlier in the press releases.

Moreover, the exclusion of transitory gain items is not always motivated by informative incentives. Baumker, Biggs, McVay, and Pierce (2014) find that some managers explicitly provide reconciliations of non-GAAP earnings per share when they exclude transitory gain items. Since transitory gain exclusions lower the core income for the current reporting period, managers are unwilling to notify investors of the less profitable operating performance. Further, the authors suggest that this ambiguity

[19] Guillamon-Saorin, Isidro, and Marques (2017) suggest that managers use the emphasis of non-GAAP earnings as an impression management tool to bias investors' perception of firm performance.

increases when transitory gains are recognized concurrently with transitory losses, suggesting the managerial opportunism in providing non-GAAP earnings information.

Moreover, the managerial opportunism of non-GAAP disclosures is apparently evidenced by the strategic use of non-GAAP earnings to achieve earnings benchmarks. Black and Christensen (2009) find that 10.8% of their observations ("converters") report non-GAAP profits when the firms incurs GAAP operating losses and that 33.3% make non-GAAP adjustments to meet analysts' forecasts that would otherwise be missed by reporting GAAP operating income.[20] They also suggest that the probability of the use of non-GAAP earnings to achieve earnings benchmarks decreases with the frequency of non-GAAP reporting, suggesting that firms reporting non-GAAP numbers only sporadically are more likely than firms that disclose non-GAAP earnings on a regular basis to use non-GAAP reporting opportunistically. Heflin and Hsu (2008) report that the probability of the management's opportunistic use of non-GAAP earnings to meet or beat analysts' forecasts declines after legislative and regulatory governance on non-GAAP disclosures, but managers continue to be more inclined to use non-GAAP earnings to meet earnings targets prior to selling their shares (Frankel et al., 2011).

In addition, prior research provides evidence on how managers use non-GAAP disclosures to meet the earnings target. Generally, managers use income-increasing recurring exclusions as the primary means to achieve earnings benchmarks (Doyle et al., 2013; Heflin & Hsu, 2008; McVay, 2006). Specifically, managers are more likely to exclude expenses related to R&D, D&A, and SBC from non-GAAP earnings to meet expectations that they would have missed based on GAAP operating earnings (Black & Christensen, 2009).[21]

[20] Apart from exclusions of recurring items, prior studies regard the use of non-GAAP earnings to meet or beat earnings benchmarks that would be missed by GAAP earnings and the conversion of a GAAP loss into a non-GAAP profit as two more indicators of aggressive or opportunistic non-GAAP reporting (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017).

[21] Black and Christensen (2009) also find that restructuring charges, as the only non-recurring non-GAAP exclusion, are positively associated with the management's ability to achieve analysts' expectation on a non-GAAP basis when they would otherwise fail to meet these based on GAAP operating earnings.

Lastly, prior research suggests that non-GAAP reporting managers are more aggressive. Brown, Christensen, and Elliott (2012) find that managers accelerate the timing of earnings announcements in the quarters when they report non-GAAP earnings metrics relative to the quarters in which they do not. The acceleration of earnings announcements is more noticeable when firms exclude a relatively larger magnitude of recurring exclusions that are forecasting relevant to future operating performance (Brown, Christensen, and Elliott, 2012).

Overall, managers opportunistically use non-GAAP disclosures to distort investors' perceptions of firm performance when they are limited by other means of earnings management, have unfavorable GAAP results, or miss important earnings benchmarks. The aggressiveness of accelerating the timing of non-GAAP earnings announcements also adds evidence on the managerial opportunism behind non-GAAP disclosures.

4.4 Investors' perceptions of non-GAAP disclosures

The discussion in the previous section shows that the extant literature provides plausible evidence on the management's informative and opportunistic incentives as regards non-GAAP disclosures. However, investors would find it difficult to disentangle the informative and opportunistic non-GAAP disclosures. Hence, prior research has paid great attention to examining how non-GAAP disclosures affect investors' investment decisions.

4.4.1 Reward

Investors react positively to non-GAAP earnings disclosures when such disclosure is emphasized earlier than, or reconciled with, the comparable GAAP earnings. Bowen et al. (2005) suggest that a higher level of emphasis and greater relative emphasis on non-GAAP earnings both lead to investors' stronger reaction to non-GAAP earnings. This finding is consistent with managers' intention to divert investors' attention

from unfavorable GAAP figures to favorable non-GAAP metrics. In particular, nonprofessional, or less sophisticated, investors are more likely to increase their response to non-GAAP earnings that is given greater prominence (Allee, Bhattacharya, Black, & Christensen, 2007; Elliott, 2006). Moreover, the prior research suggests there is a positive and significant association between abnormal returns and the presence of tabular reconciliation (Marques, 2010), indicating the informativeness of transparency in non-GAAP disclosures to investors. In sum, the underlying characteristics of non-GAAP earnings, such as prominence and transparency, have information content for investors.

Moreover, investors perceive non-GAAP earnings reporting as more informative than GAAP earnings disclosures. Bradshaw and Sloan (2002) investigate investors' evaluation of different earnings metrics. They find that non-GAAP earnings have displaced GAAP earnings as a primary determinant of stock prices, indicating that non-GAAP earnings are more informative to investors than are GAAP earnings. Prior research also suggests that non-GAAP earnings have a greater ability to move stock returns upward around the earnings announcement period, compared with GAAP operating earnings (Bhattacharya et al., 2003; Brown & Sivakumar, 2003).[22] Additionally, investors find non-GAAP earnings to be even more informative when the GAAP earnings surprise is positive or the informativeness of GAAP earnings is low (Lougee & Marquardt, 2004). Nonetheless, certain studies suggest that the incremental response to non-GAAP earnings is primarily attributable to small or less sophisticated investors (Allee et al., 2007; Bhattacharya, Black, Christensen, & Mergenthaler, 2007; Frederickson & Miller, 2004).

Further, the credibility attributes of non-GAAP reporting firms improve the investors' reaction to non-GAAP disclosures. Entwistle, Feltham, and Mbagwu (2012) examine whether the degree of internal assurance (quality of corporate governance), the degree of external assurance (specialization of external auditor), and management's credibility (historical information quality) moderate the association between abnormal

[22] Brown and Sivakumar (2003) also find that non-GAAP earnings have greater information content for investors than do GAAP earnings before extraordinary items and discontinued operations.

returns in a short-window announcement period and the magnitude of non-GAAP exclusions.[23] They find that firms with stronger corporate governance, higher-quality auditors, and higher-quality historical information are viewed as disclosing more credible non-GAAP exclusions that result in a stronger market reaction.

Lastly, the regulations on non-GAAP disclosures strengthen investors' belief in the informativeness of non-GAAP reporting. Prior studies find that investors are more likely to respond to non-GAAP earnings disclosures after the implementation of non-GAAP regulations (Black et al., 2012; Marques, 2006). For example, Black et al. (2012) suggest that non-GAAP reporting firms are awarded greater abnormal returns in the post-regulation period, consistent with the notion that non-GAAP earnings disclosure is generally viewed in a more positive light after the legislative and regulatory governance. In addition to that, Jennings and Marques (2011) find that the regulatory intervention was effective at eliminating misleading non-GAAP disclosures to investors, suggesting the effectiveness of regulations in improving the informativeness of non-GAAP disclosures. Collectively, non-GAAP earnings have greater information content for investors, especially less sophisticated investors, compared with GAAP earnings. The informativeness of non-GAAP earnings to investors is even greater when the prominence of such earnings information is higher, its reconciling items are more transparent, it is provided by firms with higher-quality credibility, or it is disclosed in the post-regulation period.

4.4.2 Penalties

However, some investors appear to penalize non-GAAP reporting firms with lower stock returns. Short sellers, one group of sophisticated investors, are particularly active in shorting stocks of firms that disclose non-GAAP earnings in the earnings

[23] They measure historical information quality as the predictability of current period working capital accruals for operating cash flows in the prior, current, and future periods, following Dechow and Dichev's (2002) model.

announcements (Christensen et al., 2014), since they view non-GAAP disclosures as a signal of the diminished quality of GAAP earnings. Additionally, short trading is incrementally active if firms exclude recurring items from non-GAAP earnings (Christensen et al., 2014).[24] Particularly, short sellers are significantly sensitive to the use of stock-based compensation exclusions (SBC).[25] Overall, short sellers appreciate managerial opportunism behind non-GAAP disclosures and become active in shorting the stock of non-GAAP reporting firms.

Also, the positive sign of non-GAAP exclusions reduces the informativeness of non-GAAP earnings to investors. Doyle et al. (2013) find that investors perceive non-GAAP earnings with income-increasing exclusions as less informative, suggesting that investors believe managers are more likely to inform when they portray a picture of operating performance with less profitable non-GAAP earnings relative to GAAP earnings. In addition, firms with relatively large non-GAAP exclusions experience significantly lower future abnormal returns (Doyle et al., 2003, 2013), suggesting the decreasing effect of non-GAAP exclusions on the informativeness of non-GAAP disclosures.

Moreover, investors discount non-GAAP earnings disclosures when managers opportunistically use it to achieve earnings benchmarks. Bhattacharya et al. (2003) find that investors are less likely to react to non-GAAP earnings when firms move a position from missing the analysts' consensus earnings forecast based on GAAP earnings to meeting the earnings benchmark on a non-GAAP basis. Lougee and Marquardt (2004) use a different benchmark for non-GAAP earnings and find similar results. They define positive changes of non-GAAP earnings from quarter q to quarter q−4 as strategic, or opportunistic, non-GAAP discourses. They suggest that investors find non-GAAP

[24] Another group of sophisticated users of non-GAAP disclosures, auditors, also regard recurring exclusions as a risky factor. They charge higher audit fees for recurring exclusions to compensate for their increased time and efforts spent with clients (Chen, Krishnan, & Pevzner, 2012).
[25] Barth, Gow, and Taylor (2012) suggest that opportunism is the primary motivation for management's exclusions of SBC.

earnings to be more informative when strategic considerations are absent. Additionally, Bhattacharya et al. (2003) also find evidence on a marginal variation of investors' response to non-GAAP disclosures when managers turn GAAP losses into non-GAAP profits.[26] With regard to short sellers that have a negative view on disclosures of non-GAAP earnings, research suggests that they take even greater positions when non-GAAP earnings meet analysts' expectations that are not met on a GAAP basis (Christensen et al., 2014).

While the SEC's governance on non-GAAP reporting improves investors' general belief in the informativeness of non-GAAP disclosures, it does not change their negative view on the achievement of earnings benchmarks with such disclosures. Black et al. (2012) report that investors appear to discount these disclosures when managers opportunistically use non-GAAP exclusions to turn a profit or to meet earnings benchmarks in both the pre- and post-regulation periods. Actually, they find that investors' negative reaction to the opportunistic use of non-GAAP earnings is much stronger in the post-regulation period than in the pre-regulation period. Thus, the investors' negative view on the use of non-GAAP disclosures to beat earnings targets persists across unregulated and regulated periods.

Overall, investors appear to punish non-GAAP reporting firms when firm managers make a larger magnitude of, or positive, non-GAAP exclusions. The investors' aversion to non-GAAP earnings is strengthened when managers opportunistically use non-GAAP earnings disclosures to achieve earnings benchmarks in both the pre- and post-regulation periods.

4.4.3 No information content

While the management's altruistic incentive behind non-recurring or special item exclusion is to inform investors, it appears that investors are not sensitive to this category

[26] Specifically, Bhattacharya et al. (2003) find investors marginally ($p < 0.10$) attach more weight to a non-GAAP announcement that reports a profit while the corresponding GAAP operating earnings reports a loss.

of non-GAAP exclusions. As an indicator of informative non-GAAP disclosures, the exclusion of non-recurring gain items does not play a role in investors' pricing of non-GAAP earnings disclosures (Curtis et al., 2014).[27] By examining a group of well-informed investors that are short sellers, Christensen et al. (2014) find that while short sellers are particularly active in shorting stocks of firms that provide non-GAAP disclosures, their short-selling volumes are not significantly associated with the overall level of non-recurring item exclusions or the specific use of individual non-recurring item exclusions.

In sum, investors' response to non-GAAP earnings disclosures is not correlated with the use of non-recurring item exclusions.

4.5 Summary

This chapter provides a literature review on the characteristics of non-GAAP earnings disclosures, the management's motivation behind such disclosures, and investors' reaction to these disclosures. Over time, the management's use of non-GAAP disclosures has been continuously increasing. In general, such disclosures portray more favorable operating performance. Thus, managers intend to impress investors regarding firm performance by communicating non-GAAP earnings, rather than GAAP earnings, earlier in the earnings releases.

The mandatory requirement on the reconciliation of non-GAAP earnings opens the door for the researchers' examination of the constituents of non-GAAP earnings metrics. On average, managers exclude income-increasing non-GAAP items from non-GAAP earnings. In contrast to the management's claim, the non-GAAP exclusion is far from non-recurring and is related to future core performance. This forecasting relevance to future operations is primarily attributed to the exclusions of recurring items; however, non-recurring or special item exclusions have no significant explanatory power in

[27] Specifically, Curtis et al. (2014) find that, on average, investors price transitory gains as if they are transitory, since the short-window stock return is not incrementally and significantly associated with exclusions of transitory gains at either the earnings announcement date or filing date.

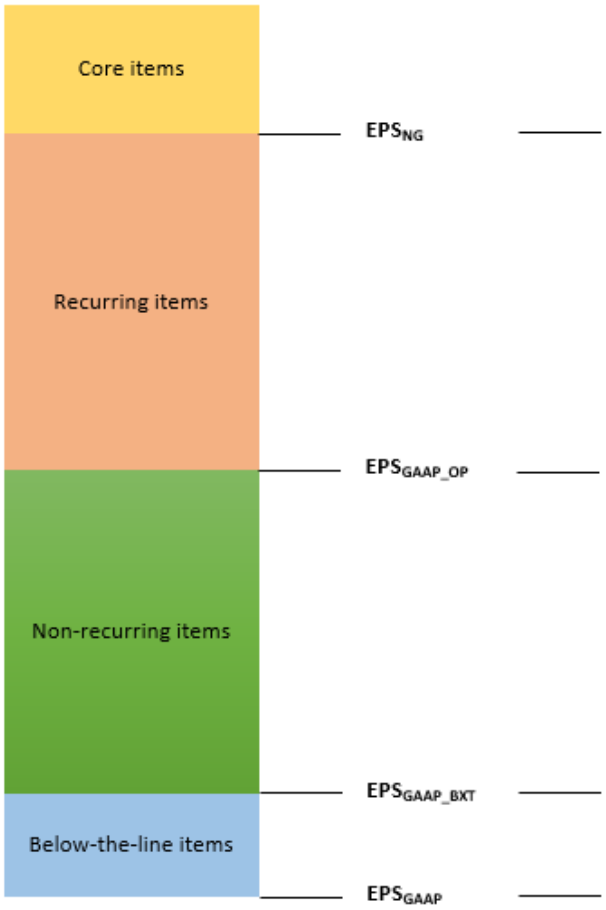
predicting future operating performance. In addition, managers have preferences regarding particular non-GAAP items, such as restructuring-related charges, depreciation and amortization expenses, and stock-based compensation charges. While managers vary their use of non-GAAP exclusion items over time, the deviation of the use of non-GAAP items from the adjacent reporting period has become lower.

Moreover, the results on whether managers are motivated by informative or opportunistic incentives to provide non-GAAP disclosures are mixed. While the managers' altruistic incentive of making special or one-time item exclusions is to inform investors, some managers become opportunistic in light of the implicit disclosures to reconcile one-time gain items to non-GAAP earnings. Additionally, managers are found to opportunistically use non-GAAP disclosures because they are more likely to provide non-GAAP earnings when they are limited by other means of earnings management, have unfavorable GAAP results, or miss important earnings benchmarks.

With regard to investors, non-GAAP earnings generally have greater information content to them than GAAP earnings, especially after the legislator and regulator's governance on non-GAAP disclosures. Additionally, the greater prominence and transparency of non-GAAP earnings improve the informativeness of non-GAAP disclosures to investors, even though this increasing informativeness is substantially attributable to less sophisticated investors. Further, investors appear to react less to non-GAAP earnings disclosures when non-GAAP exclusions are relatively larger or positive in magnitude. Their negative response is even stronger in the presence of the management's opportunistic use of non-GAAP earnings to achieve earnings benchmarks. Lastly, investors are not sensitive to the exclusions of non-recurring or special items. Overall, the market seems to be somewhat efficient at identifying and penalizing opportunistic non-GAAP disclosures.

4.6 Chapter 4 Figures

Figure 4-1 Classification of non-GAAP exclusions



Adjustments	Black & Christensen (2009)	Christensen, Drake and Thornock (2014)	Black, Christensen, Ciesielski and Whipple (2018)	Current study
Sample period	1998–2003	2005–2006	2009–2014	2010–2016
Num of obs.	5674 firm-quarters	1908 firm-quarters	1646 firm-years	4337 firm-quarters
Recurring items				
D&A	✓	✓	✓	✓
SBC	✓	✓	✓	✓
INTEXP	✓	✓	✓	✓
R&D	✓	✓		✓
TAXITEM	✓[a]	✓[a]		
INVEST			✓	✓
PENSION			✓	✓
FCEX			✓	✓
Non-Recurring items				
RESTRUCT	✓	✓	✓	✓
M&A	✓	✓	✓	✓
EXDEBT	✓	✓	✓	✓
STOCKTRD	✓	✓		✓
IMPAIR			✓	✓
LITIGATION			✓	✓
TAXCHG			✓[b]	✓[c]
CAPFIN				✓
Uncommon items (mix of recurring and non-recurring items)				
UNCOMMON	✓	✓	✓	
INFRQT				✓
OTHER				✓
Income tax on non-GAAP exclusions				
ITOADJ			✓	✓
Below-the-line items				
DISCOPS	✓	✓		✓
ACCTPRIN	✓	✓		✓
EXTRITEM	✓	✓		

[a] TAXITEM is simply defined as "tax-related items".
[b] TAXCHG category only includes non-GAAP adjustments of "Tax resolution or tax change items" and "R&D tax credit".

Figure 4-1 Classification of non-GAAP exclusions (continued)

[C] In addition to non-GAAP adjustments of "Tax resolution or tax change items" and "R&D tax credit", this thesis embraces more tax adjustments, such as tax refund and tax rate change effect, in the TAXCHG category.

Variable definitions: EPS_{NG} = non-GAAP earnings disclosed by managers divided by Compustat-defined diluted number of common shares (DCOMSH); EPS_{GAAP_OP} = Compustat-defined income from operations divided by DCOMSH; EPS_{GAAP_BXT} = Compustat-defined income before extraordinary items and discontinued operations divided by DCOMSH; EPS_{GAAP} = Compustat-defined net income divided by DCOMSH; D&A = non-GAAP exclusions related to depreciation and amortization charges divided by DCOMSH; SBC = non-GAAP exclusions related to stock-based compensation charges divided by DCOMSH; INTEXP = non-GAAP exclusions related to interest expense or income divided by DCOMSH; R&D = non-GAAP exclusions related to research and development charges divided by DCOMSH; INVEST = non-GAAP exclusions related to gain or loss on investments divided by DCOMSH; PENSION = non-GAAP exclusions related to pension charges divided by DCOMSH; FCEX = non-GAAP exclusions related to foreign currency exchange gain or loss divided by DCOMSH; RESTRUCT = non-GAAP exclusions related to restructuring charges divided by DCOMSH; M&A = non-GAAP exclusions related to merger and acquisition charges divided by DCOMSH; EXDEBT = non-GAAP exclusions related to gain or loss on extinguishment of debt divided by DCOMSH; STOCKTRD = non-GAAP exclusions related to stock listing and trading divided by DCOMSH; IMPAIR = non-GAAP exclusions related to impairment charges divided by DCOMSH; LITIGATION = non-GAAP exclusions related to litigation charges divided by DCOMSH; TAXCHG = non-GAAP exclusions related to gain or loss on taxation divided by DCOMSH; CAPFIN = non-GAAP exclusions related to capital financing charges divided by DCOMSH; INFRQT = non-GAAP exclusions related to infrequent or firm-specific items divided by DCOMSH; OTHER = non-GAAP exclusions that managers directly describe as “other,” “unusual items,” “special items,” or “other non-operating items” divided by DCOMSH; ITOADJ = non-GAAP exclusions pertaining to income tax related to other non-GAAP adjustments divided by DCOMSH; DISCOPS = non-GAAP exclusions related to discontinued operation gain or loss divided by DCOMSH; ACCTPRIN = non-GAAP exclusions related to accounting change charges divided by DCOMSH; EXTRITEM = non-GAAP exclusions related to extraordinary items divided by DCOMSH.

5 HOW DOES THE MANAGERIAL OPPORTUNISM OF NON-GAAP DISCLOSURES AFFECT THE CONSISTENCY OF NON-GAAP EARNINGS?

5.1 Introduction

Non-GAAP disclosures, deviating from the prescribed "standard" financial disclosures, have been on the rise among publicly listed companies. Following the SEC's governance on non-GAAP reporting, the regulations on non-GAAP disclosures help to improve the transparency of non-GAAP information (Bond et al., 2017; Kolev et al., 2008). However, the existing guidelines continue to allow a high degree of flexibility to managers in deciding the composition and presentation format of non-GAAP earnings (Castillo, 2017; SEC, 2018; Shumsky, 2016b).[28]

The discretion afforded to managers in non-GAAP disclosures has resulted in informative as well as opportunistic non-GAAP reporting (Black & Christensen, 2009; Black, Christensen, Joo, & Schmardebeck, 2017; Black, Christensen, Kiosse, & Steffen, 2017; Brown & Sivakumar, 2003; Curtis et al., 2014; Doyle et al., 2013; Doyle et al., 2003). Specifically, critics of non-GAAP disclosures argue that managers that opportunistically use non-GAAP earnings to clear strategic benchmarks or exclude recurring items from these earnings intend to distort investors' perception when firms' operating performance under GAAP is unfavorable (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017; Doyle et al., 2013).

Owing to the discretionary nature of non-GAAP disclosures, a major concern about non-GAAP earnings is that managers violate one of the basic tenets of financial reporting, consistency in non-GAAP reporting (SEC, 2018; Shumsky, 2016b; Tysiac, 2018; White, 2016). Regulators and academics ascribe this lack of consistency to the inconsistent use of "individually tailored" non-GAAP exclusion items (Bhattacharya et al., 2004; Campbell & Pitman, 2009; SEC, 2018). In addition, the inconsistent non-GAAP

[28] Rather than from a monitoring standpoint, the FASB expressed interest in the self-serving non-GAAP adjustments (Siegel, 2014). The FASB chairman, Russell G. Golden (2017), regarded certain non-GAAP adjustments as paving the way for improvements of the GAAP income statement.

disclosures are considered potentially misleading to investors (Leone, 2010; SEC, 2018; White, 2016).

Regulators and standard setters have continuously attached importance to consistency in non-GAAP reporting (Golden, 2017; Leone, 2010; Tysiac, 2018; White, 2016). Consistency, which refers to the use of the same methods for the same items either across periods within a reporting firm or across firms in the same period, is useful to financial statement users in making economic decisions (FASB, 2010). Research suggests that managers have become consistent in defining non-GAAP earnings (Black, Christensen, Ciesielski, & Whipple, 2020). However, non-GAAP earnings with consistent exclusions become less useful in predicting future performance, because items that are consistently excluded from non-GAAP earnings are significantly forecasting relevant to future operating results (Black, Christensen, Ciesielski, & Whipple, 2020). If that is the case, what is the management's incentive behind the increasing consistency in non-GAAP earnings? Since the environment of non-GAAP disclosures creates a good impression regarding reporting consistency among market participants, it is worth examining whether managers use this emphasis on consistency in non-GAAP reporting opportunistically to manipulate investors' perceptions of firm performance.

Black, Christensen, Ciesielski, and Whipple (2020) provide empirical evidence on the consistency in non-GAAP yearly reporting. They measure the time-series consistency of non-GAAP earnings by the total amount of consistently excluded non-GAAP items.[29] However, their consistency measure only includes seven types of exclusion items, while they categorize management's adjusted non-GAAP items into fifteen common types. This approach potentially leads to an incomplete picture of consistency in non-GAAP earnings reporting, because they leave the remaining nice types of non-GAAP items unexamined when calculating non-GAAP earrings consistency. Moreover, their consistency measure is merely based on the raw amount of non-GAAP

[29] Specifically, an consistent non-GAAP exclusion item is a non-GAAP adjustment that is excluded by a firm in year t, and was also excluded in the prior year, year t-1 (Black, Christensen, Ciesielski, & Whipple, 2020).

exclusion items in the examined period, which actually does not reflect the degree of consistency. This is because the concept of consistency involves at least two items and refers to the use of the same methods for the same items from period to period (FASB, 2010). In addition, the evidence based on yearly data on non-GAAP reporting may not fully meet investors' information demand. The reason is that non-GAAP reporting is commonly disclosed at quarterly intervals, and the interim quarters' financial reporting catches investors' attention just as the fourth fiscal quarter or yearly release of financial performance does (Drake et al., 2012). To provide a more precise picture of consistency in non-GAAP reporting, this thesis examines both the usage and magnitude consistency of all the above-the-line non-GAAP exclusion items that reflect the management's intentional non-GAAP exclusions on a firm-quarter basis.

In line with the definition of consistency (FASB, 2010), the first measure is the usage consistency of non-GAAP items, which is calculated as the number of consistent non-GAAP exclusion items for firm i in quarter q, divided by the total number of non-GAAP exclusion items for the same firm-quarter. The second measure is the magnitude consistency of non-GAAP exclusions, which is calculated as the sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1. Such that greater values indicate more consistent non-GAAP earnings.

I find that whereas the opportunistic use of non-GAAP earnings positively drives managers' decisions in excluding the same non-GAAP items (usage consistency) across the same quarter(s) for consecutive years, it negatively affects the change in magnitude of non-GAAP exclusion items (magnitude consistency). In other words, managers intend to report non-GAAP earnings with seemingly consistent components that greatly vary in magnitude when they opportunistically provide non-GAAP earnings disclosures. Since regulators and standard setters have laid emphasis on consistency in corporate reporting, managers possibly manipulate investors' perception of firm performance through consistency in the use of non-GAAP exclusion items in defining non-GAAP reporting.

Conversely, they violate the value of non-GAAP exclusion items, which is less apparent than the use of non-GAAP items, to achieve their reporting incentives. Additionally, opportunistic managers employ particular recurring item exclusions, including, but not limited to, exclusions of stock-based compensation and investment gain or loss, to distort the consistency of non-GAAP earnings.

This empirical study contributes to the extant literature on non-GAAP earnings by adding evidence on the consistency in non-GAAP reporting. In general, the results of my study support the finding of the prior literature that the primary purpose of consistent non-GAAP exclusion items might not be to inform investors, because I find a significant association between the consistency of non-GAAP earnings and the management's opportunistic non-GAAP disclosures. Nonetheless, it is worth noting that one must be cautious in drawing a counter-inference (association between the inconsistency of non-GAAP earnings and the managerial opportunism of non-GAAP disclosures) from the results of my study, because the inconsistency of non-GAAP earnings might be due to either managers' intentional manipulation of excluded items or the actual non-occurrence of the same items in the benchmark periods.

The findings of my study shed light on the existing governance on non-GAAP disclosures. The former IASB chairman, Hans Hoogervorst (2015), stated that greater discipline in the presentation of non-GAAP measures would be beneficial to investors, which motivated the IASB to examine such measures closely as part of their Disclosure Initiative. The results of my study suggest that regulators and the users of financial information should not only focus on the consistent use of non-GAAP exclusion items but also on the opportunistic use of the magnitude of exclusion items. Moreover, the results raise questions such as whether the regulators should continuously allow such a high level of flexibility to managers in deciding the components of non-GAAP earnings, especially exclusions of recurring items, that unexpectedly leads to opportunistic non-GAAP earnings disclosures.

The remainder of this chapter is organized as follows. Section 5.2 discusses the institutional background and relevant literature. Section 5.3 develops hypotheses. Section 5.4 explains the measures of non-GAAP earnings consistency and opportunistic non-GAAP disclosures. Section 5.5 describes the empirical model and model variables. Section 5.6 introduces the sample and descriptive statistics. Section 5.7 reports the results. Following that, Section 5.8 concludes the chapter on the association between the consistency of non-GAAP earnings and managerial opportunism of non-GAAP disclosures.

5.2 Institutional background

By responding to section 401 of SOX, the SEC (2003) began scrutinizing non-GAAP disclosures by issuing Regulation G and making amendments to Item 10 of Regulation S-K. To address common questions regarding the application of new rules on non-GAAP disclosures, the SEC (2018) updated its guidelines for non-GAAP reporting through the C&DIs on non-GAAP disclosures in 2010, and, most recently, in April 2018. The C&DIs mainly reflect the views of the Staff, who have been persistently scrutinizing the disclosures of non-GAAP financial measures (Castillo, 2017).

While the mandatory requirements under Regulation G, the restrictions imposed by C&DIs, and the *ex post* scrutiny by the Staff together improve the quality of non-GAAP disclosures (Bond et al., 2017; Kolev et al., 2008), the existing guidelines on non-GAAP disclosures still allow a high degree of flexibility to managers. For example, they are afforded discretion in deciding the composition of non-GAAP earnings (SEC, 2003; Shumsky, 2016b). As a result, opportunistic managers discretionally define non-GAAP earnings by excluding income-increasing items to either meet or beat analysts' earnings expectations that would be missed on a GAAP basis, or convert a GAAP loss into a non-GAAP profit (Black & Christensen, 2009; Doyle et al., 2013; Heflin & Hsu, 2008).

Moreover, the SEC relaxed its position on non-GAAP reporting by softening the requirements on exclusions of recurring items, which leaves more flexibility for managers

in deciding non-GAAP figures (SEC, 2018), while Item 10 of Regulation S-K prohibits non-GAAP reporters from excluding recurring items if the same or similar items were excluded in the previous two years or are likely to be excluded in the following two years (SEC, 2003). Consequently, the relaxation of regulations afforded through the C&DIs leads to the more common use of recurring item exclusions in non-GAAP disclosures (Black & Christensen, 2009; Black et al., 2018). In fact, recurring item exclusions are far from non-recurring, and, thus, predictive of future operations (Black & Christensen, 2009; Doyle et al., 2003; Gu & Chen, 2004; Kolev et al., 2008). Therefore, one definition of low-quality non-GAAP reporting used in prior research (Black & Christensen, 2009; Kolev et al., 2008) is the exclusion by managers of one or more recurring items in arriving at their adjusted, or non-GAAP, earnings metrics. In addition, prior research suggests that managers use the exclusions of recurring expense items as the primary means to achieve earnings benchmarks (Doyle et al., 2013; Heflin & Hsu, 2008; McVay, 2006). Specifically, managers prefer excluding expenses on research and development (R&D), depreciation and amortization (D&A), and stock-based compensation (SBC) from non-GAAP earnings to meet expectations when they would have missed these based on GAAP operating earnings (Black & Christensen, 2009).

In addition to these opportunistic non-GAAP disclosures, the discretionary nature of non-GAAP disclosures has continuously raised concerns from regulators, standard setters, and academics about the lack of consistency in non-GAAP reporting (Bhattacharya et al., 2004; Campbell & Pitman, 2009; Golden, 2017; Tysiac, 2018; White, 2016). Consistency refers to the use of the same methods for the same items either across periods within a reporting firm or across firms in the same period (FASB, 2010). The lack of consistency in non-GAAP disclosures is one of the “troublesome practices” that can make non-GAAP earnings misleading (White, 2016). Specifically, the SEC (2018) ascribes the inconsistency in non-GAAP earnings to the inconsistent use of “individually tailored” non-GAAP adjustments. In the SEC’s comment letters on non-GAAP financial measures, the inconsistent treatment of similar gains or losses in non-

GAAP reporting ranks among the top issues (Ernst & Young, 2018). Since the corporate reporting environment has attached great importance to consistent disclosures (CDSB, 2012; FASB, 2010), the SEC chairman, Jay Clayton, and its chief accountant, Wesley Bricker, jointly urged firms to maintain a similar consistency in the reporting of non-GAAP numbers as expected in GAAP numbers (Tysiac, 2018).

The relevance of information consistency to users somewhat warrants the regulator's emphasis on consistency in non-GAAP reporting. Psychology theories serve as the basis for research on consistency in financial disclosures. The consistency, or the referential coherence, of information theoretically plays a vital role in influencing users' information processing through improving their comprehension of information (Albrecht & O'Brien, 1993; Kintsch & Van Dijk, 1978), boosting their confidence in personality impressions (Gill et al., 1998), and enhancing the accuracy of their judgments (Peterson & Pitz, 1988). Since understandability is one of the enhancing qualitative characteristics of useful financial information (FASB, 2010), financial reporting could be arguably regarded as low quality if it is difficult for investors to understand owing to the lack of consistency. Peterson et al. (2015) support this notion by documenting that accounting consistency over time is positively related to a number of proxies for earnings quality, including earnings persistence, predictability, accrual quality, and absolute discretionary accruals. Consequently, firms with consistent financial disclosures are rewarded with positive returns (Alwathainani, 2009; Hilary et al., 2014; Tan et al., 2015).

In the context of non-GAAP earnings disclosures, the extant literature has documented limited evidence on this important aspect of non-GAAP reporting. Bhattacharya et al. (2004) are the first to examine whether firms consistently issue non-GAAP earnings. They find that most of their sample firms report non-GAAP quarterly earnings only once or twice during the 12 quarters of 1998–2000, suggesting that non-GAAP reporting is sporadic. It is worth noting that whether firms disclosing non-GAAP earnings more than once in Bhattacharya et al.'s (2004) study consecutively provide non-GAAP earnings from period to period is unknown, because disclosure frequency and

consistency represent two distinct constructs that are not only conceptually but also empirically different (Tang & Venkataraman, 2018; Tang, 2015). Moreover, Johnson and Schwartz (2005) find that only 11% of firms had reported non-GAAP earnings for more than four quarters out of eight quarters prior to the sample period, suggesting that non-GAAP reporting is inconsistent. Their study also examines the historical frequency of non-GAAP reporting, rather than the consistency in non-GAAP reporting over time. Therefore, the consistency of management's choice for non-GAAP disclosures is still undiscovered, because the conclusion that non-GAAP reporting is inconsistent or sporadic is based on the historical frequency of non-GAAP reporting during a certain period.

With regard to non-GAAP earnings per se, prior studies suggest the inconsistent use of non-GAAP adjustments over time (Bhattacharya et al., 2004; Campbell & Pitman, 2009; Sek & Taylor, 2011). Similar to prior research on the inconsistent provision of non-GAAP reporting, these studies merely compare the frequency of usage of non-GAAP adjustments during a period to that of another reporting period. Given the fact that disclosure frequency and consistency represent two distinct constructs (Tang & Venkataraman, 2018; Tang, 2015), it is too conclusive to suggest inconsistency in firms' definition of non-GAAP earnings simply based on the variation in the frequency of usage of non-GAAP adjustments between periods.

Until the study conducted by Black, Christensen, Ciesielski, and Whipple (2020), the prior literature did not provide empirical evidence on time-series consistency in non-GAAP reporting. In their study, consistency in non-GAAP reporting is proxied by the time-series consistency of particular non-GAAP exclusions.[30] They suggest that on average, 88% of firm-year observations in their sample exclude same items from non-GAAP earnings across years. In addition, they suggest that non-GAAP earnings with less

[30] Black, Christensen, Ciesielski, and Whipple (2020) define a consistent non-GAAP exclusion item as a non-GAAP adjustment excluded by a firm in year t that was also excluded in the prior year, year t-1. Then, they calculate the total value of consistently excluded non-GAAP exclusion items for year t.

consistent non-GAAP exclusions are more forecasting relevant to future operations. In other words, the usefulness of non-GAAP earnings improves with the increase of inconsistency of non-GAAP exclusion items, which is contrary to the positive signaling effect of information consistency on high-quality disclosures in other contexts of financial reporting. However, a few limitations are noted in their study.

First, the consistency of non-GAAP exclusions maybe not as affirmative as Black, Christensen, Ciesielski, and Whipple (2020) show, because the high consistency of non-GAAP exclusion items in their study may be driven by the selection of particular Compustat-identifiable exclusion items. They limit their analyses to seven types of non-GAAP exclusions, including adjustments related to restructuring, acquisition, impairment, litigation, debt extinguishment, stock-based compensation, and amortization. However, they sum up fifteen common types of non-GAAP adjustments. That means they leave the remaining eight types of non-GAAP adjustments unexamined. Moreover, the unexamined non-GAAP adjustments include the inherently low consistency adjustments, firm-specific “uncommon exclusions”, that do not fit into the more frequently occurring categories (i.e., stock-based compensation exclusions) and are not routine enough to warrant their own categories. Additionally, these “uncommon exclusions” constitute a significant part of the overall non-GAAP exclusions with regard to both frequency and magnitude, because more than 40% of non-GAAP earnings reporters have some form of “uncommon exclusions”, and these exclusions are nearly 10 cents per share expense-related, which is almost as large as 12% of the exclusion category with the largest value (Black, Christensen, Ciesielski, & Whipple, 2020). Thus, without encompassing the remaining unexamined exclusions in the measurement of time-series consistency on a firm-level basis, their inconsistency score does not present a precise picture of consistency in non-GAAP earnings reporting.

Second, Black, Christensen, Ciesielski, and Whipple (2020) merely consider the raw amount of non-GAAP exclusion items in the examined period, which does not reflect the degree of consistency in non-GAAP earnings reporting. The Conceptual Framework

for Financial Reporting states that consistency refers to the use of the same methods for the same items, either from period to period within a reporting entity or in a single period across entities (FASB, 2010). That means consistency involves at least two items. Therefore, the consistency measure that uses the value of non-GAAP exclusions items in a single period does not provide a meaningful method to gauge the consistency in non-GAAP reporting.

Lastly, the evidence shown by Black, Christensen, Ciesielski, and Whipple (2020) is based on yearly non-GAAP disclosures, which may not fully meet investors' information demand. Abnormal information search increases about two weeks before quarterly earnings announcements, peaks visibly at the announcements, and continues at high levels for a period after the announcements (Drake et al., 2012). Alternatively, the interim quarters' financial reporting catches investors' attention in the same manner as the fourth fiscal quarter or yearly release of financial performance does. Since firms commonly issue non-GAAP earnings on a quarterly basis, the examination of yearly, or fourth fiscal quarter, non-GAAP disclosures only partially uncovers non-GAAP reporting practices.

Collectively, the existing guidelines on non-GAAP disclosures afford managers a high level of discretion in deciding the composition of non-GAAP earnings. The self-structured non-GAAP earnings have raised concerns from interested parties about the lack of consistency in non-GAAP reporting caused by the inconsistent use of non-GAAP exclusion items. However, the items that are inconsistently excluded from non-GAAP earnings across the consecutive years are less likely to continue in the future, and, thus, improve the efficiency of non-GAAP earnings in the evaluations of firm performance. This evidence is contradictive to the expected usefulness of consistency in financial reporting. Given the fact that managers have become consistent in defining non-GAAP earnings over time, it is important to know whether the increasing consistency of non-GAAP earnings associates with managerial opportunism. Since the environment of corporate reporting conveys a good impression regarding reporting consistency to the market, the

evidence on whether managers opportunistically use the consistency of non-GAAP earnings to bias investors' perceptions of firm performance would be beneficial to regulators and the users of non-GAAP disclosures.

5.3 Hypotheses development

Firms face great pressure to avoid undershooting earnings targets. Specifically, firms that meet or beat earnings expectations enjoy a higher return than those that fail to meet these expectations (Bartov, Givoly, & Hayn, 2002; Skinner & Sloan, 2002). Moreover, Matsunaga and Park (2001) suggest that annual cash bonuses to CEOs provide CEOs with economic incentives to achieve earnings targets, such as quarterly analyst earnings forecasts and earnings from the same quarter of the prior year. In addition, loss-reporting firms are rewarded with negative abnormal stock returns (Burgstahler & Dichev, 1997; Hayn, 1995). To mitigate punishments from the market when missing benchmarks based on GAAP earnings or on making GAAP losses, managers opportunistically clear strategic benchmarks with non-GAAP disclosures to alter investors' perception of firm performance (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017).

However, managers who opportunistically use non-GAAP disclosures will likely harm their firms' reputation in the long run (Black et al., 2018). Their opportunistic use of non-GAAP earnings, for either meeting analysts' earnings forecasts or reversing a GAAP loss into a non-GAAP profit, is apparent, and, thus, easily observed by non-GAAP reporting users. To mask the opportunism of non-GAAP disclosures, managers possibly embellish non-GAAP figures to make investors believe in the solidity of such opportunistic non-GAAP figures. Since the corporate reporting environment creates a good impression of reporting consistency among market participants (CDSB, 2012; FASB, 2010; Tysiac, 2018), managers might use the consistency in non-GAAP reporting to divert investors' attention from the opportunism of non-GAAP disclosures. As a result,

opportunistic managers would intentionally enhance the consistency of non-GAAP earnings to guide investors' impression of non-GAAP disclosures.

By contrast, the lack of referential coherence, or the inconsistency of information, hinders users' comprehension of such information (Albrecht & O'Brien, 1993; Kintsch & Van Dijk, 1978; Peterson et al., 2015). In line with this reasoning, the consistency of non-GAAP earnings would help investors better understand non-GAAP information. When managers use non-GAAP earnings to meet or beat earnings targets missed by GAAP earnings, they might intentionally reduce the consistency of non-GAAP earnings, which might create difficulties for investors in uncovering the strategic use of non-GAAP disclosures. In addition, the existing guidelines on non-GAAP reporting allow managers a great level of discretion in deciding the inclusions of, and the exclusions from, non-GAAP earnings (SEC, 2003). To clear strategic earnings benchmarks, managers might cognitively select non-GAAP exclusions that are most efficient in leading to more favorable non-GAAP performance. This discretionary selection of non-GAAP exclusions unexpectedly results in less consistent non-GAAP exclusions, and, in turn, less consistent non-GAAP earnings. In sum, managers would reduce the consistency of non-GAAP earnings disclosures to hide their opportunism or achieve strategic benchmarks.

Given the tenable arguments on both sides, I posit that the use of non-GAAP earnings to meet important earnings benchmarks does not affect the extent to which managers violate the consistency of non-GAAP earnings disclosures. Therefore, I frame my first and second null hypotheses:

H1: The consistency of non-GAAP earnings is not associated with the management's use of these earnings to meet or beat analysts' earnings expectations that would otherwise be missed by GAAP earnings.

H2: The consistency of non-GAAP earnings is not associated with the management's propensity to convert a GAAP loss into a non-GAAP profit.

Moreover, managers opportunistically alter investors' perceptions about firms' operating performance with more favorable non-GAAP earnings through excluding recurring items that are far from non-recurring and are relevant to future operations (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017; Doyle et al., 2013). Since recurring item exclusions are considered the most misleading (Bhattacharya et al., 2003; Doyle et al., 2003), the SEC (2003) provided guidelines on prohibiting such exclusions. Later, the SEC (2018) relaxed its position, from defining a recurring exclusion on the basis of its nature, to classifying a recurring item based on its description. As a result, it appears that the use of recurring item exclusions has become more common in non-GAAP disclosures (Black & Christensen, 2009; Black et al., 2018). Although managers argue that recurring item exclusions are "non-operating" or "non-cash" in nature, the occurrence of these items is factually high. If managers intend to use consistency in non-GAAP reporting to bias investors' impression of non-GAAP earnings disclosures, this inherently high occurrence of recurring items somewhat satisfies managers' needs to provide consistent non-GAAP earnings. Thus, the consistency of non-GAAP earnings is possibly higher when managers exclude an increasing number of recurring items in arriving at non-GAAP earnings metrics.

By contrast, recurring item exclusions are predictive of future operations (Black & Christensen, 2009; Doyle et al., 2003; Kolev et al., 2008). The market discounts non-GAAP disclosures in the presence of recurring item exclusions (Black et al., 2012). If opportunistic managers appreciate the market's lower response to recurring item exclusions, they might intend to exclude no or fewer recurring items to gain economic benefits. Therefore, managers would selectively exclude recurring items that are most efficient in assisting them to achieve reporting incentives. Their intentional selection of recurring item exclusions possibly lowers the consistency of non-GAAP earnings, and the violation of non-GAAP earnings consistency decreases with the increasing use of recurring item exclusions.

Since the relationship between the consistency of non-GAAP earnings and the use of recurring items could be either positive or negative, my third hypothesis predicts that the consistency of non-GAAP earnings does not vary according to management's use of recurring items. Thus, I state my third hypothesis as well in the null form:

H3: The consistency of non-GAAP earnings is not associated with the extent to which managers exclude recurring items from non-GAAP earnings.

5.4 Measurement of main variables

5.4.1 Consistency of non-GAAP earnings

I measure non-GAAP earnings consistency based on the consistency of the management's exclusion of actual non-GAAP items. The Conceptual Framework for Financial Reporting defines consistency as the use of the same methods for the same items either across periods within a reporting firm or across firms in the same period (FASB, 2010). In line with this definition of consistency, first, I measure the usage consistency of non-GAAP items (CONSISTENCY_$U_{i,q}$) in defining non-GAAP earnings across the same quarter(s) for consecutive years. On the basis of descriptions of individual non-GAAP exclusion items, a time-series consistent non-GAAP exclusion in my study refers to a non-GAAP adjustment in quarter q that is also excluded in the same quarter of the prior year, quarter q-4. By excluding adjustments for income tax on non-GAAP exclusions, I measure the consistency of all the above-the-line non-GAAP adjustments, including uncommon adjustments that reflect the management's intentional non-GAAP exclusions on an item-to-item basis.[31] Then, CONSISTENCY_$U_{i,q}$ is calculated as the number of consistent non-GAAP exclusion items for firm i in quarter q, divided by the total number of non-GAAP exclusion items for the same firm-quarter.

[31] Income tax adjustments on non-GAAP exclusions are adjustments for aggregate tax effects of recurring, non-recurring, and uncommon non-GAAP adjustments. Thus, these adjustments do not reflect the management's discretional use of non-GAAP exclusions.

Moreover, the magnitude of financial disclosures significantly influences investors' decision-making (FASB, 2010), and the consistency measurement capturing magnitude of earnings components is more useful in detecting earnings management (Ibrahim, 2009). In turn, my second measure is the magnitude consistency of non-GAAP exclusions (CONSISTENCY_$M_{i,q}$) across the same quarter(s) for consecutive years. Specifically, CONSISTENCY_$M_{i,q}$ is calculated as the sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1.[32] Table 5-1 shows an example of the above two measures of non-GAAP earnings consistency. A greater CONSISTENCY_$U_{i,q}$ or CONSISTENCY_$M_{i,q}$ indicates more consistent non-GAAP earnings.

In addition, I calculate the consistency of different non-GAAP exclusion categories, as indicated by Table 5-1. Consistent with prior studies (Black & Christensen, 2009; Black et al., 2018; Christensen et al., 2014), I categorize exclusions of non-GAAP items into pre-determined recurring, non-recurring, and uncommon exclusion groups. However, the categorization of non-GAAP exclusions in my study differs from that of prior studies. For the non-recurring exclusion category, my study has one more common adjusted item, capital financing charges (CAPFIN), which is frequent and significant enough to form a separate group. With regard to the uncommon exclusion category, my study separates implicit "other" adjustments (OTHER) from the remaining infrequent adjustments (INFRQT).[33] The reason is that managers at least clearly describe what INFRQT exclusions relate to, whereas they possibly hide "dirty" adjustments in OTHER exclusions that are unclear to investors. Moreover, I find that exclusions in the OTHER category are important in terms of usage frequency and magnitude. Hence, my study groups OTHER exclusions as a separate category to provide more information about the management's discretionary use of non-GAAP exclusions.

[32] I multiply the sum of absolute change in firm *i*'s individual consistent non-GAAP exclusions by minus 1 to make greater values indicating more consistent non-GAAP earnings.
[33] OTHER exclusions refer to non-GAAP adjustments that managers directly describe as "other," "unusual items," "special items," or "other non-operating items" in the reconciliation tables.

Therefore, my study provides more precise and useful measures of consistency in defining non-GAAP earnings. First, the calculation of my consistency measures is based on all the above-the-line non-GAAP adjustments that are intentionally adjusted by managers, where prior research precludes inherently less consistent uncommon exclusions, which potentially leads to lower calculated inconsistency. Second, in addition to the consistency of use of non-GAAP exclusion items that is indicated by prior research, my study also considers the consistency of non-GAAP exclusion items with regard to magnitude, which is more important for detecting earnings management. Third, the consistency measures of non-GAAP exclusion items on a firm-quarter basis better meet investors' information demand, whereas prior research provides evidence on non-GAAP earnings consistency based on yearly non-GAAP disclosures. Overall, the adoption of the usage and magnitude consistencies in defining quarterly non-GAAP earnings would be more efficient for examining management's motives.

Nonetheless, one limitation of my categorization of non-GAAP exclusions is worth noting. Firms occasionally report a single line adjustment that contains several items of different categories. In that case, I mainly group such adjustments into a category to which the first-mentioned item of this single line adjustment belongs. Although it may lead to classification errors to some extent, my classification provides a reasonable picture of the composition of non-GAAP exclusions.

5.4.2 Managerial opportunism of non-GAAP earnings disclosures

I measure the management's opportunism in disclosing non-GAAP earnings through the indicators of opportunistic non-GAAP disclosures used in prior studies (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017; Doyle et al., 2013; Isidro & Marques, 2015). The first measure is the use of non-GAAP earnings to meet or beat the analysts' earnings expectations that would otherwise be missed on a GAAP basis (MBF). Non-GAAP earnings is the non-GAAP diluted earnings per share number (EPS_{NG}) disclosed by managers in the earnings releases. GAAP financial performance

is measured by operating earnings per diluted share (EPS_{GAAP_OP}) that is defined by Compustat. EPS_{GAAP_OP} is calculated by excluding all special items and below-the-line items from the net income per diluted share. The analysts' earnings expectation is proxied by the consensus analyst forecast (CONSENSUS) obtained from the I/B/E/S database. Analysts generally use two types of earnings measures, which are forecasts of earnings under GAAP and adjusted earnings to reflect core performance (called "street earnings"). To be consistent with prior literature, this study uses the former one. MBF is an indicator variable that is coded one if EPS_{NG} equals or exceeds CONSENSUS while EPS_{GAAP_OP} is less than CONSENSUS, and zero otherwise.

The second measure is that of the use of non-GAAP exclusions to convert a GAAP loss into a non-GAAP profit (CNV). Consistent with the measure of MBF, the non-GAAP profit and GAAP loss are measured by EPS_{NG} and EPS_{GAAP_OP}, respectively. Thus, CNV is an indicator variable that is equal to one if EPS_{NG} reports a profit while EPS_{GAAP_OP} reports a loss, and zero otherwise.

The third measure is the extent to which managers exclude recurring items from non-GAAP earnings (RECUR). My study summarizes seven recurring items that are commonly excluded from non-GAAP earnings: depreciation and amortization (D&A), stock-based compensation (SBC), interest (INTEXP), research and development (R&D), investment gain or loss (INVEST), pension expenses (PENSION), and foreign currency exchange (FCEX). RECUR is equal to the number of recurring items excluded by managers scaled by seven, ranging between 0 and 1. A higher RECUR reflects managers' greater opportunism in non-GAAP earnings disclosures.

5.5 Empirical models

The following model is estimated using ordinary least squares (OLS) regression to test the hypotheses:

$$CONSISTENCY_{i,q} = \beta_0 + \beta_1 OPPORTUNISM_{i,q} + \beta_2 EXCL_{i,q} + \beta_3 \ln(MV)_{i,q}$$

$$+ \beta_4 LEV_{i,q} + \beta_5 BTM_{i,q} + \beta_6 \Delta SALES_{i,q} + \beta_7 ln(N\_ANLST)_{i,q}$$

$$+ \beta_8 \%INST_{i,q} + \beta_9 ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (1)$$

where:

$CONSISTENCY_{i,q}$:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$OPPORTUNISM_{i,q}$:
$MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise
$CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise
$RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items)
$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
$ln(AGE)_{i,q}$ = logarithm of years from firm i's incorporation until quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

To test Hypotheses 1 to 3, the primary interest is on whether the coefficient on $OPPORTUNISM_{i,q}$ is statistically significant. I control the estimation of the regression for the magnitude of overall non-GAAP exclusions ($EXCL_{i,q}$). The large magnitude of non-GAAP exclusions has been suggested as an indicator of low-quality non-GAAP reporting (Doyle et al., 2003; Frankel et al., 2011; Seetharaman et al., 2014), because non-GAAP exclusions possess forecasting relevance of future operations and a larger magnitude of non-GAAP exclusions results in less forecasting preciseness of non-GAAP earnings. As when hiding the aggressive use of non-GAAP earnings, managers might mask the indication of large non-GAAP exclusions as low-quality non-GAAP disclosures by intentionally enhancing or reducing the consistency of non-GAAP exclusions. Therefore, the consistency of non-GAAP exclusions is expected to be significantly associated with the magnitude of these exclusions. $EXCL_{i,q}$ equals the value of non-GAAP earnings per

diluted share (EPS_{NG}) minus GAAP earnings before extraordinary items and discontinued operations per diluted share (EPS_{GAAP_BXT}), consistent with the prior literature (Black & Christensen, 2009; Black et al., 2018; Kolev et al., 2008). Positive $EXCL_{i,q}$ indicates income-increasing, or expense-related, non-GAAP exclusions.

Dechow, Ge, and Schrand (2010) suggest that studies using accounting choices and estimates as an indication of earnings quality must control for fundamental differences in firm characteristics before inferring opportunism. Since my study examines the drivers of non-GAAP earnings consistency by focusing on the aggressive use of non-GAAP earnings, I control for a group of firm characteristic variables in the model. Firm size is positively associated with earnings quality (Dechow & Dichev, 2002), because larger firms are under more stringent scrutiny (Ashbaugh-Skaife, Collins, Kinney, & LaFond, 2008). Zhang and Zheng (2011) find that managers in larger firms tend to better inform investors by providing higher-quality non-GAAP reconciliations. Thus, I expect a negative relationship between firm size and management's manipulation of non-GAAP earnings consistency. Firm size is measured by the logarithm of firm i's market value of equity in quarter q, $\ln(MV)_{i,q}$.

Managers in highly leveraged firms are more inclined to engage in earnings management to reduce creditors' perceived risk (DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002). In turn, the earnings disclosed by these firm managers are more likely to be lower in quality and less informative (Dechow et al., 2010). I control for the pressure imposed by the firm's leverage ($LEV_{i,q}$) on the manipulation of non-GAAP earnings consistency in the model. When managers intentionally enhance or reduce the consistency of non-GAAP exclusions, higher $LEV_{i,q}$ is expected to strengthen their manipulation. $LEV_{i,q}$ is firm i's total debts divided by total equity, both at the end of quarter q.

High-growth firms are more likely to manipulate earnings (Doyle, Weili, & McVay, 2007; Penman & Zhang, 2002). Heflin and Hsu (2008) and Doyle et al. (2013) suggest that these firms are more inclined to perform strategical disclosures of non-GAAP

earnings. I control for firm growth in the model and expect managers in high-growth firms have stronger incentives to distort the consistency of non-GAAP earnings. Firm growth is measured by book-to-market value ($BTM_{i,q}$), which is equal to the book value of the common equity of firm i in quarter q divided by firm i's market value in the same firm-quarter, and by sales growth ($\Delta SALES_{i,q}$), which is equal to changes in the sales of firm i in quarter q from quarter q-4, divided by the absolute value of quarter q-4 sales.

Analysts and institutional shareholders function as external monitors to managers and their presence results in more transparent financial reporting (Bushee, 1998; Healy & Palepu, 2001; Velury & Jenkins, 2006; Yu, 2008). In the context of non-GAAP reporting, sophisticated users, such as analysts and institutional shareholders, positively influence managers' decisions to report non-GAAP measures (Bowen et al., 2005; Jennings & Marques, 2011). I include analyst coverage and institutional ownership as the proxy for the presence of sophisticated users. Analyst coverage is the logarithm of the number of analysts following firm i in quarter q, $\ln(N\_ANLST)_{i,q}$. Institutional ownership ($\%INST_{i,q}$) is measured by the ratio of the number of shares of firm i held by institutional investors to the total number of shares outstanding for the same firm-quarter. Both are expected to restrict the management's manipulation of non-GAAP earnings consistency.

Since I examine the consistency of non-GAAP earnings over time, consistent with Kolev et al. (2008), I include the age of the firm in the model to control for any effects of a firm's maturation process on non-GAAP earnings disclosures. Firm age is the logarithm of years from firm i's incorporation until quarter q, $\ln(AGE)_{i,q}$. Lastly, to mitigate the industrial and seasonal influences on the results, I include an industry dummy (INDUSTRY) and a fiscal quarter dummy (QTR) in the model.

5.6 Data and sample

5.6.1 Sample selection procedures

The sample consists of quarterly earnings releases of S&P 500 firms for fiscal quarters ending between January 1, 2010 and December 31, 2016. I begin the sample

selection process by including all S&P 500 index firms for the following reasons. First, non-GAAP disclosures in the United States provide an ideal setting to examine non-GAAP earnings adjustments, since the SEC (2003). requires firms to disclose a reconciliation of non-GAAP metrics to the most directly comparable GAAP metrics when providing non-GAAP reporting. Second, I use data on S&P 500 index firms because these firms are economically important in terms of size.[34] Lastly, the S&P 500 firms have well-established investor relationship departments that routinely convey earnings releases and interact with investors and analysts (Rao & Sivakumar, 1999; Richard, 2004). This approach leads to a potentially large number of earnings releases because I use firm-quarter observations, and it enables data collection on analyst coverage and forecast. Since the constituents of S&P 500 index change over time and my research design requires time-series data, I use a constant sample of S&P 500 index firms as of December 31, 2016.

The study's full sample consists of 379 firms, as outlined in Panel A of Table 5-2. The sample excludes real estate (Global industry classification standards [GICS] 60), financial (GICS 40), and utility (GICS 50) firms. Thus, 29 real estate firms are excluded because they commonly disclose "adjusted funds from operation," rather than adjusted earnings, as non-GAAP metrics (Baik, Billings, & Morton, 2008; Vincent, 1999). Further, 63 financial firms and 28 utility firms are removed to control for potential comparability issues, because these firms are subject to more stringent regulations than firms in the other sectors (Epping & Wilder, 2011; Johnson & Schwartz, 2005; Marques, 2006) and need to disclose non-GAAP metrics for regulatory purposes, which may confound my consistency measures.[35] One energy firm, Spectra Energy Corp (2017), is excluded, because it was delisted in February 2017 and its historical data were not valid. As a result,

[34] The S&P 500 is widely known as the best single gauge of large-cap US equities and covers approximately 80% of the US market capitalization. The information is available from the following link: https://ca.spindices.com/indices/equity/sp-500.

[35] For example, as indicated in Johnson and Schwartz (2005), financial firms routinely disclose "cash earnings" numbers because of regulatory requirements.

379 firms across eight sectors are retained, and this leads to a potential sample of 10,612 firm-quarter observations over seven years from 2010 to 2016.

I identify consistent non-GAAP disclosers through reviewing sample firms' quarterly earnings releases that I manually collected from Bloomberg Database or these firms' official websites. Because some sample firms were founded or listed during the sample period, rather than existing from the beginning of the sample period, 229 firm-quarter observations related to these firms are not applicable. A further 466 firm-quarter observations are lost because the quarterly press releases for these are not available from Bloomberg Database or the firms' official websites. Three firm-quarter observations are lost because the firms stated in their final non-GAAP earnings releases that they would no longer report non-GAAP measures in their earnings releases and SEC reports (AutoNation Inc., 2016; Electronic Arts Inc., 2016). [36] Thus, 9,914 firm-quarter observations across 373 unique firms are available for identifying non-GAAP earnings reporters.

To conduct consistency measurements, I need to hand-collect data on non-GAAP adjustments from the reconciliation tables. This leads to a loss of 3,644 firm-quarter observations without non-GAAP earnings disclosures or reconciled non-GAAP earnings. Since my study focuses on non-GAAP earnings adjusted from the bottom-line GAAP net income or earnings per share, I exclude 29 firm-quarter observations that only have non-GAAP metrics adjusted from operating profits. Another 465 firm-quarter observations with EBIT(DA) and/or non-GAAP EBIT(DA) as the mere non-GAAP earnings are eliminated, because such metrics have been becoming standardized since their emergence in the mid-to-late 1990s and their adjustments are highly consistent. Since the measurement of consistency relates to at least two items (FASB, 2010), 189

[36] AutoNation Inc. (2016) issued its final non-GAAP earnings release for the fiscal quarter ended September 30, 2016. This reduces one firm-quarter observation for the fiscal quarter ended December 30, 2016. In the same year, Electronic Arts Inc. (2016) issued its final non-GAAP earnings release for the fiscal quarter ended June 30, 2016. This reduces two firm-quarter observations for the fiscal quarters ended September 30, 2016 and December 31, 2016.

firm-quarter observations without year-ago quarter non-GAAP earnings disclosures as benchmarks are excluded. Out of 5,587 firm-quarter observations, 90.0% (5,026 firm-quarter observations) consistently disclose quarterly reconciled non-GAAP earnings for the same quarter(s) over consecutive years. Compared with the evidence in Bhattacharya et al.'s (2004) study that 53% of sample firms report non-GAAP quarterly earnings only once during 12 quarters in the 1998–2000 period, the sample firms in my study, on average, have become more likely to consistently provide non-GAAP earnings.

Next, I locate each firm in the Compustat, I/B/E/S, and Thomson Reuters Eikon databases, from which I gather financial statement information, analyst coverage, analyst earnings forecasts, institutional ownership, and firm age. To conduct the empirical tests, I require firm-quarter observations to have data available for the regression of model (1). This leads to a final sample of 4,337 firm-quarter observations across 241 unique firms.

5.6.2 Descriptive statistics

5.6.2.1 Sample distribution

The number of firm-quarter observations that consistently provide non-GAAP reporting has been increasing over time. As shown in Panel B of Table 5-2, the number of consistent non-GAAP reporters nearly doubled from 442 in 2010 to 788 in 2016 during the sample period. However, the sample distribution does not substantially vary among fiscal quarters (see Panel C of Table 5-2). With regard to sectors, the Health Care sector accounts for the highest proportion of observations in the final sample, slightly above one quarter, as indicated in Panel D of Table 5-2. The next highest is the Information Technology sector, at 22.6%. Only 43 observations are from the Telecommunication Services sector, which might be because of the low proportion of these firms in the S&P 500 index.[37]

[37] Only five Telecommunication Services firms were included in the S&P 500 index as of December 31, 2016. The potential number of observations in this sector is 140 for 140 firm-quarters (5*4 quarters*7 years).

Because the consistency of non-GAAP exclusions is measured based on both usage and magnitude, I divide the full sample into two sub-samples: one has at least one consistent non-GAAP exclusion item (CONSISTENCY_$U_{i,q}$ > 0, N = 3803), which enables the calculation of magnitude consistency of non-GAAP exclusions (CONSISTENCY_$M_{i,q}$), and the other does not have any consistent non-GAAP exclusions (CONSISTENCY_$U_{i,q}$ = 0, N = 534). Figure 5-1 reveals the relative proportion of the two sub-samples by sector. As indicated in Figure 5-1, the Information Technology sector has the highest percentage of observations (94.7%) with CONSISTENCY_$U_{i,q}$ > 0, followed by the Health Care and the Energy sectors in that order. Meanwhile, firms in the Telecommunication Services sector are least likely to make consistent non-GAAP exclusions, with 27.9% of observations not making any same non-GAAP exclusions when they consecutively provide non-GAAP disclosures over time.

5.6.2.2 Degree of consistency

Table 5-3 presents descriptive statistics of consistency in non-GAAP earnings reporting for the full sample and the two sub-samples. All the variables are defined in Appendix 1. Panel A of Table 5-3 reports the consistency of overall and individual non-GAAP exclusion items. On average, 66.9% of non-GAAP exclusion items are consistently used across the same quarter(s) for consecutive periods (CONSISTENCY_$U_{i,q}$) in defining non-GAAP earnings. The consistency of the use of different types of non-GAAP exclusion items ranges between 25.0% and 96.4%. Stock-based compensation (SBC) is the item most consistently excluded from non-GAAP earnings, with an average of 96.4% of SBC excluded for the same quarter(s) over the consecutive years.[38] The usage consistency of depreciation and amortization (D&A) exclusions, which is the most frequently excluded recurring item during the sample

[38] The mandatory requirement of including stock-based compensation expenses in GAAP-based numbers by SFAS 123R brings about the increasing exclusions of stock-based compensation from non-GAAP earnings (Barth et al., 2012). This fact may contribute somewhat to the high usage consistency of stock-based compensation exclusions.

period, immediately follows that of SBC.[39] On average, 89.3% of D&A are consistently excluded over time. While restructuring-related exclusion (RESTRUCT) is the most frequent non-recurring exclusion, the usage consistency of RESTRUCT (68.3%) is marginally higher than the average usage consistency of all non-GAAP exclusions. Stock trading related charges (STOCKTRD) is the most consistently excluded non-recurring exclusion, with an average usage consistency of 71.2%.

Moreover, the average magnitude consistency of overall consistent non-GAAP exclusions is US$1.088 on a per share basis. While SBC is the most consistently used recurring exclusion, it has the smallest absolute change in magnitude (3.7 cents per share) across the same quarter(s) over the consecutive years among recurring item exclusions. Hence, SBC is the most consistent recurring item exclusion. In the non-recurring category, STOCKTRD is the most consistent exclusion item, with the smallest magnitude consistency (2.9 cents per share) and the greatest usage consistency. RESTRUCT is the least consistent non-recurring item exclusion with regard to magnitude, at an average of US$1.565 per share absolute change in value over time.

5.6.2.3 Characteristics of the sample

Panel B of Table 5-3 reports the actual and expected financial performance, the opportunism of non-GAAP disclosures, and the firm characteristics of the sample. For the full sample, the management's non-GAAP earnings per share (EPS_{NG}) is significantly greater ($t = 14.988$, $p < 0.01$) than GAAP net earnings per share (EPS_{GAAP}). Specifically, the average managers increase EPS_{GAAP} by an average of 26.6 cents per share, or 39.8%, to arrive at a greater EPS_{NG}. For the two sub-samples, this trend is constant, as evidenced by the greater EPS_{NG} than EPS_{GAAP}.

In addition, the above-the-line non-GAAP exclusion items (EXCL) are income-increasing or expense-related. On average, EXCL increases GAAP earnings before

[39] In the untabulated analyses, I find that the majority of D&A exclusions relate to the amortization of purchased intangible assets.

extraordinary items and discontinued operations (EPS_{GAAP_BXT}) by 28.8 cents per share. This income-increasing effect of EXCL on EPS_{GAAP_BXT} is significantly more prominent ($t = 3.51$, $p < 0.01$) in the sub-sample with $CONSISTENCY\_U_{i,q} > 0$ than in the sub-sample with $CONSISTENCY\_U_{i,q} = 0$.

Compared with their counterparts that inconsistently use all the non-GAAP exclusion items, the sub-sample with at least one consistent exclusion item has significantly poorer financial performance under GAAP (EPS_{GAAP_OP}, EPS_{GAAP_BXT}, and EPS_{GAAP}). Nevertheless, it appears that the latter sub-sample reports more favorable non-GAAP results (EPS_{NG}) than the former sub-sample. Additionally, EPS_{NG} is statistically significantly higher than all three GAAP earnings metrics (EPS_{GAAP_OP}, EPS_{GAAP_BXT}, and EPS_{GAAP}) for the full sample and the two sub-samples. This is somewhat consistent with the notion that managers might use more favorable non-GAAP disclosures to bias investors' perception of firm performance.

Moreover, EPS_{NG} constantly meets or beats the consensus analyst forecasts (CONSENSUS) within the full sample and the two sub-samples, whereas GAAP earnings from operations (EPS_{GAAP_OP}) exceeds CONSENSUS only within the sub-sample that has no consistent non-GAAP exclusions. This may to some extent lead to a higher frequency of management's use of non-GAAP earnings to achieve the mean of analysts' earnings expectation (MBF) in the sub-sample with a consistent non-GAAP exclusion item (0.417), compared with the sub-sample with no consistent non-GAAP exclusions (0.079).

While nearly 37.5% of the full sample use non-GAAP earnings to meet or beat the consensus analyst forecast that would have been missed by GAAP operating earnings (MBF), only 4.3% of overall observations convert their GAAP operating losses into non-GAAP profits (CNV). However, the possibility of turning a GAAP loss into a non-GAAP profit within observations that make GAAP operating losses is much higher. In untabulated analyses, I find that 57.1% of GAAP operating loss-making observations disclose non-GAAP profits that impress the market with more favorable operating

performance. Additionally, the observations within the full sample, on average, exclude at least one type of recurring items (mean of RECUR multiplied by seven types of recurring item exclusions) from non-GAAP earnings. Consistent with MBF, the managerial opportunism (CNV or RECUR) of the sub-sample that consistently uses non-GAAP exclusion items for consecutive periods is significantly more prominent than that of the sub-sample with no consistent non-GAAP exclusions. Thus, the descriptive statistics suggest that the consistency of non-GAAP earnings is associated with the opportunism of non-GAAP earnings disclosures.

Compared with the sub-sample without any consistent non-GAAP exclusion items, observations with at least one consistent non-GAAP exclusion item are smaller in size (MV), lower in leverage (LEV), and slower in sales growth (ΔSALES), although the differences in these characteristics between the two sub-samples are not statistically significant. In addition, observations with consistent non-GAAP exclusions are for the firms that are significantly younger (AGE), slower in value growth (BTM), and under more stringent external governance (N_ANLST and %INST) than their counterpart firms in the observations without consistent non-GAAP exclusions. Overall, the observations that use non-GAAP exclusion items with different degrees of consistency in defining non-GAAP earnings differ in terms of earnings metrics, opportunistic use of non-GAAP disclosures, and firm characteristics.

5.6.2.4 Correlation of model variables

Table 5-4 reports the correlation between the main model variables. Consistent with prior studies (Black, Christensen, Joo, & Schmardebeck, 2017; Doyle et al., 2003), all the model variables relating to non-GAAP earnings or non-GAAP exclusions are scaled by total assets as of the quarter end. In the untabulated analyses, the raw magnitude consistency of consistent non-GAAP exclusions significantly varies between the observations in the final sample with consistent non-GAAP exclusions

(CONSISTENCY_$U_{i,q}$ > 0, N = 3803).[40] Therefore, I rank the magnitude consistency of non-GAAP exclusions into 100 percentiles to mitigate the influence of outliers.

The primary independent variables of interest in my study are opportunistic non-GAAP earnings disclosures ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). The use of non-GAAP earnings to meet or beat analyst forecasts that would be missed on a GAAP basis, $MBF_{i,q}$, is positively and significantly related to the conversions of GAAP losses into non-GAAP profits, $CNV_{i,q}$ (the Pearson correlation coefficient (ρ) = 0.123, at the 0.01 level). In addition, the degree of recurring item exclusions ($RECUR_{i,q}$) appears more positively correlated with $MBF_{i,q}$ (ρ = 0.365, at the 0.01 level) than with $CNV_{i,q}$ (ρ = 0.087, at the 0.01 level). Therefore, managers might opportunistically use non-GAAP disclosures through all these means at the same time. In addition, $EXCL_{i,q}$ has a positive and significant association with $MBF_{i,q}$ (ρ = 0.153, at the 0.01 level), $CNV_{i,q}$ (ρ = 0.361, at the 0.01 level), and $RECUR_{i,q}$ (ρ = 0.121, at the 0.01 level). In other words, opportunistic managers are more likely to exclude large magnitude above-the-line non-GAAP exclusions.

The independent variables are also examined for multicollinearity. The largest correlation among independent variables is −0.477 for the association between firm size ($ln(MV)_{i,q}$) and the proportion of institutional investors ($\%INST_{i,q}$), suggesting that multicollinearity is not problematic in the regression model. The variance inflation factors (VIFs) of the independent variables, which are all less than 2, confirm this finding.

5.7 Results

5.7.1 Opportunistic motivation behind the consistency of non-GAAP earnings

Table 5-5 reports the regression results of model (1). The regressions allow errors to cluster by firms to account for any residual dependence created by firm effects. Columns (1) to (3) of Table 5-5 present the results on the association between the

[40] The original value of the magnitude consistency of non-GAAP exclusions ranges from −24.88 to 0 with standard deviation of 0.42, skewness of −54.74, and kurtosis of 3166.83.

consistency of use of non-GAAP earnings (CONSISTENCY_$U_{i,q}$) and each measure of opportunistic non-GAAP earnings disclosures ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). The increasing consistency of the use of non-GAAP exclusion items in defining non-GAAP earnings is positively driven by the managerial opportunism of non-GAAP earnings disclosures, as the coefficients on each indicator of opportunistic non-GAAP earnings disclosures are positive (0.110 for $MBF_{i,q}$, 0.083 for $CNV_{i,q}$, and 0.517 for $RECUR_{i,q}$) and significant at the 0.01 level.[41] As a result, managers intend to use consistency in non-GAAP reporting to manipulate investors' perception of firm performance portrayed by more favorable non-GAAP earnings. Moreover, managers possibly intend to offset the apparent opportunism of non-GAAP disclosures with seemingly consistent non-GAAP earnings, since the corporate reporting environment conveys a good impression regarding reporting consistency to the market. These results are consistent with the assertion that firms that systematically make the same adjustments over time actually have lower-quality non-GAAP exclusions (Black Christensen, Ciesielski, & Whipple, 2017), because the consistent use of non-GAAP exclusion items is motivated by opportunistic reporting incentives. Therefore, H1 to H3 are supported by the significantly positive association between the consistency of the use of non-GAAP exclusion items and opportunistic non-GAAP disclosures.

Since $MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$ are positively and significantly related to each other (as shown by Table 5-4), managers might simultaneously have two or more opportunistic incentives when providing non-GAAP earnings disclosures. To test the robustness of the results reported in columns (1) to (3), I also run model (1) with three indicators of the opportunistic use of non-GAAP earnings disclosures at the same time. Column (4) of Table 5-5 reports the test results. The coefficients on all three indicators

[41] To test the robustness of my results to alternative consistency measures, I also run model (1) using binary consistency variables—more and less consistent non-GAAP disclosures. The indicator variable for the usage (magnitude) consistency of non-GAAP earnings is equal to one if the usage (magnitude) consistency of non-GAAP exclusions for firm i in quarter q is equal to or greater than its median, and zero otherwise. The results are consistent with those obtained using non-GAAP earnings consistency that is measured in different degrees.

are positive (0.078 for $MBF_{i,q}$, 0.053 for $CNV_{i,q}$, and 0.439 for $RECUR_{i,q}$) and significant, which is generally consistent with the regression results on each indicator separately. Therefore, this result shows that opportunistic managers have strong incentives to enhance the consistency of non-GAAP earnings, regardless of the extent of their opportunism regarding non-GAAP disclosures, which supports H1 to H3.

In addition to the usage consistency of non-GAAP exclusions in defining non-GAAP earnings, I examine how the magnitude consistency of non-GAAP earnings ($CONSISTENCY\_M_{i,q}$) is affected by the managerial opportunism of non-GAAP earnings disclosures. Columns (5) to (7) of Table 5-5 report the results on the association between $CONSISTENCY\_M_{i,q}$ and each indicator of opportunistic non-GAAP earnings disclosures ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). In contrast to the positive association between $CONSISTENCY\_U_{i,q}$ and opportunistic non-GAAP disclosures, $CONSISTENCY\_M_{i,q}$ is significantly (at the 0.01 level) and negatively driven by $MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$, as the coefficients on each of them are -0.061, -0.167, and -0.398. That means the higher the probability of the use of non-GAAP earnings opportunistically by managers, the greater the variation of the change in magnitude of excluded non-GAAP items across the same quarter(s) for consecutive years. On running $CONSISTENCY\_M_{i,q}$ with three indicators of opportunistic use of non-GAAP earnings disclosures, the results, as reported in column (8) of Table 5-5, are consistent with the regression results on each indicator separately. In other words, opportunistic managers are less inclined to provide non-GAAP earnings with consistent values, regardless of the extent of their opportunism related to non-GAAP disclosures. Therefore, these results generally support H1 to H3 that managerial opportunism drives the consistency of non-GAAP earnings, even though the opportunism of non-GAAP earnings disclosures negatively drives the magnitude consistency of non-GAAP earnings.

Apart from the opportunism of non-GAAP disclosures, the magnitude of above-the-line non-GAAP exclusions ($EXCL_{i,q}$) affects the consistency of non-GAAP earnings. Regarding the consistency of use of non-GAAP exclusion items, the coefficient of $EXCL_{i,q}$

is negative (-0.573) and significant for the regression on $MBF_{i,q}$ separately, as indicated by column (1) of Table 5-5. It also negatively (coefficient = -0.751) and significantly ($p<0.05$) drives the usage consistency of non-GAAP exclusions items when regressing three indicators of opportunistic non-GAAP earnings disclosures together. With regard to the magnitude consistency of non-GAAP exclusion items, the coefficients of $EXCL_{i,q}$ across all the regressions on each indicator of opportunistic non-GAAP earnings disclosures separately are negative (-2.235 for $MBF_{i,q}$, -1.939 for $CNV_{i,q}$, and -2.450 for $RECUR_{i,q}$) and significant (at the 0.01 level). When regressing three indicators of opportunistic non-GAAP earnings disclosures together, the coefficient of $EXCL_{i,q}$ is still negative (-1.741) and significant ($p<0.01$). In sum, the larger magnitude of income-increasing non-GAAP exclusions leads to less consistent non-GAAP earnings.

Moreover, firm characteristics, such as the firm size ($ln((MV)_{i,q}$), level of leverage ($LEV_{i,q}$), book-to-market value ($BTM_{i,q}$), and firm age ($ln(AGE)_{i,q}$), are not significantly associated with the consistency in defining non-GAAP earnings. While the magnitude consistency of non-GAAP exclusion items is significantly and negatively associated with the sales growth ($\Delta SALES_{i,q}$), $\Delta SALES_{i,q}$ has no significant effects on the management's consistent use of non-GAAP exclusion items. Specifically, the coefficients of $\Delta SALES_{i,q}$ are -0.130, -0.135, -0.123, and -0.121 when regressing the magnitude consistency of non-GAAP exclusion items on $MBF_{i,q}$, $CNV_{i,q}$, $RECUR_{i,q}$, and three of them together. Additionally, the external governance on firms, proxied by analyst coverage ($ln(N\_ANLST)_{i,q}$) and institutional ownership ($\%INST_{i,q}$), does not affect the management's consistent use of non-GAAP exclusion items or variation of values of non-GAAP exclusion items. However, the untabulated analyses show that managers are more inclined to reduce the usage consistency and magnitude consistency of non-GAAP exclusion items in the fourth fiscal quarter.

Overall, the consistency of non-GAAP earnings is associated with the managerial opportunism of non-GAAP disclosures. Firm managers that opportunistically use non-GAAP earnings to achieve important earnings benchmarks or define non-GAAP

earnings by excluding an increasing number of recurring items are more inclined to systematically enhance the consistency of use of non-GAAP exclusion items, which makes non-GAAP earnings seemingly consistent; however, the variation of change in the magnitude of excluded non-GAAP items increases with the probability of opportunistic non-GAAP disclosures. While the consistency in defining non-GAAP earnings decreases as the gap between non-GAAP earnings and GAAP earnings increases, the consistency of non-GAAP earnings is even lower in the fourth fiscal quarter.

5.7.2 Additional analyses

5.7.2.1 Influence of non-GAAP reporting frequency

Tang and Venkataraman (2018) find that the consistent provision of voluntary disclosures improves investors' confidence and enhances the likelihood that they will invest, because investors consider consistent information to indicate lesser managerial opportunism, but the consistency matters only when the provision frequency is low. With regard to non-GAAP disclosures, Black and Christensen (2009) suggest that firms reporting non-GAAP numbers only sporadically are more likely than firms that disclose non-GAAP earnings on a regular basis to use non-GAAP reporting opportunistically. These studies indicate that the management's reporting incentives behind voluntary disclosures is associated to some extent with the frequency of providing such disclosures. To test the robustness of my results, I examine whether the opportunism-driven consistency of non-GAAP earnings is influenced by the frequency of non-GAAP reporting.

Consistent with Black and Christensen (2009), I classify firms as frequent non-GAAP reporters if they report non-GAAP earnings in equal to, or more than, the 90th percentile of the number of quarters (out of 28) in which the sample firms disclose such earnings. The remaining sample firms are grouped as infrequent non-GAAP reporters. I use the binary variable $FRQT_{i,q}$ to differentiate frequent and infrequent non-GAAP

reporters. Specifically, $FRQT_{i,q}$ is equal to one if firm i is a frequent non-GAAP reporter, and zero otherwise.

Model (2) is estimated to examine the influence of non-GAAP reporting frequency on the relationship between non-GAAP earnings consistency and the opportunism of non-GAAP disclosures:

$$\begin{aligned} CONSISTENCY_{i,q} = {} & \beta_0 + \beta_1 OPPORTUNISM_{i,q} + \beta_2 FRQT_{i,q} \\ & + \beta_3 OPPORTUNISM_{i,q} * FRQT_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} \\ & + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 \Delta SALES_{i,q} + \beta_9 ln(N\_ANLST)_{i,q} \\ & + \beta_{10} \%INST_{i,q} + \beta_{11} ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (2) \end{aligned}$$

where:

$CONSISTENCY_{i,q}$:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$OPPORTUNISM_{i,q}$:
$MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise
$CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise
$RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items)
$FRQT_{i,q}$ = one if firm i is a frequent non-GAAP reporter, and zero otherwise, where a frequent non-GAAP reporter is defined as a firm that reports non-GAAP earnings in equal to or more than 90^{th} percentile of the number of quarters that my sample firms disclose non-GAAP earnings in the quarterly press releases
$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
$ln(AGE)_{i,q}$ = logarithm of years from firm i's incorporation until quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

Table 5-6 reports the results of model (2). The frequency of non-GAAP reporting ($FRQT_{i,q}$) significantly moderates the positive effects of the opportunistic use of non-GAAP earnings to meet or beat the consensus analyst forecast that would be missed by

GAAP operating earnings ($MBF_{i,q}$) and the level of exclusions of recurring items ($RECUR_{i,q}$) on the consistent use of non-GAAP exclusion items ($CONSISTENCY\_U_{i,q}$), as indicated by columns (1) and (2). However, the association between $CONSISTENCY\_U_{i,q}$ and the conversion of a GAAP loss into a non-GAAP profit ($CNV_{i,q}$) is not substantially varied with $FRQT_{i,q}$, as shown by the insignificant coefficient on the interaction term between $CNV_{i,q}$ and $FRQT_{i,q}$ in column (3). The results in column (4), on using three indicators of opportunistic use of non-GAAP earnings disclosures together in model (2), are generally consistent with the results on each indicator separately.

With regard to the magnitude consistency of non-GAAP earnings, $FRQT_{i,q}$, only marginally matters for the association between $CONSISTENCY\_M_{i,q}$ and $RECUR_{i,q}$., as indicated by the coefficient on the interaction term between $RECUR_{i,q}$ and $FRQT_{i,q}$ in column (7). The intervening effect of $FRQT_{i,q}$ on the opportunism-driven magnitude consistency of non-GAAP exclusion items does not change when including three indicators of opportunistic use of non-GAAP earnings disclosures in the same model, as shown in column (8).

In sum, the consistent use of non-GAAP exclusion items is reduced by the frequency of non-GAAP reporting over time in the cases of the opportunistic use of non-GAAP earnings to achieve analysts' earnings expectation and the increasing use of recurring items in defining non-GAAP earnings, but this frequency only moderates the association between the magnitude consistency of non-GAAP exclusion items and the increasing propensity of excluding recurring items from non-GAAP earnings. For opportunistic managers that turn GAAP losses into non-GAAP profits, their intensity of violating the consistency in defining non-GAAP earnings is not affected by the extent to which they elect to provide non-GAAP disclosures. In other words, opportunistic managers that sporadically report non-GAAP earnings are more likely to manipulate the consistency in non-GAAP reporting. This is consistent with the finding of Black and Christensen (2009) that sporadic non-GAAP reporters are more likely to be motivated by opportunistic incentives when providing non-GAAP disclosures. Therefore, the results

strengthen the significance of managerial opportunism regarding the consistency of non-GAAP earrings.

5.7.2.2 Impact of individual recurring exclusions

Black and Christensen (2009) suggest that the most frequently used exclusions are recurring items, such as research and development (R&D), depreciation and amortization (D&A), and stock-based compensation (SBC), during their sample period. While D&A and SBC are still highly excluded by firms in my sample, R&D has become the least frequently excluded recurring items. In the most recent study on managers' actual non-GAAP adjustments, Black et al. (2018) do not incorporate R&D as a separate recurring exclusion yet. Thus, these findings all indicate that the use of recurring exclusions has changed over time.

Moreover, Black and Christensen (2009) find that some recurring item exclusions, such as D&A and R&D, are particularly related to the opportunism of non-GAAP disclosures. Consistent with this line of reasoning, I replace the level of use of recurring item exclusions ($RECUR_{i,q}$) with indicator variables for the exclusions of each recurring item to provide further evidence on the influence of opportunistic non-GAAP disclosures on non-GAAP earnings consistency.

Model (3) is estimated to examine how different recurring item exclusions affect the consistency of non-GAAP earnings:

$$\begin{aligned} CONSISTENCY_{i,q} = {} & \beta_0 + \beta_1 RECUR\_D\&A_{i,q} + \beta_2 RECUR\_SBC_{i,q} \\ & + \beta_3 RECUR\_INTEXP_{i,q} + \beta_4 RECUR\_R\&D_{i,q} \\ & + \beta_5 RECUR\_INVEST_{i,q} + \beta_6 RECUR\_PENSION_{i,q} \\ & + \beta_7 RECUR\_FCEX_{i,q} + \beta_8 EXCL_{i,q} \\ & + \beta_9 \ln(MV)_{i,q} + \beta_{10} LEV_{i,q} + \beta_{11} BTM_{i,q} + \beta_{12} \Delta SALES_{i,q} \\ & + \beta_{13} \ln(N\_ANLST)_{i,q} + \beta_{14} \%INST_{i,q} + \beta_{15} \ln(AGE)_{i,q} \\ & + INDUSTRY + QTR + \varepsilon_{i,q} \end{aligned} \quad (3)$$

where:

$CONSISTENCY_{i,q}$:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$RECUR\_D\&A_{i,q}$ = one if depreciation and amortization-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_SBC_{i,q}$ = one if stock-based compensation-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_INTEXP_{i,q}$ = one if interest expense-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_R\&D_{i,q}$ = one if research and development-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_INVEST_{i,q}$ = one if investment gain or loss-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_PENSION_{i,q}$ = one if pension-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_FCEX_{i,q}$ = one if foreign exchange-related items excluded by managers of firm i in quarter q, and zero otherwise
$EXCL_{i,q}$ = absolute value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
$ln(AGE)_{i,q}$ = logarithm of years from firm i's incorporation until quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

Table 5-7 reports the results of model (3). The exclusions of depreciation and amortization ($RECUR\_D\&A_{i,q}$), stock-based compensation ($RECUR\_SBC_{i,q}$), and investment gain or loss ($RECUR\_INVEST_{i,q}$) enhance the consistency of the use of non-GAAP exclusions in defining non-GAAP earnings ($CONSISTENCY\_U_{i,q}$), as indicated by the positive and significant coefficients on $RECUR\_D\&A_{i,q}$, $RECUR\_SBC_{i,q}$, and $RECUR\_INVEST_{i,q}$ in column (1). Column (2) shows that the magnitude consistency of non-GAAP exclusion items ($CONSISTENCY\_M_{i,q}$) is significantly violated by the probability of excluding $RECUR\_SBC_{i,q}$, research and development expenses ($RECUR\_R\&D_{i,q}$), $RECUR\_INVEST_{i,q}$, and foreign currency exchange charges ($RECUR\_FCEX_{i,q}$). Moreover, interest-related exclusions ($RECUR\_INTEXP_{i,q}$) and pension-related exclusions ($RECUR\_PENSION_{i,q}$) have no significant impact on either

CONSISTENCY_$U_{i,q}$ or CONSISTENCY_$M_{i,q}$. These results are generally consistent as regards the influence of the overall probability of recurring item exclusions on non-GAAP earnings consistency.

In sum, opportunistic managers guide the consistency of non-GAAP earnings using some particular recurring item exclusions, including, but not limited to, exclusions of stock-based compensation and investment gain or loss.

5.7.2.3 Strong motivation to achieve earnings benchmarks

To test the sensitivity of the association between the consistency of non-GAAP earnings and the opportunistic use of non-GAAP disclosures, I re-test model (1) using a sub-sample that potentially has the motive to use non-GAAP earnings to clear important earnings benchmarks. When examining the influence of the use of non-GAAP earnings to meet or beat the consensus analyst earnings forecast that would otherwise be missed by GAAP earnings ($MBF_{i,q}$) on the consistency of non-GAAP earnings, this thesis limits the sample to the observations that have missed the consensus analyst earnings forecast on a GAAP operating earnings basis. This reduces the sample to 1,698 firm-quarter observations and 1,482 firm-quarter observations for the regressions on the consistency of the use of non-GAAP exclusion items (CONSISTENCY_$U_{i,q}$) and the magnitude consistency of non-GAAP exclusion items (CONSISTENCY_$M_{i,q}$), respectively.

For the test on the use of non-GAAP exclusions to convert a GAAP loss into a non-GAAP profit ($CNV_{i,q}$), this thesis limits the sample to the observations that have made GAAP operating losses. This reduces the sample into 451 firm-quarter observations and 431 firm-quarter observations for the regressions on CONSISTENCY_$U_{i,q}$ and CONSISTENCY_$M_{i,q}$, respectively.

Table 5-8 reports the results on the sub-sample tests. Consistent with the results on CONSISTENCY_$U_{i,q}$ based on the full sample, the coefficients of $MBF_{i,q}$ and $CNV_{i,q}$ are positive and significant at the 0.01 level, as shown in columns (1) and (2). Additionally,

both $MBF_{i,q}$ and $CNV_{i,q}$ still negatively and significantly drive $CONSISTENCY\_M_{i,q}$, as indicated by the coefficients on $MBF_{i,q}$ and $CNV_{i,q}$ in columns (3) and (4). Moreover, the model fits the sub-samples better than its explanatory power for the full sample, as evidenced by the greater R^2 in Table 5-7 than that in Table 5-5.

Overall, the results on the sub-samples confirm the significant influence of the managerial opportunism of non-GAAP earnings on the consistency of non-GAAP exclusion items in defining non-GAAP earnings.

5.8 Summary

This chapter examines the influence of the managerial opportunism of non-GAAP earnings disclosures on the consistency in non-GAAP reporting. Specifically, I examine how by the use of non-GAAP earnings to meet or beat analysts' earnings expectation that would be missed by GAAP earnings, the conversion of a GAAP loss into a non-GAAP profit, and the extent to which recurring items are excluded drive both the usage and the magnitude consistency of non-GAAP exclusion items in defining non-GAAP earnings.

The results indicate that the opportunism of non-GAAP earnings disclosures positively affects the consistent use of non-GAAP exclusion items (usage consistency), whereas it negatively associates with the steady values of non-GAAP exclusion items (magnitude consistency). In other words, the emphasis on information consistency by the corporate reporting environment creates opportunities for opportunistic managers to use consistency in non-GAAP reporting to manipulate investors' perception of firm performance. Behind the seemingly consistent definition of non-GAAP earnings, managers vary the values of consistent non-GAAP exclusion items to achieve their opportunistic incentives. The supplemental tests on the observations that potentially have the motive to use non-GAAP earnings to clear important earnings benchmarks confirm this opportunism-driven consistency in non-GAAP reporting.

In addition, my study suggests there are moderating effects of non-GAAP reporting frequency on the association between the consistency in non-GAAP reporting and the managerial opportunism of non-GAAP earnings disclosures. In general, opportunistic managers that sporadically report non-GAAP earnings are more likely to manipulate the consistency in non-GAAP reporting. Since these sporadic reporters are more likely to be motivated by opportunistic incentives when providing non-GAAP disclosures, the evidence confirms the influential role of managerial opportunism in the consistency of non-GAAP earrings reporting.

Moreover, I find that individual recurring item exclusions have varying degrees of effects on the consistency in non-GAAP reporting. The exclusions of stock-based compensation and investment gain or loss are positively associated with the consistent use of non-GAAP exclusion items but are negatively related to the value steadiness of non-GAAP exclusion items. Meanwhile, interest-related exclusions and pension-related exclusions have no significant effects on either the consistency of use of non-GAAP exclusion items or the magnitude consistency of non-GAAP exclusion items. The results indicate that opportunistic managers have a high propensity to manipulate the consistency of non-GAAP exclusion items in defining non-GAAP earnings, but they prefer to use particular recurring item exclusions to violate the consistency of non-GAAP earnings.

Although this study shows that the management’s opportunistic incentives for non-GAAP earnings disclosures have a significant effect on the consistency of non-GAAP earnings, one must be cautious in drawing a counter- inference (as opposed to the reported association between the managerial opportunism of non-GAAP disclosures and the consistency of non-GAAP earnings) from my results. Since the consistency measure in my study captures managers’ intention to have consistent non-GAAP exclusion items, the remaining "inconsistent” non-GAAP exclusion items do not completely result from their intentional manipulation. If the non-GAAP items that are excluded in the current quarter but not excluded in the same quarter of the prior year did

not occur in the benchmark quarter, it inherently leads to the inconsistent non-GAAP exclusion items. Alternatively, managers might deliberately not exclude items that were excluded in the corresponding quarter of the prior year, in the current quarter to achieve their reporting incentives, no matter whether the selected items occurred or not in the corresponding quarter of the prior year. Managers' intentional selection of non-GAAP items might equally result in inconsistency of non-GAAP earnings. Therefore, it is too inclusive to decide there is the opposite association between the inconsistency of non-GAAP earnings and the opportunistic use of non-GAAP earnings, because this inconsistency is not overwhelmingly due to management's manipulation. Moreover, the magnitude consistency of non-GAAP exclusion items only catches the value steadiness of consistently excluded items from non-GAAP earnings. It ignores the value variation of inconsistently excluded items that is ineligible to be calculated owing to the missing benchmarks. Therefore, one needs to be careful in interpreting the results.

5.9 Chapter 5 Figures and Tables

Figure 5-1 Relative frequency of samples with and without consistent non-GAAP exclusion items by sectors (N = 4337)

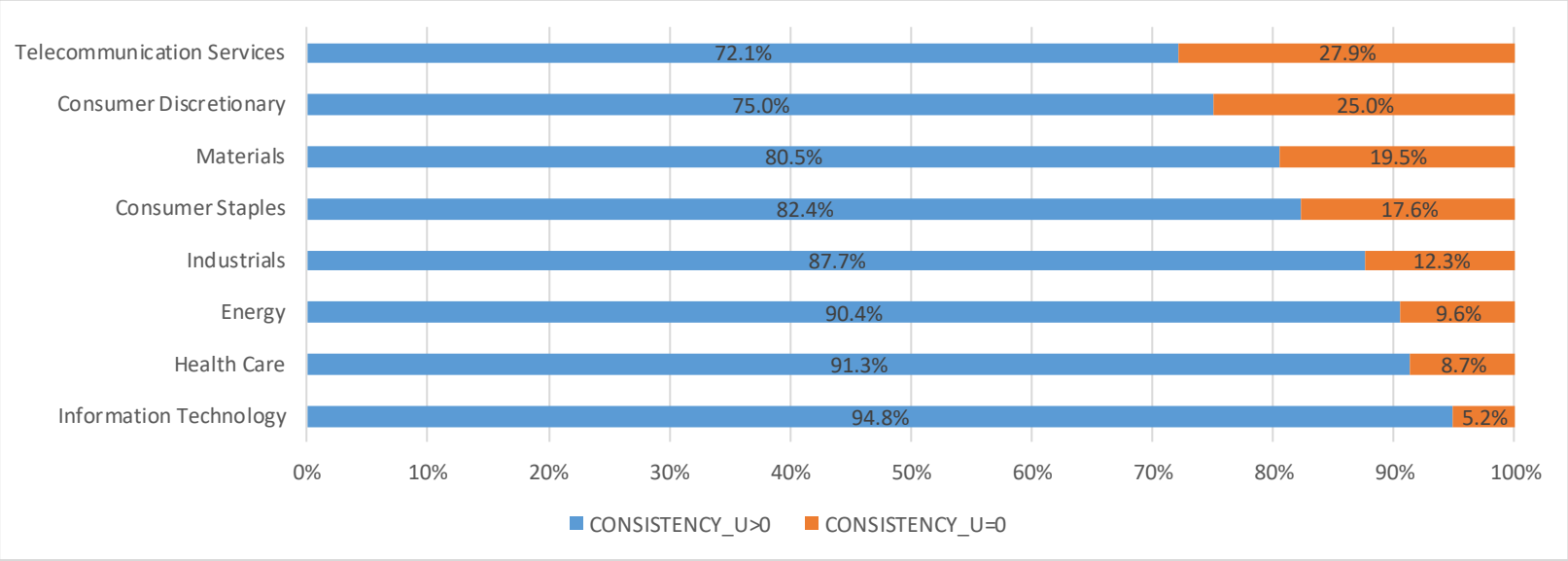


Table 5-1 Measurement of non-GAAP earnings consistency

	quarter *q-4*	quarter *q*	Consistent adjustments in quarter *q*
GAAP earnings per share (EPS)	0.56	0.67	
Recurring item exclusions:			
Depreciation and amortization	0.08	0.25	Y
Stock-based compensation	0.05	0.03	Y
(Gain)/Loss on investments	(0.05)	0.04	Y
Non-recurring item exclusions:			
Restructuring	0.10	0.05	Y
Litigation cost		0.12	N
Early extinguishment of debt	0.08		
(Gain)/Loss on impairment	0.05	(0.07)	Y
Uncommon item exclusions:			
Environmental provisions		0.02	N
Other	0.02	0.12	Y
Non-GAAP EPS	0.89	1.23	

	Number	Amount ($)
Non-GAAP exclusion items	**8**	**0.56**
Recurring item exclusions	3	0.32
Non-recurring item exclusions	3	0.10
Uncommon item exclusions	2	0.14
Consistent non-GAAP exclusion items	**6**	**0.42**
Consistent recurring item exclusions	3	0.32
Consistent non-recurring item exclusions	2	(0.02)
Consistent uncommon item exclusions	1	0.12

$CONSISTENCY\_U_{i,q}$ = Number of consistent non-GAAP exclusion items in quarter q/Total number of non-GAAP exclusion items in quarter q

$CONSISTENCY\_U\_ALL_{i,q}$ = 6/8 = 75.0%
$CONSISTENCY\_U\_REC_{i,q}$ = 3/3 = 100.0%
$CONSISTENCY\_U\_NREC_{i,q}$ = 2/3 = 66.7%
$CONSISTENCY\_U\_UNC_{i,q}$ = 1/2 = 50.0%

$CONSISTENCY\_M_{i,q}$ = Sum of absolute change in individual consistent non-GAAP exclusion items per share in quarter q from quarter q-4 * (-1)

$CONSISTENCY\_M\_ALL_{i,q}$ = [|0.25 − 0.08| + |0.03 − 0.05|+|0.04 − (−0.05)|+|0.05 − 0.10|+|(−0.07) − 0.05|+
|0.12 − 0.02|] * (−1)
= −0.55
$CONSISTENCY\_M\_REC_{i,q}$ = [|0.25 − 0.08|+|0.03 − 0.05|+|0.04 − (−0.05)| * (−1)
= -0.28
$CONSISTENCY\_M\_NREC_{i,q}$ = |0.05 − 0.10|+|(−0.07) − 0.05| * (−1)
= −0.17
$CONSISTENCY\_M\_UNC_{i,q}$ = |0.12 − 0.02| * (−1)
= −0.1

Table 5-2 Sample selection process for tests on drivers of consistency in non-GAAP reporting

Panel A: Sample selection criteria

Sample Requirements	No. of Observations	No. of Firms
S&P 500 index firms		500
Excluding:		
Real estate firms		(29)
Financial firms		(63)
Utility firms		(28)
Firms delisted owing to merger		(1)
Full sample (2010–2016)	10,612	379
Press releases unavailable since firms not founded and/or listed yet	(229)	
Press releases unavailable from Bloomberg Database and firms' websites	(466)	
Press releases unavailable because firms no longer reporting non-GAAP measures	(3)	
Press releases available	9,914	373
Press releases without quarterly reconciled non-GAAP earnings	(3,644)	
Press releases with quarterly reconciled non-GAAP earnings	6,270	302
Press releases with quarterly reconciled non-GAAP operating profits only	(29)	
Press releases with quarterly reconciled (non-GAAP) EBIT/EBITDA only	(465)	
Press releases with quarterly reconciled net-income-based non-GAAP earnings	5,776	291
Press releases without comparable benchmark quarters	(189)	
Final sample for identifying consistent non-GAAP net income reporters	5,587	286
Inconsistent non-GAAP net income reporters	(561)	
Consistent non-GAAP net income reporters	5,026	270
No data on model variables	(689)	
Final sample	4,337	241

Table 5-2 Sample selection process for tests on drivers of consistency in non-GAAP reporting (continued)

Panel B: Sample by years

	2010	2011	2012	2013	2014	2015	2016	Total
No. of firm-quarter observations	442	486	550	630	697	744	788	4337

Panel C: Sample by fiscal quarters

	FQ1	FQ2	FQ3	FQ4	Total
No. of firm-quarter observations	1022	1064	1108	1143	4337

Panel D: Sample by sectors

Sectors	No. of firm-quarter observations	Percentage of full sample
Consumer Discretionary	573	13.2
Consumer Staples	373	8.6
Energy	438	10.1
Health Care	1103	25.4
Industrials	572	13.2
Information Technology	980	22.6
Materials	255	5.9
Telecommunication Services	43	1.0
Total	4337	100.0

Table 5-3 Descriptive statistics for tests on drivers of consistency in non-GAAP reporting

Panel A: Consistency of non-GAAP exclusions statistics

Exclusions	Usage consistency of non-GAAP exclusion items (CONSISTENCY_$U_{i,q}$)			Magnitude consistency of consistent non-GAAP exclusion items (CONSISTENCY_$M_{i,q}$)		
	N	Mean	Std. dev	N	Mean	Std. dev
Overall	4337	0.669	0.340	3803	1.088	32.851
Recurring items						
D&A	1547	0.893	0.302	1394	0.070	0.740
INVEST	1028	0.688	0.445	742	0.320	0.708
SBC	989	0.964	0.183	956	0.037	0.064
INTEXP	436	0.798	0.398	351	0.016	0.041
PENSION	325	0.638	0.480	208	0.145	0.374
FCEX	145	0.614	0.489	89	0.063	0.071
R&D	98	0.673	0.471	66	0.125	0.176
Non-recurring items						
RESTRUCT	2379	0.683	0.431	1775	1.565	45.672
M&A	1688	0.703	0.440	1239	0.294	3.945
TAXCHG	1464	0.669	0.461	1006	0.152	0.396
IMPAIR	741	0.487	0.490	376	0.566	1.529
LITIGATION	572	0.542	0.495	314	0.203	0.587
EXDEBT	320	0.269	0.444	86	0.125	0.153
CAPFIN	68	0.250	0.436	17	0.103	0.171
STOCKTRD	59	0.712	0.457	42	0.029	0.076
Uncommon items						
INFRQT	808	0.603	0.477	507	0.157	0.421
OTHER	538	0.662	0.470	360	0.144	0.649

Table 5-3 Descriptive statistics for tests on drivers of consistency in non-GAAP reporting (continued)

Panel B: Sample statistics—full sample and sub-samples grouped by consistency of non-GAAP exclusions

Variables	Full sample (*N = 4337*)			With at least one consistent exclusion item (*N = 3803*)			Without consistent exclusion items (*N = 534*)			Tests of Differences	
	Mean	Median	Earnings metrics diff. (t-statistics)[a]	Mean	Median	Earnings metrics diff. (t-statistics)[a]	Mean	Median	Earnings metrics diff. (t-statistics)[a]	*t*-test	Wilcoxon rank-sum test
Earnings metrics											
EPS_{NG}	0.935	0.758		0.941	0.747		0.890	0.829		1.334	−2.237**
EPS_{GAAP_OP}	0.753	0.660	17.219***	0.740	0.640	17.135***	0.846	0.800	2.452**	−2.233**	−5.793***
EPS_{GAAP_BXT}	0.646	0.590	19.487***	0.633	0.560	19.124***	0.740	0.725	4.213***	−1.917*	−6.118***
EPS_{GAAP}	0.669	0.597	14.988***	0.660	0.573	14.473***	0.738	0.729	3.931***	−1.213	−5.772***
CONSENSUS	0.881	0.720	15.342***	0.888	0.710	13.962***	0.835	0.755	6.939***	1.442	−1.589***
EXCL	0.288	0.114		0.308	0.130		0.150	0.018		3.512***	13.026***
Opportunistic non-GAAP disclosures											
MBF	0.375	0.000		0.417	0.000		0.079	0.000		15.523***	15.110***
CNV	0.043	0.000		0.049	0.000		0.002	0.000		5.040***	5.026***
RECUR	0.150	0.143		0.167	0.143		0.031	0.000		21.803***	22.732***
Firm characteristics											
MV (billion$)	34.469	14.274		34.034	14.208		37.569	14.520		−1.429	−0.919
LEV	1.211	0.604		1.207	0.600		1.237	0.641		−0.251	−1.127
BTM	0.371	0.320		0.376	0.322		0.336	0.305		3.168***	1.609
ΔSALES	0.082	0.051		0.084	0.051		0.071	0.525		1.407	0.806
N_ANLST	19.274	18.000		19.415	18.000		18.273	17.000		3.419***	3.158***
%INST	0.858	0.877		0.860	0.878		0.839	0.855		3.488***	3.830***
AGE	37.879	25.718		37.242	25.389		42.417	28.623		−3.607***	−2.449**

***, **, and * denote significance at p < 0.01, p < 0.05, and p < 0.10 levels (2-tailed), respectively.

[a] T-statistics for the difference between non-GAAP earnings (EPS_{NG}) and other earnings metrics (EPS_{GAAP_OP}, EPS_{GAAP_BXT}, EPS_{GAAP}, and CONSENSUS).

[b] Although the mean of $CNV_{i,q}$ is merely 0.043, the observations with GAAP losses from operations are highly inclined to convert the GAAP operating losses into non-GAAP profits. In the untabulated analysis, I find that 57.1% of GAAP operating loss-making observations disclose non-GAAP profits that impress the market with more favorable operating performance.

Variable definitions: $CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter; $CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; D&A = non-GAAP exclusions related to depreciation and amortization charges divided by DCOMSH; SBC = non-GAAP exclusions related to stock-based compensation charges divided by DCOMSH; INTEXP = non-GAAP exclusions related to interest expense or income divided by DCOMSH; R&D = non-GAAP exclusions related to research and development charges divided by DCOMSH; INVEST = non-GAAP

Table 5-3 Descriptive statistics for tests on drivers of consistency in non-GAAP reporting (continued)

exclusions related to gain or loss on investments divided by DCOMSH; PENSION = non-GAAP exclusions related to pension charges divided by DCOMSH; FCEX = non-GAAP exclusions related to foreign currency exchange gain or loss divided by DCOMSH; RESTRUCT = non-GAAP exclusions related to restructuring charges divided by DCOMSH; M&A = non-GAAP exclusions related to merger and acquisition charges divided by DCOMSH; EXDEBT = non-GAAP exclusions related to gain or loss on extinguishment of debt divided by DCOMSH; STOCKTRD = non-GAAP exclusions related to stock listing and trading divided by DCOMSH; IMPAIR = non-GAAP exclusions related to impairment charges divided by DCOMSH; LITIGATION = non-GAAP exclusions related to litigation charges divided by DCOMSH; TAXCHG = non-GAAP exclusions related to gain or loss on taxation divided by DCOMSH; CAPFIN = non-GAAP exclusions related to capital financing charges divided by DCOMSH; INFRQT = non-GAAP exclusions related to infrequent or firm-specific items divided by DCOMSH; OTHER = non-GAAP exclusions that managers directly describe as “other”, “unusual items”, “special items”, or “other non-operating items” divided by DCOMSH; EPS_{NG} = non-GAAP earnings disclosed by managers divided by Compustat-defined diluted number of common shares (DCOMSH); EPS_{GAAP_OP} = Compustat-defined income from operations divided by DCOMSH; EPS_{GAAP_BXT} = Compustat-defined income before extraordinary items and discontinued operations divided by DCOMSH; EPS_{GAAP} = Compustat-defined net income divided by DCOMSH; CONSENSUS = Consensus analyst forecasts from I/B/E/S database; $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (EPS_{NG} minus EPS_{GAAP_BXT}); $MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items); $MV_{i,q}$ = firm i’s market value of equity in quarter q; $LEV_{i,q}$ = firm i’s total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4’s sales; $N\_ANLST_{i,q}$ = number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q; $AGE_{i,q}$ = number of years from firm i's incorporation until quarter q;

Table 5-4 Correlation matrix for main independent variables

	$MBF_{i,q}$	$CNV_{i,q}$	$RECUR_{i,q}$	$EXCL_{i,q}$	$ln(MV)_{i,q}$	$LEV_{i,q}$	$BTM_{i,q}$	$\Delta SALES_{i,q}$	$ln(N\_ANLST)_{i,q}$	$\%INST_{i,q}$	$ln(AGE)_{i,q}$
$MBF_{i,q}$	1.000										
$CNV_{i,q}$	0.123***	1.000									
$RECUR_{i,q}$	0.365***	0.087***	1.000								
$EXCL_{i,q}$	0.153***	0.361***	0.121***	1.000							
$ln(MV)_{i,q}$	0.072***	−0.031*	−0.054***	−0.049***	1.000						
$LEV_{i,q}$	−0.041**	−0.025	−0.081***	−0.030*	−0.097***	1.000					
$BTM_{i,q}$	−0.091***	0.072***	−0.103***	0.005	−0.167***	−0.241***	1.000				
$\Delta SALES_{i,q}$	0.086***	−0.036**	0.144***	−0.081***	−0.023	−0.032**	−0.161***	1.000			
$ln(N\_ANLST)_{i,q}$	0.192***	0.152***	0.317***	0.169***	0.310***	−0.178***	−0.004	0.050***	1.000		
$\%INST_{i,q}$	0.106***	0.077***	0.215***	0.101***	−0.477***	0.094***	−0.092***	0.112***	0.010	1.000	
$ln(AGE)_{i,q}$	−0.071***	−0.078***	−0.232***	−0.073***	0.198***	0.076***	−0.112***	−0.124***	−0.254***	−0.247***	1.000
VIF	1.230	1.180	1.360	1.200	1.670	1.120	1.200	1.080	1.440	1.460	1.220

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. VIF stands for variance inflation factor.

Variable definitions: $MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items); $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share); $ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q; $LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales; $ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q; $ln(AGE)_{i,q}$ = logarithm of years from firm i's incorporation until quarter q.

Table 5-5 The association between the consistency of non-GAAP exclusions and opportunistic non-GAAP disclosures

$$CONSISTENCY_{i,q} = \beta_0 + \beta_1 OPPORTUNISM_{i,q} + \beta_2 EXCL_{i,q} + \beta_3 ln(MV)_{i,q} + \beta_4 LEV_{i,q} + \beta_5 BTM_{i,q} + \beta_6 \Delta SALES_{i,q} + \beta_7 ln(N\_ANLST)_{i,q} + \beta_8 \%INST_{i,q} + \beta_9 ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (1)$$

Variables	CONSISTENCY_U$_{i,q}$				CONSISTENCY_M$_{i,q}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.322	0.222	0.319	0.377	0.444	0.502*	0.428	0.396
	(0.329)	(0.507)	(0.306)	(0.226)	(0.114)	(0.069)	(0.109)	(0.136)
MBF$_{i,q}$	**0.110*** **			**0.078*** **	**−0.061*** **			**−0.036** **
	(0.000)			**(0.000)**	**(0.000)**			**(0.026)**
CNV$_{i,q}$		**0.083*** **		**0.053** **		**−0.167*** **		**−0.151*** **
		(0.001)		**(0.037)**		**(0.000)**		**(0.000)**
RECUR$_{i,q}$			**0.517*** **	**0.439*** **			**−0.398*** **	**−0.356*** **
			(0.000)	**(0.000)**			**(0.000)**	**(0.000)**
EXCL$_{i,q}$	−0.573*	(0.287)	(0.191)	−0.751**	−2.235***	−1.939***	−2.450***	−1.741***
	(0.068)	(0.425)	(0.528)	(0.019)	(0.000)	(0.000)	(0.000)	(0.000)
ln(MV)$_{i,q}$	0.006	0.010	0.017	0.013	0.009	0.007	0.000	0.003
	(0.732)	(0.584)	(0.333)	(0.442)	(0.515)	(0.611)	(0.976)	(0.839)
LEV$_{i,q}$	0.003	0.003	0.003	0.003	0.001	0.001	0.000	0.000
	(0.331)	(0.359)	(0.219)	(0.210)	(0.757)	(0.767)	(0.929)	(0.937)
BTM$_{i,q}$	0.027	0.027	0.038	0.035	0.030	0.033	0.018	0.022
	(0.536)	(0.550)	(0.372)	(0.408)	(0.456)	(0.416)	(0.678)	(0.610)
ΔSALES$_{i,q}$	0.014	0.024	0.007	0.002	−0.130***	−0.135***	−0.123***	−0.121***
	(0.705)	(0.471)	(0.833)	(0.955)	(0.000)	(0.000)	(0.000)	(0.000)
ln(N_ANLST)$_{i,q}$	0.060	0.069	0.017	0.014	−0.043	−0.046	−0.002	0.001
	(0.258)	(0.196)	(0.760)	(0.788)	(0.401)	(0.370)	(0.963)	(0.981)
%INST$_{i,q}$	−0.004	0.029	−0.034	−0.055	0.002	−0.007	0.032	0.053
	(0.977)	(0.841)	(0.797)	(0.675)	(0.989)	(0.952)	(0.778)	(0.635)
ln(AGE)$_{i,q}$	−0.009	−0.006	−0.003	−0.005	0.000	−0.003	−0.005	−0.006
	(0.704)	(0.808)	(0.911)	(0.845)	(0.999)	(0.867)	(0.797)	(0.773)
INDUSTRY	Included	Included	Included	Included	Included	Included	Included	Included
QTR	Included	Included	Included	Included	Included	Included	Included	Included
N	4337	4337	4337	4337	3803	3803	3803	3803
F-statistics	7.42	4.32	7.73	8.54	11.82	19.38	12.37	18.85
R-squared	8.0%	6.2%	9.3%	10.4%	14.3%	14.7%	16.1%	17.5%

***, **, and * denote significance at p < 0.01, p < 0.05, and p < 0.10 levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: CONSISTENCY_U$_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter; CONSISTENCY_M$_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; MBF$_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst

Table 5-5 The association between the consistency of non-GAAP exclusions and opportunistic non-GAAP disclosures (continued)

forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items); $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share); $ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q; $LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales; $ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q; $ln(AGE)_{i,q}$ = logarithm of years from firm i's incorporation until quarter q; INDUSTRY = industry dummies; QTR = fiscal quarter dummies.

Table 5-6 Influence of frequency of non-GAAP reporting on consistency of non-GAAP earnings

$$CONSISTENCY_{i,q} = \beta_0 + \beta_1 OPPORTUNISM_{i,q} + \beta_2 FRQT_{i,q} + \beta_3 OPPORTUNISM_{i,q} * FRQT_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 \Delta SALES_{i,q} + \beta_9 ln(N\_ANLST)_{i,q} + \beta_{10} \%INST_{i,q} + \beta_{11} ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (2)$$

Variables	$CONSISTENCY\_U_{i,q}$				$CONSISTENCY\_M_{i,q}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.164	0.079	0.178	0.226	0.502*	0.557**	0.474*	0.444*
	(0.597)	(0.800)	(0.532)	(0.431)	(0.066)	(0.037)	(0.069)	(0.085)
$MBF_{i,q}$	**0.148*** **			**0.092*** **	**−0.082*** **			**−0.037***
	(0.000)			**(0.000)**	**(0.000)**			**(0.076)**
$CNV_{i,q}$		**0.111*** **		**0.056**		**−0.182*** **		**−0.158*** **
		(0.002)		**(0.129)**		**(0.000)**		**(0.001)**
$RECUR_{i,q}$			**0.699*** **	**0.588*** **			**−0.533*** **	**−0.478*** **
			(0.000)	**(0.000)**			**(0.000)**	**(0.000)**
$FRQT_{i,q}$	0.189***	0.152***	0.230***	0.236***	−0.065**	−0.048*	−0.093**	−0.090**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.038)	(0.088)	(0.016)	(0.019)
$MBF_{i,q} * FRQT_{i,q}$	**−0.116*** **			**−0.053***	**0.051**			**0.007**
	(0.000)			**(0.052)**	**(0.105)**			**(0.837)**
$CNV_{i,q} * FRQT_{i,q}$		**−0.067**		**−0.023**		**0.031**		**0.022**
		(0.186)		**(0.651)**		**(0.515)**		**(0.648)**
$RECUR_{i,q} * FRQT_{i,q}$			**−0.562*** **	**−0.478*** **			**0.303***	**0.271***
			(0.000)	**(0.000)**			**(0.053)**	**(0.093)**
$EXCL_{i,q}$	−0.534*	−0.309	−0.212	−0.704**	−2.254***	−1.946***	−2.453***	−1.764***
	(0.079)	(0.382)	(0.479)	(0.026)	(0.000)	(0.000)	(0.000)	(0.000)
$Ln(MV)_{i,q}$	0.013	0.018	0.020	0.017	0.006	0.004	−0.001	0.002
	(0.401)	(0.280)	(0.178)	(0.258)	(0.644)	(0.776)	(0.962)	(0.910)
$LEV_{i,q}$	0.006**	0.007**	0.006**	0.006**	0.000	−0.001	−0.001	−0.001
	(0.039)	(0.049)	(0.017)	(0.017)	(0.999)	(0.861)	(0.896)	(0.884)
$BTM_{i,q}$	0.021	0.022	0.024	0.021	0.030	0.033	0.023	0.026
	(0.610)	(0.606)	(0.580)	(0.628)	(0.457)	(0.417)	(0.611)	(0.550)
$\Delta SALES_{i,q}$	−0.003	0.007	−0.009	−0.014	−0.124***	−0.130***	−0.118***	−0.115***
	(0.924)	(0.825)	(0.796)	(0.694)	(0.000)	(0.000)	(0.000)	(0.000)
$ln(N\_ANLST)_{i,q}$	0.075	0.088*	0.043	0.039	−0.046	−0.052	−0.008	−0.004
	(0.111)	(0.070)	(0.365)	(0.404)	(0.345)	(0.292)	(0.871)	(0.934)
$\%INST_{i,q}$	(0.050)	(0.030)	(0.090)	(0.100)	0.010	0.010	0.050	0.070
	(0.722)	(0.825)	(0.475)	(0.422)	(0.916)	(0.929)	(0.648)	(0.527)
$n(AGE)_{i,q}$	−0.010	−0.009	−0.005	−0.006	−0.001	−0.003	−0.005	−0.006
	(0.683)	(0.710)	(0.814)	(0.798)	(0.980)	(0.894)	(0.794)	(0.757)

Table 5-6 Influence of frequency of non-GAAP reporting on consistency of non-GAAP earnings (continued)

Variables	CONSISTENCY_$U_{i,q}$				CONSISTENCY_$M_{i,q}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
INDUSTRY	Included	Included	Included	Included	Included	Included	Included	Included
QTR	Included	Included	Included	Included	Included	Included	Included	Included
Observations	4,337	4,337	4,337	4,337	3,803	3,803	3,803	3,803
F-statistics	8.149	6.671	8.542	8.525	11.36	18.99	12.88	17.76
R-squared	11.8%	9.9%	13.2%	14.1%	14.9%	15.2%	16.8%	18.2%

***, **, and * denote significance at p < 0.01, p < 0.05, and p < 0.10 levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: $FRQT_{i,q}$ = one if firm i is a frequent non-GAAP reporter, and zero otherwise, where a frequent non-GAAP reporter is defined as a firm that reports non-GAAP earnings in equal to or more than 90^{th} percentile of the number of quarters that my sample firms disclose non-GAAP earnings in the quarterly press releases. The remaining variables are defined as in Table 5-5.

Table 5-7 Influence of individual recurring item exclusions on consistency of non-GAAP earnings

$$CONSISTENCY_{i,q} = \beta_0 + \beta_1 RECUR\_D\&A_{i,q} + \beta_2 RECUR\_SBC_{i,q} + \beta_3 RECUR\_INTEXP_{i,q} + \beta_4 RECUR\_R\&D_{i,q} + \beta_5 RECUR\_INVEST_{i,q} + \beta_6 RECUR\_PENSION_{i,q} + \beta_7 RECUR\_FCEX_{i,q} + \beta_8 EXCL_{i,q} + \beta_9 \ln(MV)_{i,q} + \beta_{10} LEV_{i,q} + \beta_{11} BTM_{i,q} + \beta_{12} \Delta SALES_{i,q} + \beta_{13} \ln(N\_ANLST)_{i,q} + \beta_{14} \%INST_{i,q} + \beta_{15} \ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (3)$$

Variables	$CONSISTENCY\_U_{i,q}$	$CONSISTENCY\_M_{i,q}$
	(1)	(2)
Intercept	0.357	0.443*
	(0.260)	(0.093)
$RECUR\_D\&A_{i,q}$	**0.125*** **	**0.001**
	(0.000)	**(0.972)**
$RECUR\_SBC_{i,q}$	**0.143*** **	**−0.098*** **
	(0.000)	**(0.010)**
$RECUR\_INTEXP_{i,q}$	**−0.004**	**−0.042**
	(0.878)	**(0.275)**
$RECUR\_R\&D_{i,q}$	**−0.012**	**−0.207*** **
	(0.835)	**(0.000)**
$RECUR\_INVEST_{i,q}$	**0.042** **	**−0.090*** **
	(0.042)	**(0.000)**
$RECUR\_PENSION_{i,q}$	**0.031**	**0.014**
	(0.463)	**(0.756)**
$RECUR\_FCEX_{i,q}$	**0.033**	**−0.067** **
	(0.567)	**(0.041)**
$EXCL_{i,q}$	−0.273	−2.419***
	(0.354)	(0.000)
$\ln(MV)_{i,q}$	0.021	0.002
	(0.209)	(0.904)
$LEV_{i,q}$	0.005*	0.000
	(0.085)	(0.991)
$BTM_{i,q}$	0.055	0.004
	(0.182)	(0.916)
$\Delta SALES_{i,q}$	(0.010)	−0.116***
	(0.748)	(0.000)
$\ln(N\_ANLST)_{i,q}$	−0.017	0.004
	(0.755)	(0.942)
$\%INST_{i,q}$	−0.031	0.026
	(0.812)	(0.815)
$\ln(AGE)_{i,q}$	0.010	−0.008
	(0.690)	(0.688)
INDUSTRY	Included	Included
QTR	Included	Included
N	4,337	3,803
F-statistics	7.3	14.1
R-squared	10.9%	18.0%

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: $RECUR\_D\&A_{i,q}$ = one if depreciation and amortization-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_SBC_{i,q}$ = one if stock-based compensation-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_INTEXP_{i,q}$ = one if interest expense-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_R\&D_{i,q}$ = one if research and development-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_INVEST_{i,q}$ = one if investment gain or loss-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_PENSION_{i,q}$ = one if pension-related items excluded by managers of firm i in quarter q, and zero otherwise; $RECUR\_FCEX_{i,q}$ = one if foreign exchange-related items excluded by managers of firm i in quarter q, and zero otherwise; The remaining variables are defined as in Table 5-5.

Table 5-8 Tests on sub-samples with strong motive to achieve earnings benchmarks with non-GAAP earnings

$$CONSISTENCY_{i,q} = \beta_0 + \beta_1 OPPORTUNISM_{i,q} + \beta_2 EXCL_{i,q} + \beta_3 \ln(MV)_{i,q} + \beta_4 LEV_{i,q} + \beta_5 BTM_{i,q} + \beta_6 \Delta SALES_{i,q} + \beta_7 \ln(N\_ANLST)_{i,q} + \beta_8 \%INST_{i,q} + \beta_9 \ln(AGE)_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (1)$$

Variables	$CONSISTENCY\_U_{i,q}$		$CONSISTENCY\_M_{i,q}$	
	(1)	(2)	(3)	(4)
Intercept	0.328	0.678	0.407	0.709
	(0.377)	(0.136)	(0.160)	(0.124)
$MBF_{i,q}$	**0.121*** **		**−0.059*** **	
	(0.000)		**(0.006)**	
$CNV_{i,q}$		**0.123*** **		**−0.099*** **
		(0.000)		**(0.001)**
$EXCL_{i,q}$	−0.173	−0.982**	−2.410***	−0.925**
	(0.599)	(0.013)	(0.000)	(0.014)
$\ln(MV)_{i,q}$	0.011	−0.018	−0.001	0.014
	(0.549)	(0.454)	(0.965)	(0.492)
$LEV_{i,q}$	0.001	−0.006	0.001	0.004
	(0.756)	(0.400)	(0.752)	(0.568)
$BTM_{i,q}$	0.045	−0.065	0.006	0.099*
	(0.321)	(0.219)	(0.877)	(0.059)
$\Delta SALES_{i,q}$	−0.003	0.029	−0.112**	−0.057
	(0.954)	(0.660)	(0.017)	(0.197)
$\ln(N\_ANLST)_{i,q}$	0.051	0.031	−0.003	−0.112
	(0.425)	(0.739)	(0.966)	(0.222)
$\%INST_{i,q}$	(0.010)	(0.150)	(0.020)	(0.110)
	(0.927)	(0.395)	(0.878)	(0.442)
$\ln(AGE)_{i,q}$	−0.030	0.048	0.008	−0.011
	(0.293)	(0.285)	(0.731)	(0.743)
INDUSTRY	Included	Included	Included	Included
QTR	Included	Included	Included	Included
Observations	1,698	451	1,482	431
F-statistics	7.93	8.776	7.114	5.149
R-squared	10.7%	19.8%	13.1%	18.3%

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.
Variable definitions: All the variables are defined as in Table 5-5.

6 HOW DOES THE CONSISTENCY IN NON-GAAP EARNINGS REPORTING AFFECT INVESTORS' REACTION TO NON-GAAP EARNINGS ANNOUNCEMENTS?

6.1 Introduction

Since 1990, managers have become proactive in providing non-GAAP financial measures in the United States (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002; Weil, 2001). They claim that they propose to provide internal information about their core operating performance by excluding the transitory components of GAAP earnings from non-GAAP earnings disclosures. In line with managers' informative incentives for non-GAAP disclosures, prior studies suggest that investors place more weight on non-GAAP earnings disclosures than on multiple GAAP-based earnings metrics (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002; Brown & Sivakumar, 2003).

The popularity of non-GAAP disclosures has caught the SEC's attention. It started intervening in non-GAAP reporting by issuing two cautionary statements (SEC, 2001a, 2001b). Later, the SEC (2003) imposed more stringent restrictions on non-GAAP disclosures with the passage of Regulation G. Most recently, the SEC (2018) updated its guidelines for non-GAAP reporting through C&DIs on non-GAAP disclosures, through which it proposes to address common questions regarding the application of new rules on non-GAAP disclosures.

While the SEC's governance on non-GAAP disclosures effectively improves the quality of non-GAAP reporting and strengthens investors' belief in such reporting (Black et al., 2012; Kolev et al., 2008; Marques, 2006; Zhang & Zheng, 2011), the existing guidelines on non-GAAP disclosures continue to allow a high level of discretion in non-GAAP reporting that unexpectedly misleads investors (Black & Christensen, 2009; Doyle et al., 2013; Heflin & Hsu, 2008; McVay, 2006). Although the market is to some extent efficient in detecting managerial opportunism by discounting opportunistic non-GAAP disclosures (Bhattacharya et al., 2003; Black et al., 2012; Doyle et al., 2013), it appears that the penalty for such disclosures is mainly imposed by the more sophisticated

investors, such as short sellers (Christensen et al., 2014). In other words, individual, or less sophisticated, investors are most likely to be misled by opportunistic non-GAAP disclosures (Allee et al., 2007; Bhattacharya et al., 2007; Elliott, 2006; Frederickson & Miller, 2004).

Regulators have long expressed concern about the lack of time-series consistency in non-GAAP reporting (Tysiac, 2018; White, 2016). Consistency refers to the use of the same methods of reporting for the same items either across periods within a reporting firm or across firms in the same period (FASB, 2010). The inconsistent treatment of similar gains or losses is regarded as the "troublesome practice" that leads to misleading non-GAAP disclosures (Leone, 2010; SEC, 2018; White, 2016). Prior research on financial information consistency provides evidence on the informativeness of information consistency to investors (Alwathainani, 2009; Hilary et al., 2014; Peterson et al., 2015; Tang & Venkataraman, 2018), which may be the essential reason for the regulators' continuous concern on the consistency issue in non-GAAP reporting.

However, research has suggested that over time, managers have become more inclined to provide consistent non-GAAP earnings, even though the quality of non-GAAP reporting improves as the consistency of non-GAAP exclusions decreases (Black Christensen, Ciesielski, & Whipple, 2017). Since information consistency affects users' information processing and decision-making, it is important to know whether investors' reactions to non-GAAP earnings information vary with the increasing consistency of non-GAAP earnings.

I find that investors' reliance on non-GAAP earnings decreases as the value smoothness of non-GAAP exclusions (magnitude consistency) increases, whereas investors that rely on non-GAAP disclosures are not incrementally sensitive to the consistent use of non-GAAP exclusions (usage consistency). The results suggest that investors interpret consistent non-GAAP exclusions with steady values as a signal of the diminished informativeness of non-GAAP earnings. Moreover, their discounting of the magnitude consistency of non-GAAP earnings is primarily because of the value

smoothness of recurring item exclusions. Since the components of financial statements have incremental information about valuation-relevant economic events, I also find that the magnitude consistency of some recurring item exclusions, including stock-based compensation exclusions, interest expenses or income exclusions, investments gain or loss exclusions, and foreign currency exchange exclusions, are particularly associated with the investors' reduced confidence in the informativeness of non-GAAP earnings.

However, I find that investors are not able to see through the managers' intention in manipulating the consistency of the use of non-GAAP exclusion items, because investors rely more on non-GAAP earnings with more consistent use of non-GAAP items when managers make opportunistic non-GAAP disclosures (i.e., when using non-GAAP exclusions to meet or beat analysts' earnings expectations or excluding relatively more types of recurring items from non-GAAP earnings). In contrast, investors find non-GAAP earnings with steady values of non-GAAP exclusions incrementally informative in the case of using non-GAAP earnings to achieve analysts' mean forecast, suggesting that investors appear to be efficient in rewarding benchmark-beating managers who are less inclined to provide non-GAAP exclusions with smooth values over time.

My study contributes to the extant literature on non-GAAP earnings by adding evidence on the information content of consistency in non-GAAP reporting to investors. Evidence on this issue could improve the understanding of the manner in which market participants process information in the context of non-GAAP disclosures. Such evidence could also provide some insights into the economic incentives for disclosures of non-GAAP earnings with different forms and degrees of consistent non-GAAP exclusion items. Moreover, the results of this study suggest that the market is not constantly efficient in the cases of management's consistent use of non-GAAP items or opportunistic non-GAAP disclosures. Thus, the findings of my study shed light on the existing regulations on non-GAAP disclosures.

The remainder of this chapter is organized as follows. Section 6.2 discusses the institutional background and the relevant literature. Section 6.3 develops hypotheses.

Section 6.4 explains the measurements of non-GAAP earnings consistency, abnormal returns, and opportunistic non-GAAP disclosures. While Section 6.5 describes the empirical model and model variables, Section 6.6 introduces the sample and descriptive statistics. Section 6.7 reports the results. Lastly, Section 6.8 concludes the chapter on the informativeness of consistency in non-GAAP earnings disclosures to investors.

6.2 Institutional background

Non-GAAP earnings disclosures have become popular among US public companies since the late 1990s (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002; Weil, 2001). By excluding the one-time or the transitory components of GAAP earnings, managers claim that they aim to share private, or internal, information about their firms' operating performance to the market through these disclosures. Consistent with firm managers' informative intention, Bradshaw and Sloan (2002) report that non-GAAP earnings are more value relevant than the bottom-line GAAP earnings to investors. Meanwhile, Bhattacharya et al. (2003) suggest that non-GAAP earnings are more informative than GAAP operating earnings to market participants. In addition, Brown and Sivakumar (2003) add evidence to the findings in the literature on the greater informativeness of non-GAAP earnings, suggesting that investors react more to non-GAAP earnings than either GAAP earnings from operations or GAAP earnings before extraordinary items and discontinued operations. In sum, market participants positively react to non-GAAP earnings disclosures, suggesting the value relevance of non-GAAP earnings to investors.

The passage of new regulations effectively precludes some opportunistic managers from continuously providing non-GAAP disclosures (Kolev et al., 2008). Meanwhile, investors place more trust in non-GAAP earnings disclosures in the post-regulation environment (Black et al., 2012; Marques, 2006). For example, Black et al. (2012) suggest that non-GAAP reporting firms achieve greater abnormal returns in the post-regulation period than they did in the period prior to the issuance of regulations.

Additionally, the mere presence of a tabular reconciliation could positively drive stock returns (Marques, 2010). With regard to reconciliation quality, Zhang and Zheng (2011) find a significant reduction in mispricing for firms that improve their reconciliation quality across the Regulation G period. Overall, the regulator's governance on non-GAAP disclosures strengthens investors' belief in non-GAAP reporting.

However, the existing regulations on non-GAAP reporting continue to allow a high level of discretion to managers. Critics of non-GAAP disclosures claim that managers have a high level of flexibility in deciding the items to include in, or exclude from, non-GAAP earnings (Castillo, 2017; SEC, 2018; Shumsky, 2016b). In fact, non-GAAP exclusions are far from transitory and non-recurring. Exclusions from non-GAAP earnings are cash-consuming in the future (Doyle et al., 2003) and are predictive of future operating income (Frankel et al., 2011; Seetharaman et al., 2014). Doyle et al. (2013) find that investors perceive non-GAAP earnings with income-increasing exclusions as less informative, suggesting that investors somewhat understand the opportunistic nature of these exclusions. Conversely, firms with relatively large non-GAAP exclusions experience lower future abnormal returns (Doyle et al., 2013; Doyle et al., 2003), indicating that the average investors are systematically fooled by non-GAAP earnings at announcement periods.

In addition, the discretion given to managers in non-GAAP reporting unexpectedly leads to opportunistic non-GAAP disclosures. Opportunistic managers aggressively use self-structured non-GAAP earnings to meet or beat analysts' mean earnings forecast that would be missed on a GAAP basis or convert a GAAP loss into a non-GAAP profit (Black & Christensen, 2009; Doyle et al., 2013; Heflin & Hsu, 2008). The market is to some extent efficient in detecting managerial opportunism when they use non-GAAP earnings aggressively. Bhattacharya et al. (2003) suggest that investors are less likely to respond to non-GAAP earnings disclosures that meet or beat analysts' earnings expectation when GAAP earnings fall short of that expectation. The SEC's governance does not change investors' negative view of the opportunistic use of non-

GAAP exclusions to turn a non-GAAP profit or to meet analysts' earnings expectations (Black et al., 2012). In other words, the market perceives non-GAAP earnings disclosures as less informative when managers opportunistically use non-GAAP earnings to clear strategic earnings benchmarks.

Apart from their use of non-GAAP earnings to achieve earnings benchmarks, one indicator of managers' opportunistic non-GAAP disclosures is their use of recurring item exclusions (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017). Prior research suggests that the use of income-increasing recurring exclusions is the primary means to achieve earnings benchmarks (Doyle et al., 2013; Heflin & Hsu, 2008; McVay, 2006). After the SEC's relaxation on recurring item exclusions (SEC, 2018), the use of recurring exclusions in non-GAAP disclosures has become more common (Black & Christensen, 2009; Black et al., 2018).[42] As a result, investors somewhat understand managers' opportunistic use of recurring item exclusions, because they discount non-GAAP earnings disclosures with recurring item exclusions (Doyle et al., 2013). Short sellers that are well-informed investors are incrementally active in shorting stocks of firms that exclude recurring items from non-GAAP earnings (Christensen et al., 2014). Therefore, non-GAAP earnings with recurring items exclusions are less informative to investors.

While the market appears to be efficient in penalizing opportunistic non-GAAP reporting firms, self-defined non-GAAP earnings have long caused regulators to be concerned about the lack of time-series consistency in non-GAAP reporting (Tysiac, 2018; White, 2016). The significance of information consistency to users may be the essential reason for their continuous concern. Psychology theories suggest that the consistency, or the referential coherence, of information boosts users' confidence in personality impressions (Gill et al., 1998). Additionally, information consistency improves the accuracy of their judgments (Peterson & Pitz, 1988). In the context of financial

[42] The SEC (2018) relaxed its position of recurring item exclusions, stating that recurring items could be excluded as long as they are not inappropriately described as non-recurring.

information disclosures, consistency positively affects investors' perception of reporting firms' performance. Specifically, Peterson et al. (2015) find that the textual consistency of accounting policy positively influences stock trading in terms of reducing information asymmetry, as proxied by bid–ask spreads and illiquidity. Moreover, managers who make consistent financial disclosures, such as consistent forecast errors (Hilary et al., 2014), consistent past financial performance (Alwathainani, 2009), and consistent earnings guidance (Tang & Venkataraman, 2018), have a greater ability to move stock prices upward.

With regard to non-GAAP voluntary disclosures, the prior literature documents limited evidence on this important aspect of financial information disclosures. While prior studies suggest the occurrence of inconsistent or sporadic non-GAAP reporting based on the provision of non-GAAP disclosures (Bhattacharya et al., 2004; Johnson & Schwartz, 2005) or fluctuation in the use of non-GAAP adjustments in a period (Bhattacharya et al., 2004; Campbell & Pitman, 2009; Sek & Taylor, 2011), Black Christensen, Ciesielski, and Whipple (2017) are the first to provide empirical evidence on the time-series inconsistency in non-GAAP reporting. They suggest that non-GAAP earnings disclosures have become consistent in terms of calculation over time, and non-GAAP earnings with less consistent non-GAAP exclusions are more forecasting relevant to future operating earnings. In other words, the quality of non-GAAP reporting improves as the consistency of non-GAAP exclusions decreases. Thus, inconsistent non-GAAP earnings are supposed to be less informative owing to reduced quality.

Overall, prior studies suggest that investors, on average, perceive non-GAAP earnings to be informative, even though their reactions are affected by some aspects of non-GAAP disclosures, such as the magnitude of non-GAAP exclusions, reconciliation quality of non-GAAP earnings, or opportunistic use of non-GAAP earnings. While the interested parties have long been concerned about the lack of consistency in non-GAAP reporting, managers have become consistent in the use of non-GAAP exclusion items in defining non-GAAP earnings over time. Since information consistency affects users'

information processing and decision-making, it is important to know whether investors' reactions to non-GAAP earnings information vary with the consistency of non-GAAP earnings. Additionally, prior studies indicate that investors discount opportunistic non-GAAP earnings disclosures. The results presented in Chapter 5 suggest a significant association between the consistency of non-GAAP earnings and the opportunistic use of non-GAAP disclosures. It is also important to examine whether the managerial opportunism of non-GAAP disclosures affects investors' perceptions of consistency in non-GAAP reporting. This analysis would be useful to regulators in understanding whether capital misallocation occurs in light of the discretion afforded by the existing regulations on non-GAAP earnings disclosures.

6.3 Hypotheses development

Information quality plays a significant role in the capital market. The prior literature suggests that higher-quality disclosures lower the information asymmetry between uninformed and informed investors, and this reduces the cost of capital (Diamond & Verrecchia, 1991; Easley & O'Hara, 2004; Kim & Verrecchia, 1994; Lambert, Leuz, & Verrecchia, 2007). Consistency is one of the important enhancing qualitative characteristics of financial information (FASB, 2010). Consistent with this line of reasoning, studies suggest the positive role of financial information consistency in moving up stock prices (Alwathainani, 2009; Hilary et al., 2014; Peterson et al., 2015; Tang & Venkataraman, 2018).

The literature on non-GAAP earnings focuses on whether or not this alternative earnings metric conveys new information to the market participants. The average investors believe that non-GAAP earnings are more value relevant and informative than GAAP earnings (Bhattacharya et al., 2004; Bradshaw & Sloan, 2002; Brown & Sivakumar, 2003), indicating that non-GAAP earnings have displaced GAAP earnings as the primary determinant of stock prices. Consistent with these early studies, several studies on the more contemporary non-GAAP reporting generally conclude that non-

GAAP earnings disclosures are relevant to investors (Bond et al., 2017; Christensen et al., 2014; Marques, 2006).

Since information consistency boosts users' confidence in personality impressions (Gill et al., 1998) and improves the accuracy of their judgments (Peterson & Pitz, 1988), investors that rely on non-GAAP earnings information would be more confident in forming their own earnings metrics when the components of non-GAAP earnings are consistent. Their increased confidence would strengthen their belief in their investment decisions. Therefore, non-GAAP earnings with relatively consistent components are expected to be incrementally informative to investors, consistent with the literature on financial information consistency.

By contrast, Black, Christensen, Ciesielski, and Whipple (2020) suggest that non-GAAP earnings have higher forecasting relevance of future performance when items excluded from these earnings are less consistent over time. In other words, their result indicates the covariation of non-GAAP earnings quality and the inconsistency of non-GAAP exclusion items, suggesting that the signaling effect of time-series consistency in non-GAAP reporting is unlikely to be consistent with the findings of prior research on financial information consistency. If investors understand the low-quality indication of consistent non-GAAP earnings, they will consequently put less weight on non-GAAP earnings with relatively high consistency. Thus, non-GAAP earnings are expected to be less informative to investors when the consistency of non-GAAP earnings is relatively higher. Given the plausible arguments on each side, I posit that the consistency of non-GAAP earnings does not affect the association between stock returns and non-GAAP earnings. Therefore, I state the following null hypothesis:

H4: Investors' reaction to non-GAAP earnings is not associated with the consistency of non-GAAP earnings.

Prior research suggests that the opportunism of non-GAAP disclosures moderates investors' response to non-GAAP earnings disclosures. For example, investors discount opportunistic non-GAAP earnings disclosures that meet or beat analysts' earnings expectation that would otherwise be missed on a GAAP basis or that convert a GAAP loss into a non-GAAP profit (Bhattacharya et al., 2003; Black et al., 2012; Christensen et al., 2014). Prior studies also highlight that the use of recurring item exclusions is an indicator of opportunistic non-GAAP reporting (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017). The market's response to non-GAAP earnings decreases as the level of the use of recurring item exclusions increases (Black et al., 2012; Doyle et al., 2013).

The results presented in Chapter 5 suggest that the managerial opportunism of non-GAAP disclosures significantly affects the consistency of non-GAAP earnings. Specifically, the opportunistic use of non-GAAP disclosures has a positive association with the consistent use of non-GAAP exclusion items, whereas the change in the value of non-GAAP exclusion items is negatively driven by the opportunism of non-GAAP disclosures. Since investors view opportunistic non-GAAP disclosures as a signal of the reduced informativeness of these disclosures, it is possible that whether or not managers opportunistically use non-GAAP earnings affects their reaction to the consistency of non-GAAP earnings.

In this regard, if investors understand the opportunism-driven consistency in non-GAAP reporting, they may be more concerned with the informativeness of non-GAAP earnings with high usage consistency or lower magnitude consistency. The reason is that opportunistic non-GAAP disclosures reduce investors' belief in non-GAAP information. By contrast, they possibly do not appreciate that opportunistic managers intend to violate consistency in non-GAAP reporting. Consequently, investors might naively place more weight on non-GAAP earnings with high consistency because information consistency boosts their confidence in personality impressions. Thus, investors might misleadingly reward some firms that have higher opportunism-driven

consistency in non-GAAP reporting. Given plausible arguments for each prediction, I posit that the opportunistic use of non-GAAP disclosures does not affect the extent to which investors react to the consistency of non-GAAP earnings. Thus, I also frame the following hypotheses related to each opportunistic non-GAAP reporting indicator in the null form:

H5: The association between investors' reaction to non-GAAP earnings and the consistency of non-GAAP earnings is not moderated by the use of such earnings to meet or beat the consensus analyst forecast that would be missed by GAAP earnings.

H6: The association between investors' reaction to non-GAAP earnings and the consistency of non-GAAP earnings is not moderated by the use of non-GAAP disclosures to convert a GAAP loss into a non-GAAP profit.

H7: The association between investors' reaction to non-GAAP earnings and the consistency of non-GAAP earnings is not moderated by the extent to which recurring items are excluded from such earnings.

6.4 Measurement of the main variables

6.4.1 Consistency of non-GAAP earnings

I measure non-GAAP earnings consistency based on the consistency of management's actual above-the-line non-GAAP exclusion items.[43] The Conceptual Framework for Financial Reporting defines consistency as the use of the same methods for the same items either across periods within a reporting firm or across firms in the same period (FASB, 2010). In line with this definition, I first measure the usage

[43] The calculation of these consistency measures is based on all the above-the-line non-GAAP adjustments that are intentionally adjusted by managers, including recurring, non-recurring, and uncommon item exclusions.

consistency of non-GAAP items (CONSISTENCY_$U_{i,q}$) in defining non-GAAP earnings across the same quarter(s) for consecutive years. On the basis of the descriptions of individual non-GAAP exclusion items, a time-series consistent non-GAAP exclusion in my study refers to a non-GAAP adjustment in quarter q that is also excluded in the same quarter of the prior year, quarter q-4. By excluding adjustments for income tax on non-GAAP exclusions, I measure the consistency of all the above-the-line non-GAAP adjustments, including uncommon adjustments, that reflect the management's intentional non-GAAP exclusions on an item-to-item basis.[44] Then, CONSISTENCY_$U_{i,q}$ is calculated as the number of consistent non-GAAP exclusion items for firm i in quarter q, divided by the total number of non-GAAP exclusion items for the same firm-quarter.

Moreover, the magnitude of financial disclosures significantly influences investors' decision-making (FASB, 2010), and the consistency measure capturing the magnitude of earnings components is more useful in detecting earnings management (Ibrahim, 2009). Hence, my second measure is that of the magnitude consistency of non-GAAP exclusions (CONSISTENCY_$M_{i,q}$) across the same quarter(s) for consecutive years. Specifically, CONSISTENCY_$M_{i,q}$ is calculated as the sum of the absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1.[45] Table 5-1 shows an example of the above two measures of non-GAAP earnings consistency. A greater CONSISTENCY_$U_{i,q}$ or CONSISTENCY_$M_{i,q}$ indicates more consistent non-GAAP earnings.

6.4.2 Abnormal returns

I cumulate the market-adjusted abnormal returns over a three-day window ($CAR_{i,q}$) to capture the aggregate market price reaction. Consistent with prior research

[44] Income tax adjustments on non-GAAP exclusions are adjustments for aggregate tax effects of recurring, non-recurring, and uncommon non-GAAP adjustments. Hence, these adjustments do not reflect the management's discretional use of non-GAAP exclusions.
[45] I multiply the sum of absolute change in firm i's individual consistent non-GAAP exclusions by minus 1 to make greater values indicating more consistent non-GAAP earnings.

on the information content of non-GAAP earnings (Entwistle et al., 2012; Lougee & Marquardt, 2004; Marques, 2010), the daily abnormal return is the daily firm-specific stock return minus the value-weighted portfolio return on the same day.[46] I define the short-window abnormal return interval as the period beginning one day before the day of the earnings release and ending one day after the earnings release. This interval covers three days centered on the non-GAAP earnings announcement date. Thus, $CAR_{i,q}$ equals the three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by the share price at the beginning of the quarter.

6.4.3 Managerial opportunism of non-GAAP earnings disclosures

I measure the management's opportunism of non-GAAP earnings disclosures following the indicators of opportunistic non-GAAP disclosures used by prior studies (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017; Doyle et al., 2013; Isidro & Marques, 2015). The first measure is that of the use of non-GAAP earnings to meet or beat the analysts' earnings expectations that would otherwise be missed on a GAAP basis (MBF). Non-GAAP earnings are the non-GAAP diluted per share number (EPS_{NG}) disclosed by managers in the earnings releases. GAAP financial performance is measured by operating earnings per diluted share (EPS_{GAAP_OP}) that is defined by Compustat. EPS_{GAAP_OP} is calculated as excluding all special items and below-the-line items from net income per diluted share. The analysts' earnings expectation is proxied by the consensus analyst forecast (CONSENSUS) obtained from the I/B/E/S database. Analysts generally two types of earnings measures, including forecasts of earnings under GAAP and adjusted earnings to reflect core performance (called "street earnings"). To be consistent with prior literature, this study uses the former one. MBF is an indicator

[46] I find qualitatively similar results using equal-weighted market-adjusted abnormal returns.

variable that is coded one if EPS_{NG} equals or exceeds CONSENSUS while EPS_{GAAP_OP} is less than CONSENSUS, and zero otherwise.

The second measure is the use of non-GAAP exclusions to convert a GAAP loss into a non-GAAP profit (CNV). Consistent with the measure of MBF, the non-GAAP profit and GAAP loss are measured by EPS_{NG} and EPS_{GAAP_OP}, respectively. Thus, CNV is an indicator variable that is equal to one if EPS_{NG} reports a profit while EPS_{GAAP_OP} reports a loss, and zero otherwise.

The third measure is that of the extent to which managers exclude recurring items from non-GAAP earnings (RECUR). My study summarizes seven recurring items that are commonly excluded from non-GAAP earnings by managers: depreciation and amortization (D&A), stock-based compensation (SBC), interest (INTEXP), research and development (R&D), investment gain or loss (INVEST), pension expenses (PENSION), and foreign currency exchange (FCEX). RECUR is equal to the number of recurring items excluded by managers scaled by seven, ranging between 0 and 1. A higher RECUR reflects managers' greater opportunism in non-GAAP earnings disclosures.

6.5 Empirical models

To examine the extent to which investors respond to non-GAAP earnings disclosures when they incorporate the consistency of non-GAAP earnings in their investment decisions (H4), I follow Bhattacharya et al. (2003) by estimating the following OLS regression:

$$\begin{aligned} CAR_{i,q} = {} & \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q} * CONSISTENCY_{i,q} \\ & + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 ln(N\_ANLST)_{i,q} \\ & + \beta_9 \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \end{aligned} \quad (4)$$

where:

$CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter
$FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings
$CONSISTENCY_{i,q}$:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

My primary interest is in the incremental effect of non-GAAP earnings consistency on the informativeness of non-GAAP earnings disclosures, as evidenced by the interaction term $FE_{i,q}$*$CONSISTENCY_{i,q}$. The sign and statistical significance of the coefficient on the interaction term (β_3) indicate whether the consistency of non-GAAP earnings plays a role in investors' evaluation of firm performance when they rely on non-GAAP earnings disclosures. Except for non-GAAP earnings per se, prior studies also suggest that non-GAAP exclusions have information content and negatively affect abnormal returns (Doyle et al., 2013; Entwistle et al., 2012). Consistent with prior research, I control total non-GAAP exclusions ($EXCL_{i,q}$) in the model, and expect a negative coefficient on $EXCL_{i,q}$. $EXCL_{i,q}$ is equal to the value of non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share.

I control a set of variables to address risk factors in the model. Prior studies reveal a systematic inverse relation between firm size ($ln(MV)_{i,q}$) and the magnitude of abnormal returns (Banz, 1981; Collins, Kothari, & Rayburn, 1987; Fama & French, 1992). Hence, I expect a negative sign on $ln(MV)_{i,q}$ that is the logarithm of firm i's market value of equity in quarter q. My study also controls for firms' leverage level ($LEV_{i,q}$), because firms with lower leverage have higher stock returns (Bhandari, 1988; Dhaliwal & Reynolds, 1994).

Therefore, a negative coefficient of $LEV_{i,q}$ is expected. $LEV_{i,q}$ is equal to firm i's total debts divided by total equity, both at the end of quarter q. Fama and French (1992) provide evidence on the positive association between stock returns and the book-to-market ratio ($BTM_{i,q}$). I expect a positive sign on $BTM_{i,q}$, which is calculated as the book value of common equity for firm i in quarter q divided by firm i's market value in the same firm-quarter.

I also control for variables related to external scrutiny on firms. Lang and Lundholm (1996) find that firms with more informative disclosures have higher analyst coverage. I include analyst coverage ($ln(N\_ANLST)_{i,q}$) in the model. Consistent with Lang and Lundholm (1996), I expect a positive sign on $ln(N\_ANLST)_{i,q}$ that is the logarithm of the number of analysts following firm i in quarter q. Another variable that indicates the extent to which firms are under external scrutiny is the level of institutional shareholders ($\%INST_{i,q}$). Prior research suggests that institutional investors tend to purchase (sell) stocks that performed well (poorly; Grinblatt, Titman, & Wermers, 1995; Wermers, 1999). While the market positively (negatively) prices the non-GAAP earnings announcements (as indicated by the coefficient on $FE_{i,q}$), I expect a positive (negative) sign of the coefficient on $\%INST_{i,q}$. $\%INST_{i,q}$ is the proportion of the number of shares of firm i held by institutional investors in quarter q to the total number of shares of firm i outstanding in quarter q.

Finally, I include an industry dummy (INDUSTRY) and a fiscal quarter dummy (QTR) in the model to mitigate the industrial and seasonal influences on the results. INDUSTRY is indicated by GICS sectors, and QTR is classified on the basis of firms' reporting fiscal quarters.

To test H5 to H7, suggesting that investors vary their reactions to the consistency of non-GAAP earnings in the presence of opportunistic use of non-GAAP disclosures, the following model is estimated using OLS regression:

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q} * CONSISTENCY_{i,q}$$

$$+ \beta_4 OPPORTUNISM_{i,q} + \beta_5 FE_{i,q} * OPPORTUNISM_{i,q}$$

$$+ \beta_6 FE_{i,q} * CONSISTENCY_{i,q} * OPPORTUNISM_{i,q}$$

$$+ \beta_7 EXCL_{i,q} + \beta_8 LnMV_{i,q} + \beta_9 ln(MV)_{i,q} + \beta_{10} BTM_{i,q} + \beta_{11} ln(N\_ANLST)_{i,q}$$

$$+ \beta_{12} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (5)$$

where:

$CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter
$FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings
$CONSISTENCY_{i,q}$ measured by:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$OPPORTUNISM_{i,q}$ measured by:
$MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise
$CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise
$RECUR_{i,q}$ = number of recurring items excluded by firm i in quarter q, scaled by total number of recurring item exclusions (totally 7 types of recurring items)
$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same firm-quarter
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

The primary interest of model (5) is on the three-way interaction term ($FE_{i,q}$*$CONSISNTENCY_{i,q}$*$OPPORTUNISM_{i,q}$). The sign and statistical significance of the coefficient on the interaction term indicate whether and how the opportunism of non-GAAP earnings affects investors' perceptions of non-GAAP earnings consistency. The opportunism of non-GAAP earnings ($OPPORTUNISM_{i,q}$) is separately proxied by $MBF_{i,q}$, $CNV_{i,q}$, and $REUCR_{i,q}$, consistent with the literature on opportunistic non-GAAP disclosures (Black & Christensen, 2009; Black, Christensen, Kiosse, & Steffen, 2017).

Consistent with model (4), total non-GAAP exclusions ($EXCL_{i,q}$) are controlled in the model, and a negative coefficient on $EXCL_{i,q}$ is expected. In addition, I control a set

of risk factors ($\ln(MV)_{i,q}$, $LEV_{i,q}$, and $BTM_{i,q}$) and external scrutiny on firms ($\ln(N\_ANLST)_{i,q}$ and $\%INST_{i,q}$) in model (5). To mitigate the industrial and seasonal influences on the results, I also include an industry dummy (INDUSTRY) and a fiscal quarter dummy (QTR) in model (5).

6.6 Data and sample

6.6.1 Sample selection procedures

Consistent with Chapter 5, the observations are based on a constant sample of S&P 500 index firms as of December 31, 2016. Since the measurement of consistency relates to at least two items (FASB, 2010), 5,026 firm-quarter observations that consistently disclose quarterly reconciled non-GAAP earnings for the same quarter(s) over consecutive years are retained. Next, I locate each firm in the Compustat, I/B/E/S, Bloomberg, and Thomson Reuters Eikon databases, from which I gather financial statement information, analyst coverage, analyst earnings forecast, stock returns, and institutional ownership. To conduct the empirical tests, I require firm-quarter observations to have data available for the regressions of the models (4) and (5). This leads to a final sample of 4,314 firm-quarter observations across 241 unique firms.

6.6.2 Descriptive statistics

6.6.2.1 Sample distribution

As shown in Panel B of Table 6-1, the number of observations that consistently have non-GAAP reporting over time has been increasing. Specifically, the number of consistent non-GAAP reporters nearly doubled from 434 in 2010 to 787 in 2016 during the sample period. However, the sample distribution does not substantially vary among fiscal quarters (see Panel C of Table 6-1). With regard to sectors, the Health Care sector accounts for the highest proportion of observations in the final sample, slightly above one quarter, as indicated in Panel D of Table 6-1. The next highest is the Information Technology sector, comprising 22.8% of the final sample. Only 43 firm-quarter

observations are from the Telecommunication Services sector, which might be owing to the low proportion of these firms in the S&P 500 index.[47]

Because the consistency of non-GAAP exclusions is measured by both usage and magnitude, I first divide the full sample into two sub-samples: one has at least one consistent non-GAAP exclusion item ($CONSISTENCY\_U_{i,q} > 0$, N = 3787), which enables the calculation of magnitude consistency of non-GAAP exclusions ($CONSISTENCY\_M_{i,q}$), and the other does not have any consistent non-GAAP exclusions ($CONSISTENCY\_U_{i,q} = 0$, N = 527). In the untabulated analyses, the Information Technology sector has the highest percentage of observations that provide one or more consistent non-GAAP exclusion items, whereas observations in the Telecommunication Services sector are the least likely to use any same exclusion items in defining non-GAAP earnings across the same quarter(s) for consecutive years.

6.6.2.2 Sample characteristics

Panel A of Table 6-2 presents descriptive statistics for the full sample and the two sub-samples with $CONSISTENCY\_U_{i,q} > 0$ and $CONSISTENCY\_U_{i,q} = 0$. All the variables are defined in Appendix 1. As shown in Panel A of Table 6-2, non-GAAP earnings per share (EPS_{NG}) is significantly greater than GAAP net earnings per share (EPS_{GAAP}) for the full sample and the two sub-samples. For the full sample, the average managers increase EPS_{GAAP} by an average of 26.5 cents per share, or 39.4%, to arrive at the greater EPS_{NG} for the full sample. Meanwhile, EPS_{NG} of the two sub-samples are also significantly greater than their corresponding EPS_{GAAP}, as evidenced by the significant t-statistics.

Moreover, managers generally exclude income-increasing or expense-related above-the-line items from their non-GAAP earnings, since EPS_{NG} is significantly greater than GAAP earnings before extraordinary items and discontinued operations

[47] Only five Telecommunication Services firms were included in the S&P 500 index as of December 31, 2016. The potential number of observations for this sector is 140 for 140 firm-quarters (5*4 quarters*7 years).

(EPS_{GAAP_BXT}) for the full sample (t = 19.395, p < 0.01) and the two sub-samples (t = 19.040 and t = 4.164 at the 0.01 level, respectively). While EPS_{NG} averagely meets or beats the consensus analyst forecasts (CONSENSUS) within the full sample and the two sub-samples, GAAP earnings from operations (EPS_{GAAP_OP}) exceeds CONSENSUS only within the sub-sample without any consistent non-GAAP exclusions.

When comparing with their counterparts ($CONSISTENCY\_U_{i,q}$ = 0), the sub-sample with one or more consistent non-GAAP exclusion items ($CONSISTENCY\_U_{i,q}$ > 0) has significantly poorer financial performance under GAAP (EPS_{GAAP_OP}, EPS_{GAAP_BXT}, and EPS_{GAAP}), but more favorable financial operating results under non-GAAP (EPS_{NG}).

6.6.2.3 Model variables

Consistent with prior studies (Black, Christensen, Joo, & Schmardebeck, 2017; Doyle et al., 2003), all the model variables relating to non-GAAP earnings or exclusions are scaled by total assets as at quarter end. Moreover, 67.1% of non-GAAP exclusions that are excluded in the current quarter are also adjusted in the corresponding quarter of the prior year ($CONSISTENCY\_U_{i,q}$). In the untabulated analyses, the raw magnitude consistency of non-GAAP exclusion items significantly varies among the sample ($CONSISTENCY\_U_{i,q}$ > 0). Therefore, I rank the magnitude consistency of non-GAAP exclusion items into 100 percentiles to mitigate the influence of outliers. The ranked magnitude consistency of non-GAAP exclusion ($CONSISTENCY\_M_{i,q}$) has a mean of 0.505 and a median of 0.500. Both the usage and magnitude consistency of individual non-GAAP exclusions are not significantly differentiated from those discussed in the descriptive statistics for the degree of consistency (Section 5.6.2.2).

In general, sample firms have positive three-day cumulative abnormal returns centered on the announcement date ($CAR_{i,q}$) and positive forecast errors based on non-GAAP earnings ($FE_{i,q}$). Consistent with the income-increasing effect of total non-GAAP exclusions ($EXCL_{i,q}$), nearly 37.7% of the full sample use non-GAAP earnings to meet or

beat the consensus analyst forecast that would be missed by GAAP operating earnings ($MBF_{i,q}$). Only 4.3% of overall observations convert their GAAP operating losses into non-GAAP profits ($CNV_{i,q}$).[48] On average, the observations within the full sample exclude at least one type of recurring item (mean of $RECUR_{i,q}$ multiplied by seven types of recurring exclusions) from non-GAAP earnings.

Compared with the sub-sample without any consistent non-GAAP exclusion items ($CONSISTENCY\_U_{i,q} = 0$), the observations with consistent non-GAAP exclusion items ($CONSISTENCY\_U_{i,q} > 0$) earn significantly lower $CAR_{i,q}$. Thus, the descriptive statistics suggest that the consistency of non-GAAP exclusions is associated with investors' reactions to non-GAAP earnings announcements. Moreover, the observations with consistent non-GAAP exclusions have significantly higher $EXCL_{i,q}$, $BTM_{i,q}$, $ln(N\_ANLST)_{i,q}$, and $\%INST_{i,q}$ than their counterparts, observations with no consistent non-GAAP exclusion items. Firm size ($ln(MV)_{i,q}$) and leverage level ($LEV_{i,q}$) are not significantly different between the two sub-samples.

Next, I divide the full sample (N = 4314) into sub-samples that are categorized by the opportunistic use of non-GAAP earnings ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). As shown in Panel B of Table 6-2, operating performance and firm characteristics are significantly different between the two sub-samples categorized by whether observations use non-GAAP earnings to meet analysts' earnings expectations ($MBF_{i,q}$). Compared with their counterparts ($MBF_{i,q} = 0$), the observations that use non-GAAP earnings to achieve the analysts' earnings expectations when GAAP operating earnings fall short ($MBF_{i,q} = 1$) report greater non-GAAP earnings (EPS_{NG}), have poorer financial performance on a GAAP basis (EPS_{GAAP_OP}, EPS_{GAAP_BXT}, and EPS_{GAAP}), obtain greater abnormal returns ($CAR_{i,q}$), have more consistent use of non-GAAP exclusion items ($CONSISTENCY\_U_{i,q}$), have greater market value ($LnMV_{i,q}$), have lower leverage ($LEV_{i,q}$) and book-to-market

[48] Although the mean of $CNV_{i,q}$ is 0.043, the observations with GAAP losses from operations are highly inclined to convert the GAAP operating losses into non-GAAP profits. In the untabulated analyses, I find that more than half of GAAP operating loss-making observations disclose non-GAAP profits that impress the market with more favorable operating performance.

ratio ($BTM_{i,q}$), and experience more stringent external scrutiny ($ln(N\_ANLST)_{i,q}$ and $\%INST_{i,q}$).

Since only the observations with at least one consistent non-GAAP exclusion item ($CONSISTENCY\_U_{i,q} > 0$) enable the calculation of magnitude consistency of non-GAAP exclusion items, I also divide these observations (N = 3787) into two groups, observations with $MBF_{i,q} = 1$ and observations with $MBF_{i,q} = 0$. As indicated in Panel C of Table 6-2, the observations that use non-GAAP earnings to meet the mean analyst forecast that would be missed on a GAAP basis ($MBF_{i,q} = 1$) exclude significantly less consistent non-GAAP exclusions with regard to magnitude ($CONSISTENCY\_M_{i,q}$) than the observations with their $MBF_{i,q}$ equal to zero.

When categorizing the full sample into sub-samples by whether the number of recurring item exclusions ($RECUR_{i,q}$) of observations is above or below the sample median, the differences in non-GAAP financial results, the GAAP financial performance, the consistency of non-GAAP exclusion items, and the firms' characteristics between sub-samples are not significantly different from those of the observations grouped by $MBF_{i,q}$. However, there is no significant difference in $CAR_{i,q}$ between the two sub-samples categorized by $RECUR_{i,q}$. With regard to the sample with consistent non-GAAP exclusions ($CONSISTENCY\_U_{i,q} > 0$), differences in the earnings metrics and model variables between observations in High $RECUR_{i,q}$ and Low $RECUR_{i,q}$ groups are generally consistent with those between the sample groups categorized by $MBF_{i,q}$.[49] Nonetheless, $CAR_{i,q}$ is still not significantly different between the High $RECUR_{i,q}$ and the Low $RECUR_{i,q}$ sub-samples.

I also split the full sample and sub-sample with consistent non-GAAP exclusion items into two groups by whether sample firms turn a GAAP loss into a non-GAAP profit ($CNV_{i,q}$). I find that the conversion observations ($CNV_{i,q} = 1$) disclose significantly smaller

[49] Specifically, the Higher $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is greater than or equal to the full sample median, while the Lower $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is less than the full sample median.

EPS_{NG} but exclude larger $EXCL_{i,q}$ than their counterparts ($CNV_{i,q}$ = 0). Although the conversion observations impress the market with favorable non-GAAP profits, they still averagely earn negative $CAR_{i,q}$, which is significantly different from the positive $CAR_{i,q}$ of their counterparts ($CNV_{i,q}$ = 0). Within the full sample, $CONSISTENCY\_U_{i,q}$ of conversion observations (0.721) is significantly ($p < 0.05$) higher than that of the non-conversion observations (0.668). However, by excluding observations without any consistent non-GAAP exclusions, both $CONSISTENCY\_U_{i,q}$ and $CONSISTENCY\_M_{i,q}$ of conversion observations are significantly lower than those of their counterparts, non-conversion observations. In addition, the observations of the two groups do not differ from each other in $ln(MV)_{i,q}$ and $LEV_{i,q}$, while the conversion observations have greater $BTM_{i,q}$ than non-conversion observations. Finally, the conversion observations experience significantly more stringent external scrutiny ($ln(N\_ANLST)_{i,q}$ and $\%INST_{i,q}$) than non-conversion observations, consistent with the results from the sample categorization by $MBF_{i,q}$ and $RECUR_{i,q}$.

In sum, investors react to opportunistic and non-opportunistic non-GAAP reporting firms differently. The opportunistic non-GAAP reporting firms, except those turning GAAP losses into non-GAAP profits, generally provide non-GAAP earnings with more consistent use of non-GAAP exclusion items that are greatly varied in magnitude than their counterparts, non-opportunistic firms. All the opportunistic non-GAAP reporting firms appear to be under more severe scrutiny from external parties, such as analysts and institutional investors.

6.6.2.4 Correlation of model variables

Table 6-3 reports the correlation between the main variables. The primary independent variables of interest in my study are the consistency of non-GAAP earnings ($CONSISTENCY\_U_{i,q}$ and $CONSISTENCY\_M_{i,q}$) and the opportunistic use of non-GAAP earnings ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). The usage consistency ($CONSISTENCY\_U_{i,q}$) and the magnitude consistency ($CONSISTENCY\_M_{i,q}$) are negatively and significantly

related (the Pearson correlation coefficient (ρ) = −0.105, at the 0.01 level). For the opportunistic use of non-GAAP earnings disclosures, the use of non-GAAP earnings to meet or beat analyst forecasts that would be missed on a GAAP basis, $MBF_{i,q}$, is positively and significantly related to the conversions of GAAP losses into non-GAAP profits, $CNV_{i,q}$ (ρ = 0.123, at the 0.01 level). In addition, the degree of recurring item exclusions ($RECUR_{i,q}$) appears more positively correlated with $MBF_{i,q}$ (ρ = 0.366, at the 0.01 level) than it is with $CNV_{i,q}$ (ρ = 0.090, at the 0.01 level).

Moreover, $CONSISTENCY\_M_{i,q}$ has a significant and negative association with $MBF_{i,q}$ (ρ = −0.168, at the 0.01 level), $CNV_{i,q}$ (ρ = −0.229, at the 0.01 level), and $RECUR_{i,q}$ (ρ = −0.228, at the 0.01 level). However, $CONSISTENCY\_U_{i,q}$ significantly and negatively associates only with $CNV_{i,q}$ (ρ = −0.036, at the 0.05 level), but has a positive correlation with $MBF_{i,q}$ (ρ = 0.066, at the 0.01 level) and $RECUR_{i,q}$ (ρ = 0.037, at the 0.05 level). In addition, $FE_{i,q}$ is only negatively associated with $CONSISTENCY\_M_{i,q}$ (ρ = −0.048, at the 0.01 level) and is positively associated with $MBF_{i,q}$ (ρ = 0.043, at the 0.01 level).

The independent variables are also examined for multicollinearity. The greatest correlation among independent variables is 0.476 for the negative association between the firm size ($ln(MV)_{i,q}$) and proportion of institutional investors ($\%INST_{i,q}$), suggesting that multicollinearity is not problematic in the regression model. The VIFs of the independent variables, which are all less than 2, confirm this result.

6.7 Results

6.7.1 Incremental information content of non-GAAP earnings consistency

I first examine whether investors' reliance on non-GAAP earnings has varied with the consistency of non-GAAP earnings. Table 6-4 reports the results for the incremental information content of non-GAAP earnings consistency to investors. The regressions allow errors to cluster by firms to account for any residual dependence created by firm effects. Even though the coefficient on $FE_{i,q}$ is significantly positive (1.686) when

regressing on CONSISTENCY_$U_{i,q}$, the positive coefficient on $FE_{i,q}$*CONSISTENCY_$U_{i,q}$ interaction term (0.660) is not statistically significant, suggesting that the extent to which investors react to non-GAAP earnings announcements is not influenced by the degree of management's consistent use of non-GAAP exclusion items. When regressing on CONSISTENCY_$M_{i,q}$, the coefficients on $FE_{i,q}$ and $FE_{i,q}$*CONSISTENCY_$M_{i,q}$ interaction term are significantly ($p < 0.01$) positive (coefficient = 3.223) and marginally ($p < 0.10$) negative (coefficient = -1.905), respectively. That means investors' reaction to non-GAAP earnings marginally decreases as the magnitude consistency of non-GAAP exclusion items increases. In other words, investors interpret the relatively consistent amount of non-GAAP exclusion items as the diminished informativeness of non-GAAP earnings disclosures. Therefore, the results support H4 that the consistency in non-GAAP reporting affects investors' reliance on non-GAAP earnings.

Consistent with prior studies (Doyle et al., 2013; Entwistle et al., 2012), the coefficient on $EXCL_{i,q}$ is negative and significant at the 0.01 level for the regressions on both CONSISTENCY_$U_{i,q}$ (coefficient = -0.166) and CONSISTENCY_$M_{i,q}$ (coefficient = -0.191). While the coefficients on $ln(MV)_{i,q}$, $LEV_{i,q}$, and $BTM_{i,q}$ are negative and significant, there is no significant association of $ln(N\_ANLST)_{i,q}$ and $\%INST_{i,q}$ with abnormal returns in two regressions. Therefore, firms with relatively larger size ($ln(MV)_{i,q}$), higher leverage level ($LEV_{i,q}$), and higher book-to-market value ($BTM_{i,q}$) earn marginally lower abnormal returns, the stock return movement is not strongly linked to the external scrutiny on firms that is proxied by $ln(N\_ANLST)_{i,q}$ or $\%INST_{i,q}$. In the untabulated analyses, firms in the Information Technology sector are more inclined to have positive abnormal returns. Moreover, firms have significantly higher returns in the fourth fiscal quarter.

To sum up, the Table 6-4 results suggest that investors' reliance on non-GAAP earnings systematically varies with the magnitude consistency of non-GAAP earnings. Firms that disclose non-GAAP earnings with relatively consistent use of non-GAAP exclusion items do not affect investors' reactions to non-GAAP earnings disclosures. However, investors are less likely to respond to non-GAAP earnings when the values of

consistent non-GAAP exclusions are less varied. Alternatively, in addition to the total value of non-GAAP exclusions, investors interpret the magnitude consistency of non-GAAP exclusion items as a signal for the reduced informativeness of non-GAAP earnings. This conclusion challenges the common notion that investors view consistency in reporting as a signal of informative financial disclosures.

6.7.2 Influence of opportunistic non-GAAP disclosures on investors' perception of non-GAAP earnings consistency

Given the evidence that the consistency of non-GAAP exclusions significantly affects investors' reaction to non-GAAP earnings and that the managerial opportunism of non-GAAP disclosures drives non-GAAP earnings consistency, I further investigate whether investors fully understand this opportunism-driven consistency of non-GAAP earnings when they rely on non-GAAP earnings announcements. Specifically, I examine whether investors' incremental reaction to non-GAAP earnings consistency varies in the presence of managers' opportunistic use of non-GAAP earnings disclosures. Three indicators of opportunistic non-GAAP earnings disclosures are examined: (1) the use of non-GAAP earnings to meet or beat the consensus analyst forecast that would be missed by GAAP operating earnings ($MBF_{i,q}$), (2) the conversion of a GAAP loss into a non-GAAP profit ($CNV_{i,q}$), and (3) the extent to which recurring items are excluded from non-GAAP earnings ($RECUR_{i,q}$). Table 6-5 reports the results from regressing three-day cumulative abnormal returns centered on the earnings announcement date ($CAR_{i,q}$) on the non-GAAP earnings forecast errors ($FE_{i,q}$), consistency of non-GAAP earnings ($CONSISTENCY_{i,q}$), and interactions between them. The regressions use data from potentially opportunistic and non-opportunistic samples as well as the pooled sample.

Panel A of Table 6-5 presents results on the usage consistency of non-GAAP exclusion items ($CONSISTENCY\_U_{i,q}$) and opportunistic non-GAAP disclosures ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). The forecast error based on non-GAAP earnings, $FE_{i,q}$, is consistently positive and significant across all regressions and samples, except for sub-

samples that use non-GAAP exclusions to meet or beat the consensus analyst forecast ($MBF_{i,q}$ = 1) or exclude a relatively greater number of recurring items (Higher $RECUR_{i,q}$). Moreover, I find that the earnings announcement period abnormal return only significantly decreases as the consistency of non-GAAP earnings increases, as evidenced by the significantly negative coefficient on $CONSISTENCY\_U_{i,q}$, for the non-opportunistic sub-sample that managers do not use non-GAAP earnings to meet or beat the consensus analyst forecast ($MBF_{i,q}$ = 0). However, my primary interest is on the effect of the consistency of non-GAAP exclusions on investors' reliance on non-GAAP earnings, as evidenced by the interaction terms. The results indicate that for the sub-sample with $MBF_{i,q}$ = 1, the coefficient on $FE_{i,q}$*$CONSISTENCY\_U_{i,q}$ is significantly positive, suggesting that investors' reliance on non-GAAP earnings increases as the consistent use of non-GAAP items increases when non-GAAP exclusions help firms meet or beat the analysts' mean earnings expectations. In addition, neither the coefficients on $FE_{i,q}$*$CONSISTENCY\_U_{i,q}$ for other potentially opportunistic sub-samples ($CNV_{i,q}$ = 1 and Higher $RECUR_{i,q}$), nor for non-opportunistic groups ($MBF_{i,q}$ = 0, $CNV_{i,q}$ = 0, and Lower $RECUR_{i,q}$) are statistically significant. In sum, the results suggest that the consistent use of non-GAAP items strengthens investors' reliance on non-GAAP earnings only when non-GAAP exclusions allow firms to meet analysts' earnings expectations on a non-GAAP basis; however, I do not find evidence that investors incrementally react to the consistent use of non-GAAP items in the cases of other potentially opportunistic non-GAAP disclosures. In addition, investors appear to be not sensitive to the management's consistent use of non-GAAP items in the absence of opportunistic incentives for non-GAAP disclosures.

Then, I pool the potentially opportunistic and non-opportunistic samples to formally test Hypothesis 5 to Hypothesis 7—that investors react differently to the consistency of non-GAAP earnings in the presence and absence of opportunistic use of non-GAAP disclosures. I interact each indicator of opportunistic non-GAAP disclosures with $FE_{i,q}$*$CONSISTENCY\_U_{i,q}$. My primary interest is in the three-way interaction term

($FE_{i,q}$*CONSISTENCY_$U_{i,q}$*$OPPORTUNISM_{i,q}$). The significantly positive coefficient on the $FE_{i,q}$*CONSISTENCY_$U_{i,q}$*$MBF_{i,q}$ interaction term suggests that investors react more to non-GAAP earnings as the consistency of use of non-GAAP exclusion items increases when managers use non-GAAP earnings to achieve analysts' earnings expectation than when they do not, consistent with H5. Similar to the result of the sub-sample test, the conversion of a GAAP loss into a non-GAAP profit does not play a vital role in affecting investors' perception of the consistent use of non-GAAP exclusions, as evidenced by the insignificant coefficient on $FE_{i,q}$*CONSISTENCY_$U_{i,q}$*$CNV_{i,q}$. This evidence does not support H6. Although the consistent use of non-GAAP items does not alter investors' response to non-GAAP earnings in the two sub-samples with relatively higher and lower recurring items exclusions, the coefficient on $FE_{i,q}$*CONSISTENCY_$U_{i,q}$*$RECUR_{i,q}$ is significantly positive at the 0.10 level for the regression using the full sample. This evidence suggests that investors somewhat view non-GAAP earnings disclosures as more informative when the usage consistency of non-GAAP exclusion items increases and non-GAAP exclusions consist of relatively more recurring items, consistent with H7.

Overall, the results in Panel A of Table 6-5 indicate that investors appear to rely more on non-GAAP earnings with more consistent non-GAAP items when managers use non-GAAP exclusions to meet or beat analysts' earnings expectations or when they exclude relatively more types of recurring items from non-GAAP earnings. The results are consistent with H5 and H7, but do not support H6. Since investors discount opportunistic non-GAAP disclosures, their incrementally positive reaction to consistent use of non-GAAP items in some cases of opportunistic non-GAAP disclosures indicates that they are unaware that the consistency in the use of non-GAAP exclusion items is positively and significantly driven by the opportunistic incentives for non-GAAP disclosures.

Panel B of Table 6-5 reports the results on the magnitude consistency of non-GAAP exclusions (CONSISTENCY_$M_{i,q}$) and opportunistic non-GAAP disclosures ($MBF_{i,q}$, $CNV_{i,q}$, and $RECUR_{i,q}$). The coefficients on $FE_{i,q}$*CONSISTENCY_$M_{i,q}$ are not

statistically significant for the regression on the potentially opportunistic sub-sample that uses non-GAAP earnings to meet or beat the consensus analyst forecasts ($MBF_{i,q}$ = 1) or turns a GAAP loss into a non-GAAP profit ($CNV_{i,q}$ = 1). However, the $FE_{i,q}$*CONSISTENCY_$M_{i,q}$ interaction term is significantly negative for the regression using the sample that excludes a relatively greater number of recurring items (Higher $RECUR_{i,q}$). While the coefficient on the $FE_{i,q}$*CONSISTENCY_$M_{i,q}$ interaction term is significantly negative for the non-opportunistic sub-samples with $MBF_{i,q}$ = 0 or $CNV_{i,q}$ = 0, the $FE_{i,q}$*CONSISTENCY_$M_{i,q}$ interaction term is not statistically significant for the regression using the sample that excludes a relatively smaller number of recurring items (Lower $RECUR_{i,q}$). In sum, these results indicate that the magnitude consistency of non-GAAP exclusions decreases investors' reliance on non-GAAP earnings in the cases when managers opportunistically exclude relatively more types of recurring items from non-GAAP earnings or when managers do not use non-GAAP earnings to achieve important earnings benchmarks.

I also pool potentially opportunistic and non-opportunistic non-GAAP reporting observations to examine Hypothesis 5 to Hypothesis 7 formally. I interact each indicator of opportunistic non-GAAP disclosures with $FE_{i,q}$*CONSISTENCY_$M_{i,q}$. My primary interest is in the three-way interaction term ($FE_{i,q}$*CONSISTENCY_$M_{i,q}$*$OPPORTUNISM_{i,q}$). This three-way interaction term is significantly positive for $MBF_{i,q}$ and not statistically significant for $CNV_{i,q}$ as well as $RECUR_{i,q}$. The results suggest that investors are more likely to react to non-GAAP earnings as the magnitude consistency of non-GAAP exclusions increases when managers use non-GAAP earnings to achieve analysts' earnings benchmarks, consistent with H5. In contrast, the insignificant coefficients on the three-way interaction terms for $CNV_{i,q}$ and $RECUR_{i,q}$ suggest that neither managers' conversion of a GAAP loss into a non-GAAP profit, nor the extent to which managers exclude recurring items, plays a role in influencing investors' pricing of the magnitude consistency of non-GAAP earnings. Thus, the results do not support H6 and H7.

In sum, the results in Table 6-5 suggest that the market reaction to non-GAAP earnings consistency is, in fact, different in each case of opportunistic non-GAAP disclosures. When non-GAAP disclosures enable firms to meet or beat analysts' mean earnings forecast that would otherwise be missed on a GAAP basis, both the usage consistency and the magnitude consistency of non-GAAP earnings have additional information content to investors. Investors do not appear to have been incrementally cautious in the consistent use or consistent value of non-GAAP exclusion items when managers use non-GAAP disclosures to turn a GAAP loss into a non-GAAP profit. Finally, investors only view the consistent use of non-GAAP items, rather than the consistent values of non-GAAP items, as more informative when managers opportunistically report non-GAAP earnings by excluding relatively more recurring items.

The results also indicate the extent to which investors understand the opportunistic incentives behind the violation of consistency in non-GAAP reporting. Their positive response to the consistent use of non-GAAP items by opportunistic managers, who use non-GAAP earnings to meet or beat analysts' earnings expectations or exclude relatively more recurring items, infers that investors do not fully understand the opportunistic incentives behind the consistent use of non-GAAP items. Nevertheless, investors appear to partially understand the negative association between the magnitude consistency of non-GAAP exclusions and opportunistic non-GAAP disclosures, because they react positively to consistent values of non-GAAP exclusions disclosed by opportunistic managers that use non-GAAP earnings to achieve analysts' earnings expectation. The results are generally consistent with H5 and H7, but do not support H6.

6.7.3 Additional analyses

6.7.3.1 Impact of non-GAAP reporting frequency on informativeness of consistency in non-GAAP reporting

One possible explanation for the negative association between consistency in non-GAAP reporting and abnormal stock returns is that my sample is composed of firms

with potentially different incentives for non-GAAP reporting. Black and Christensen (2009) suggest that sporadic non-GAAP reporting firms are more opportunistic than regular non-GAAP reporting firms. Consistent with this line of reasoning, I further examine whether investors' negative view on the consistency of non-GAAP earnings is partially due to their understanding of managerial opportunism implied by the frequency of non-GAAP reporting.

Consistent with Black and Christensen (2009), I classify firms that report non-GAAP earnings in equal to, or more than, the 90th percentile of the number of quarters (out of 28) that the sample firms disclose non-GAAP earnings as frequent non-GAAP reporters. The remaining sample firms are grouped as infrequent non-GAAP reporters. I use the binary variable $FRQT_{i,q}$ to differentiate frequent and infrequent non-GAAP reporters. Specifically, $FRQT_{i,q}$ is equal to one if firm i is a frequent non-GAAP reporter, and zero otherwise.

I first repeat model (4) by using the data of frequent and infrequent non-GAAP reporters separately. As indicated in Table 6-6, neither the consistency of use of non-GAAP exclusion items by frequent reporters, nor that reported by infrequent reporters, is incrementally informative to investors. Moreover, investors appear to consistently react less to non-GAAP earnings with relatively high magnitude consistency of non-GAAP exclusion items, no matter the extent to which sample firms provide non-GAAP reporting. Thus, investors' sensitivity to non-GAAP earnings consistency with regard to both usage and magnitude across frequent and infrequent reporting samples is consistent with the full sample evidence in Table 5-6.

To investigate the effect of non-GAAP reporting frequency on investors' reliance on non-GAAP earnings formally, I estimate the following model by pooling all of the observations and including three-way interactions with the indicator variable of non-GAAP reporting frequency ($FRQT_{i,q}$):

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q} * CONSISTENCY_{i,q}$$

$$+ \beta_4 FRQT_{i,q} + \beta_5 FE_{i,q}*FRQT_{i,q} + \beta_6 FE_{i,q}*CONSISTENCY_{i,q}*FRQT_{i,q}$$

$$+ \beta_7 EXCL_{i,q} + \beta_8 ln(MV)_{i,q} + \beta_9 LEV_{i,q} + \beta_{10} BTM_{i,q} + \beta_{11} ln(N\_ANLST)_{i,q}$$

$$+ \beta_{12} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (6)$$

where:

$CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter
$FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings
$CONSISTENCY_{i,q}$ measured by:
$CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$FRQT_{i,q}$ = one if firm i is a frequent non-GAAP reporter, and zero otherwise, where a frequent non-GAAP reporter is defined as a firm that reports non-GAAP earnings in equal to or more than 90^{th} percentile of the number of quarters that my sample firms disclose non-GAAP earnings in the quarterly press releases
$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

Table 6-6 reports the results of model (6). Both the three-way interaction terms ($FE_{i,q}*CONSISTENCY\_U_{i,q}*FRQT_{i,q}$ and $FE_{i,q}*CONSISTENCY\_M_{i,q}*FRQT_{i,q}$) are not statistically significant. Thus, the frequency of non-GAAP reporting does not have incremental information content on the informativeness of non-GAAP earnings consistency. My results on the incremental informativeness of non-GAAP earnings consistency to investors are robust after considering the potential opportunism of non-GAAP disclosures proxied by non-GAAP reporting frequency.

6.7.3.2 Influence of different categories of non-GAAP exclusion items on the informativeness of non-GAAP earnings consistency

Prior research suggests that information consistency boosts users' confidence in personality impressions (Gill et al., 1998) and improves the accuracy of their judgments

(Peterson & Pitz, 1988). As a result, financial information consistency positively moves stock prices (Alwathainani, 2009; Hilary et al., 2014; Peterson et al., 2015; Tang & Venkataraman, 2018). However, my study finds that investors react less to non-GAAP earnings when the magnitude consistency of non-GAAP exclusions increases, contrary to the positive role of financial information consistency in influencing investors. Prior research suggests that the market reacts to different categories of non-GAAP exclusions differently (Christensen et al., 2014; Curtis et al., 2014; Doyle et al., 2013). To further explore the reason behind the negative association between the consistency of non-GAAP earnings and stock returns, I separately measure the consistency of recurring and non-recurring item exclusions, and, then, examine whether investors' negative response is caused by particular categories of non-GAAP exclusions, using model (4).

Tale 6-7 reports the analysis results. In line with the evidence on the consistency of overall non-GAAP exclusions, neither consistent use of recurring item exclusions, nor of non-recurring item exclusions, affects investors' reliance on non-GAAP earnings disclosures, as evidenced by the insignificant coefficients on the interaction terms $FE_{i,q}$*CONSISTENCY_U_RECUR$_{i,q}$ and $FE_{i,q}$*CONSISTENCY_U_NRECUR$_{i,q}$. However, the value variations of non-GAAP exclusions in different categories influence investors' pricing of non-GAAP earnings differently. The coefficient on the interaction term $FE_{i,q}$*CONSISTENCY_M_RECUR$_{i,q}$ is negative and significant at the 0.01 level, suggesting that non-GAAP earnings become less informative to investors as the magnitude consistency of recurring non-GAAP exclusions increases. Moreover, investors' positive response to non-GAAP earnings (4.987, $p < 0.01$) is even diminished if the value of recurring items is increasingly consistent (−5.250, $p < 0.01$). The results indicate that the market intends to penalize managers who portray more favorable performance on a non-GAAP basis by excluding constant recurring items. By contrast, the magnitude consistency of non-recurring exclusions does not affect investors' reliance on non-GAAP earnings announcements, as evidenced by the insignificant coefficient on the interaction term $FE_{i,q}$*CONSISTENCY_M_NRECUR$_{i,q}$.

Overall, investors' response to non-GAAP earnings decreases as the magnitude consistency of recurring item exclusions increases, whereas investors that rely on non-GAAP earnings disclosures are not incrementally sensitive to the value variations of non-recurring exclusions. Thus, the results indicate that investors' negative response to consistency in non-GAAP reporting is generally attributable to the use of recurring item exclusions with steady values. In other words, the value smoothness of recurring items excluded from non-GAAP earnings reduces investors' confidence in the informativeness of non-GAAP earnings disclosures.

6.7.3.3 Informativeness of consistency of individual recurring item exclusions

Prior research suggests that the components of financial statements reflect incremental information about valuation-relevant economic events, beyond that captured by aggregate or total figures alone (Bhattacharya et al., 2003; Livnat & Zarowin, 1990; Subramanyam, 1996). For example, Subramanyam (1996) finds that when net income is decomposed into operating cash flow, discretionary accruals, and non-discretionary accruals, each component has a significant association with stock returns. Moreover, Livnat and Zarowin (1990) examine whether components of cash flows have differential associations with annual security returns. They find that the disaggregation of financing and operating cash flows into their components significantly improves the degree of their association with annual returns.

With regard to non-GAAP disclosures, Bhattacharya et al. (2003) examine whether individual non-GAAP exclusion items provide investors that rely on non-GAAP disclosures with additional information. In their study, non-GAAP exclusion items are summarized into eight categories. They find that non-GAAP earnings are incrementally informative when managers exclude research and development charges, gains and losses related to asset disposals, or ‘‘below-the-line’’ items. Additionally, Christensen et

al. (2014) provide evidence that the short sellers are particularly active when stock-based compensation expense is excluded from non-GAAP earnings.

As discussed in Section 6.7.3.2, investors' negative response to consistency in non-GAAP reporting is generally attributable to the magnitude consistency of recurring item exclusions. In line with this reasoning, I examine whether their negative response is closely related to the steady value of particular types of recurring item exclusions. On the basis of model (4), I estimate the following OLS regression:

$$\begin{aligned} CAR_{i,q} = {} & \beta_0 + \beta_1 FE_{i,q} + \beta_2 M\_RECUR\_D\&A_{i,q} + \beta_3 M\_RECUR\_SBC_{i,q} \\ & + \beta_4 M\_RECUR\_INTEXP_{i,q} + \beta_5 M\_RECUR\_R\&D_{i,q} \\ & + \beta_6 M\_RECUR\_INVEST_{i,q} + \beta_7 M\_RECUR\_PENSION_{i,q} \\ & + \beta_8 M\_RECUR\_FCEX_{i,q} + \beta_9 FE_{i,q} * M\_RECUR\_D\&A_{i,q} \\ & + \beta_{10} FE_{i,q} * M\_RECUR\_SBC_{i,q} + \beta_{11} FE_{i,q} * M\_RECUR\_INTEXP_{i,q} \\ & + \beta_{12} FE_{i,q} * M\_RECUR\_R\&D_{i,q} + \beta_{13} FE_{i,q} * M\_RECUR\_INVEST_{i,q} \\ & + \beta_{14} FE_{i,q} * M\_RECUR\_PENSION_{i,q} + \beta_{15} FE_{i,q} * M\_RECUR\_FCEX_{i,q} \\ & + \beta_{16} EXCL_{i,q} + \beta_{17} ln(MV)_{i,q} + \beta_{18} LEV_{i,q} + \beta_{19} BTM_{i,q} + \beta_{20} Nln(N\_ANLST)_{i,q} \\ & + \beta_{21} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \end{aligned} \quad (7)$$

where:

$CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter
$FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings
$M\_RECUR\_D\&A_{i,q}$ = absolute change in values of firm i's exclusions related to depreciation and amortization charges in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_SBC_{i,q}$ = absolute change in values of firm i's exclusions related to stock-based compensation charges in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_INTEXP_{i,q}$ = absolute change in values of firm i's exclusions related to interest expense or income in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_R\&D_{i,q}$ = absolute change in values of firm i's exclusions related to research and development charges in quarter q from quarter q-4, multiplied by minus 1
M_RECUR_INVESTi,q = absolute change in values of firm i's exclusions related to gain or loss on investments in quarter q from quarter q-4, multiplied by minus 1
M_RECUR_PENSIONi,q = absolute change in values of firm i's exclusions related to pension charges in quarter q from quarter q-4, multiplied by minus 1
M_RECUR_FCEXi,q = absolute change in values of firm i's exclusions related to foreign currency exchange gain or loss in quarter q from quarter q-4, multiplied by minus 1

$EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)
$ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q
$LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q
$BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
$ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q
$\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
INDUSTRY = industry dummies
QTR = fiscal quarter dummies

Table 6-7 reports the results of model (7). My primary interest is in the interactive variables between the forecast error based on non-GAAP earnings and the magnitude consistency of individual recurring exclusions. The coefficients on the interaction terms for stock-based compensation exclusions ($FE_{i,q}$* $M\_RECUR\_SBC_{i,q}$), interest expenses or income exclusions ($FE_{i,q}$*$M\_RECUR\_INTEXP_{i,q}$), investments gain or loss exclusions ($FE_{i,q}$*$M\_RECUR\_INVEST_{i,q}$), and foreign currency exchange exclusions ($FE_{i,q}$*$M\_RECUR\_FCEX_{i,q}$) are negative and significant. However, the magnitude consistency of exclusions related to depreciation and amortization charges ($M\_RECUR\_D\&A_{i,q}$), research and development charges ($M\_RECUR\_R\&D_{i,q}$), and pension costs ($M\_RECUR\_PENSION_{i,q}$) do not significantly affect investors' pricing of non-GAAP earnings. The results indicate that investors are only sensitive to value variations of some types of recurring item exclusions.

Overall, the evidence on the informativeness of the magnitude consistency of individual recurring exclusions is generally consistent with that of the broad category of recurring item exclusions. Investors place less weight on non-GAAP earnings disclosures when the excluded stock-based compensation charges, interest expenses or income, investment gain or loss, and foreign currency exchange charges have steady values from period to period. The results reveal that investors' negative view on the magnitude consistency of recurring item exclusions is attributable to the constant economic values of particular types of recurring item exclusions.

6.8 Summary

This chapter investigates whether the consistency in non-GAAP reporting has affected investors' perceptions of non-GAAP earnings announcements. Specifically, I examine how the consistency of non-GAAP exclusion items in defining non-GAP earnings influences the association between abnormal returns and non-GAAP earnings disclosures. The consistency of non-GAAP exclusion items is measured either by the consistent use of non-GAAP items (usage consistency), or the value smoothness of non-GAAP exclusion items (magnitude consistency). The results indicate that investors that rely on non-GAAP disclosures are not sensitive to the consistency of use of non-GAAP exclusion items. However, the magnitude consistency of non-GAAP exclusion items moderates their positive response to non-GAAP earnings, suggesting that investors interpret the steady values of non-GAAP exclusion items as a signal of the diminished informativeness of non-GAAP earnings. Thus, the fourth hypothesis (H4) is generally supported. Nonetheless, my results differ from the finding of the prior literature on information consistency that investors reward firms that make consistent financial disclosures.

I also investigate whether investors' negative view on the consistency of non-GAAP earnings is partially due to their understanding of managerial opportunism implied by the frequency of non-GAAP reporting, since frequent reporting firms are less opportunistic than firms that disclose non-GAAP earnings only sporadically. Nevertheless, the results across frequent and infrequent reporting samples are consistent with the evidence on the full sample. Investors are not incrementally cautious in the usage consistency of non-GAAP exclusion items and react less to the magnitude consistency of non-GAAP exclusion items, no matter the extent to which sample firms provide non-GAAP reporting. Therefore, the results on the informativeness of non-GAAP earnings consistency to investors are robust.

Since my results are contrary to the positive role of financial information consistency in influencing investors in other contexts of financial disclosures, I explore

the reason behind the negative association between the magnitude consistency of non-GAAP exclusion items and stock returns. I measure investors' responses to value variations of recurring and non-recurring item exclusions separately. The results indicate that investors' negative response to the magnitude consistency of non-GAAP earnings is primarily attributable to the use of recurring items exclusions with steady values and that they are not particularly sensitive to value variations of consistently excluded non-recurring items. Thus, the value smoothness of recurring item exclusions is the main driver of the reduced informativeness of non-GAAP earnings to investors.

Since the components of financial statements have incremental information about valuation-relevant economic events, I further investigate whether the magnitude consistency of individual recurring non-GAAP exclusions differently affects investors' reaction to non-GAAP earnings. Based on the review of actual non-GAAP earnings releases, I identify seven types of recurring item exclusions that are commonly used by managers. The results indicate that investors' reliance on non-GAAP earnings disclosures decreases as the magnitude consistency of stock-based compensation exclusions, interest expenses or income exclusions, investments gain or loss exclusions, or foreign currency exchange exclusions increases. Therefore, the constant values of particular types of recurring item exclusions drive investors' reduced reliance on non-GAAP earnings disclosures.

Given the evidence that the managerial opportunism of non-GAAP disclosures affects the consistency of non-GAAP earnings, I also examine whether investors understand the opportunism-driven consistency in non-GAAP reporting when they rely on non-GAAP earnings. It appears that investors rely more on non-GAAP earnings with more consistent use of non-GAAP items when managers make opportunistic non-GAAP disclosures (i.e., when using non-GAAP exclusions to meet or beat analysts' earnings expectations or excluding relatively more types of recurring items from non-GAAP earnings). The results suggest that investors do not appreciate managerial opportunism behind the consistent use of non-GAAP items in some cases of aggressive non-GAAP

disclosures. Conversely, investors find non-GAAP earnings with steady values of non-GAAP exclusions incrementally informative in the case of using non-GAAP earnings to achieve analysts' mean forecast, suggesting that the market appears to be efficient in rewarding benchmark-beating managers who are less inclined to provide non-GAAP exclusions with smooth values over time. Finally, investors do not appear to have been incrementally cautious in either the consistent use of non-GAAP exclusion items, or the steady value of non-GAAP exclusion items, when managers use non-GAAP exclusions to turn a GAAP loss into a non-GAAP profit. Overall, the results are generally consistent with H5 and H7, but do not support H6.

6.9 Chapter 6 Tables

Table 6-1 Sample selection process for tests on informativeness of consistency in non-GAAP reporting

Panel A: Sample selection criteria

Sample Requirements	No. of Observations	No. of Firms
S&P 500 index firms		500
Excluding:		
Real estate firms		(29)
Financial firms		(63)
Utility firms		(28)
Firms delisted owing to merger		(1)
Full sample between the years 2010 through 2016	10,612	379
Press releases unavailable as firms not founded and/or listed yet	(229)	
Press releases unavailable from Bloomberg Database and firms' websites	(466)	
Press releases unavailable as firms no longer reporting non-GAAP measures	(3)	
Press releases available	9,914	373
Press releases without quarterly reconciled non-GAAP earnings	(3,644)	
Press releases with quarterly reconciled non-GAAP earnings	6,270	302
Press releases with quarterly reconciled non-GAAP operating profits only	(29)	
Press releases with quarterly reconciled (non-GAAP) EBIT/EBITDA only	(465)	
Press releases with quarterly reconciled net-income-based non-GAAP earnings	5,776	291
Press releases without comparable benchmark quarters	(189)	
Final sample for identifying consistent non-GAAP net income reporters	5,587	286
Inconsistent non-GAAP net income reporters	(561)	
Consistent non-GAAP net income reporters	5,026	270
No data on model variables	(712)	
Final sample	4,314	241

Table 6-1 Sample selection process (continued)

Panel B: Sample by years

	2010	2011	2012	2013	2014	2015	2016	Total
No. of firm-quarter observations	434	475	534	631	701	752	787	4314

Panel C: Sample by fiscal quarters

	FQ1	FQ2	FQ3	FQ4	Total
No. of firm-quarter observations	1029	1065	1096	1124	4314

Panel D: Sample by sectors

Sectors	No. of firm-quarter observations	Percentage of full sample
Consumer Discretionary	573	13.3
Consumer Staples	374	8.7
Energy	429	9.9
Health Care	1093	25.3
Industrials	568	13.2
Information Technology	983	22.8
Materials	251	5.8
Telecommunication Services	43	1.0
Total	4314	100.0

Table 6-2 Descriptive statistics for tests on informativeness of consistency in non-GAAP reporting

Panel A: Sample and model variable statistics—full sample and sub-samples grouped by consistency degree of non-GAAP exclusions

Variables	Full sample (*N = 4314*)			With at least one consistent exclusion item (*N = 3787*)			Without consistent exclusion items (*N = 527*)			Tests of differences	
	Mean	Median	Earnings metrics diff. (t-statistics)[a]	Mean	Median	Earnings metrics diff. (t-statistics)[a]	Mean	Median	Earnings metrics diff. (t-statistics)[a]	*t*-test	Wilcoxon rank-sum test
Earnings metrics											
EPS_{NG}	0.938	0.758		0.945	0.746		0.892	0.830		1.358	−2.242**
EPS_{GAAP_OP}	0.754	0.660	17.211***	0.741	0.640	17.141***	0.849	0.810	2.375**	−2.263**	−5.901***
EPS_{GAAP_BXT}	0.649	0.590	19.395***	0.636	0.560	19.040***	0.742	0.730	4.164***	−1.903*	−6.182***
EPS_{GAAP}	0.673	0.596	14.910***	0.663	0.572	14.405***	0.739	0.730	3.884***	−1.179	−5.804***
CONSENSUS	0.884	0.720	15.419***	0.891	0.710	14.083***	0.838	0.760	6.814***	1.431	−1.673*
Model variables											
$CAR_{i,q}$	0.004	0.004		0.003	0.004		0.009	0.005		−1.917*	−1.550
$FE_{i,q}$	0.001	0.001		0.001	0.001		0.001	0.000		−0.737	2.135**
$EXCL_{i,q}$	0.006	0.003		0.007	0.004		0.003	0.000		4.913***	14.396***
$CONSISTENCY\_F_{i,q}$	0.671	0.750		0.764	0.800		0.000	0.000		71.440***	38.381***
$CONSISTENCY\_M_{i,q}$				0.505	0.500						
$MBF_{i,q}$	0.377	0.000		0.419	0.000		0.080	0.000		15.444***	15.035***
$CNV_{i,q}$	0.043	0.000		0.049	0.000		0.002	0.000		4.985***	4.971***
$RECUR_{i,q}$	0.151	0.143		0.168	0.143		0.031	0.000		21.783***	22.690***
$ln(MV)_{i,q}$	9.801	9.574		9.794	9.574		9.857	9.599		−1.298	−1.038
$LEV_{i,q}$	1.195	0.604		1.190	0.600		1.229	0.643		−0.336	−1.072
$BTM_{i,q}$	0.369	0.319		0.374	0.321		0.335	0.304		3.129***	1.669*
$ln(N\_ANLST)_{i,q}$	3.347	3.332		3.351	3.332		3.313	3.296		3.302***	3.220***
$\%INST_{i,q}$	0.858	0.877		0.860	0.878		0.838	0.853		3.686***	4.085***

Table 6-2 Descriptive statistics for tests on informativeness of consistency in non-GAAP reporting (continued)

Panel B: Sample and model variable statistics for the full sample (N=4314)—by opportunism of non-GAAP disclosures

Variables	MBF				CNV				RECUR			
	MBF = 1 (*N = 1627*)		MBF = 0 (*N = 2687*)		CNV = 1 (*N = 186*)		CNV = 0 (*N = 4128*)		Higher RECUR[a] (*N = 2842*)		Lower RECUR[b] (*N = 1472*)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Earnings metrics												
EPS_{NG}	0.980**	0.720	0.913	0.770	0.602***	0.309	0.953	0.771	0.954*	0.702	0.908	0.827
EPS_{GAAP_OP}	0.580**	0.500	0.860	0.770	−0.983***	−0.310	0.833	0.690	0.707***	0.560	0.846	0.800
EPS_{GAAP_BXT}	0.448*	0.450	0.770	0.690	−1.350***	−0.485	0.739	0.620	0.596***	0.500	0.751	0.730
EPS_{GAAP}	0.463***	0.464	0.800	0.692	−1.139***	−0.445	0.754	0.623	0.624***	0.509	0.768	0.736
CONSENSUS	0.913*	0.680	0.867	0.740	0.543***	0.290	0.900	0.730	0.901*	0.690	0.853	0.760
Model variables												
$CAR_{i,q}$	0.009***	0.008	0.001	0.002	−0.005**	−0.005	0.004	0.004	0.004	0.005	0.004	0.003
$FE_{i,q}$	0.001***	0.001	0.001	0.000	0.002	0.000	0.001	0.001	0.001***	0.001	0.001	0.000
$CONSISTENCY\_F_{i,q}$	0.763***	0.800	0.615	0.667	0.721**	0.750	0.668	0.750	0.733***	0.750	0.549	0.500
$MBF_{i,q}$	1.000***	1.000	0.000	0.000	0.683***	1.000	0.363	0.000	0.500***	0.000	0.141	0.000
$CNV_{i,q}$	0.078***	0.000	0.022	0.000	1.000***	1.000	0.000	0.000	0.059***	0.000	0.012	0.000
$RECUR_{i,q}$	0.225***	0.143	0.107	0.143	0.224***	0.143	0.148	0.143	0.230***	0.143	0.000	0.000
$EXCL_{i,q}$	0.012***	0.007	0.003	0.001	0.037***	0.021	0.005	0.003	0.008***	0.005	0.003	0.001
$ln(MV)_{i,q}$	9.878***	9.657	9.755	9.523	9.679	9.661	9.807	9.572	9.812	9.618	9.780	9.500
$LEV_{i,q}$	1.082**	0.571	1.263	0.624	0.932	0.691	1.207	0.599	1.030***	0.590	1.512	0.644
$BTM_{i,q}$	0.343***	0.305	0.385	0.329	0.457***	0.378	0.366	0.317	0.366	0.315	0.375	0.327
$ln(N\_ANLST)_{i,q}$	3.404***	3.367	3.312	3.296	3.518***	3.526	3.339	3.332	3.391***	3.367	3.260	3.258
$\%INST_{i,q}$	0.877***	0.888	0.846	0.869	0.906***	0.934	0.856	0.875	0.872***	0.889	0.830	0.850

Table 6-2 Descriptive statistics for tests on informativeness of consistency in non-GAAP reporting (continued)

Panel C: Sample and model variable statistics for the sub-sample with consistent non-GAAP exclusion items (N=3787)—by opportunism of non-GAAP disclosures

Variables	MBF				CNV				RECUR			
	MBF = 1 (*N = 1585*)		MBF = 0 (*N = 2202*)		CNV = 1 (*N = 185*)		CNV = 0 (*N = 3602*)		Higher RECUR[a] (*N = 2739*)		Lower RECUR[b] (*N = 1048*)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Earnings metrics												
EPS_{NG}	0.978**	0.708	0.921	0.760	0.600***	0.308	0.962	0.761	0.955	0.699	0.916	0.830
EPS_{GAAP_OP}	0.575***	0.490	0.861	0.760	−0.954***	−0.310	0.828	0.670	0.702***	0.555	0.844	0.800
EPS_{GAAP_BXT}	0.451***	0.450	0.768	0.680	−1.323***	−0.480	0.736	0.600	0.591***	0.490	0.752	0.730
EPS_{GAAP}	0.466***	0.459	0.806	0.679	−1.092***	−0.440	0.754	0.604	0.621***	0.503	0.775	0.736
CONSENSUS	0.911	0.670	0.876	0.740	0.539***	0.280	0.909	0.720	0.901	0.680	0.863	0.770
Model variables												
$CAR_{i,q}$	0.009***	0.008	0.000	0.002	−0.005*	−0.004	0.004	0.004	0.004	0.005	0.001	0.002
$FE_{i,q}$	0.001**	0.001	0.001	0.000	0.002	0.000	0.001	0.001	0.001***	0.001	0.002	0.000
$CONSISTENCY\_F_{i,q}$	0.783***	0.833	0.750	0.750	0.725**	0.750	0.766	0.800	0.761	0.800	0.772	1.000
$CONSISTENCY\_M_{i,q}$	0.448***	0.430	0.546	0.570	0.213***	0.140	0.520	0.520	0.470***	0.460	0.594	0.625
$MBF_{i,q}$	1.000***	1.000	0.000	0.000	0.686***	1.000	0.405	0.000	0.514***	1.000	0.168	0.000
$CNV_{i,q}$	0.080***	0.000	0.026	0.000	1.000***	1.000	0.000	0.000	0.061***	0.000	0.016	0.000
$RECUR_{i,q}$	0.230***	0.286	0.124	0.143	0.225***	0.143	0.165	0.143	0.233***	0.143	0.000	0.000
$EXCL_{i,q}$	0.012***	0.007	0.003	0.002	0.037***	0.021	0.005	0.003	0.008***	0.005	0.003	0.001
$ln(MV)_{i,q}$	9.881***	9.650	9.730	9.519	9.676	9.661	9.800	9.567	9.809	9.619	9.754	9.472
$LEV_{i,q}$	1.071**	0.568	1.276	0.622	0.935	0.693	1.203	0.595	1.009***	0.589	1.665	0.642
$BTM_{i,q}$	0.343***	0.304	0.397	0.336	0.458***	0.379	0.370	0.320	0.368**	0.315	0.391	0.338
$ln(N\_ANLST)_{i,q}$	3.406***	3.401	3.311	3.332	3.516***	3.526	3.343	3.332	3.395***	3.367	3.238	3.238
$\%INST_{i,q}$	0.877***	0.889	0.848	0.871	0.906***	0.933	0.858	0.877	0.873***	0.890	0.828	0.848

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively.

[a] Higher $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is greater than or equal to the full sample median of $RECUR_{i,q}$.

[b] Lower $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is less than the full sample median of $RECUR_{i,q}$.

Variable definitions: EPS_{NG} = non-GAAP earnings disclosed by managers divided by Compustat-defined diluted number of common shares (DCOMSH); EPS_{GAAP_OP} = Compustat-defined income from operations divided by DCOMSH; EPS_{GAAP_BXT} = Compustat-defined income before extraordinary items and discontinued operations divided by DCOMSH; EPS_{GAAP} = Compustat-defined net income divided by DCOMSH; CONSENSUS = Consensus analyst forecasts from I/B/E/S database; $CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter; $FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings; $CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter; $CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; $MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items

Table 6-2 Descriptive statistics for tests on informativeness of consistency in non-GAAP reporting (continued)

excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items); $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share); $ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q; $LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales; $ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q.

Table 6-3 Correlation matrix for main independent variables

	$FE_{i,q}$	$CONSISTENCY\_U_{i,q}$	$CONSISTENCY\_M_{i,q}$	$MBF_{i,q}$	$CNV_{i,q}$	$RECUR_{i,q}$	$EXCL_{i,q}$	$ln(MV)_{i,q}$	$LEV_{i,q}$	$BTM_{i,q}$	$ln(N\_ANLST)_{i,q}$	$\%INST_{i,q}$
$FE_{i,q}$	1.000											
$CONSISTENCY\_U_{i,q}$	0.019	1.000										
$CONSISTENCY\_M_{i,q}$	−0.048***	−0.105***	1.000									
$MBF_{i,q}$	0.043***	0.066***	−0.168***	1.000								
$CNV_{i,q}$	0.025	−0.036**	−0.229***	0.123***	1.000							
$RECUR_{i,q}$	−0.009	0.037**	−0.228***	0.366***	0.090***	1.000						
$EXCL_{i,q}$	0.048***	−0.068***	−0.220***	0.227***	0.348***	0.108***	1.000					
$ln(MV)_{i,q}$	−0.101***	0.071***	0.001	0.072***	−0.026	−0.051***	−0.046***	1.000				
$LEV_{i,q}$	−0.016	−0.001	0.056***	−0.041**	−0.023	−0.081***	−0.013	−0.095***	1.000			
$BTM_{i,q}$	0.148***	−0.111***	−0.013	−0.094***	0.068***	−0.097***	−0.016	−0.167***	−0.244***	1.000		
$ln(N\_ANLST)_{i,q}$	0.022	0.064***	−0.175***	0.189***	0.150***	0.322***	0.142***	0.312***	−0.179***	−0.014	1.000	
$\%INST_{i,q}$	0.014	−0.015	−0.076***	0.110***	0.079***	0.213***	0.092***	−0.476***	0.091***	−0.089***	0.011	1.000
VIF	1.040	1.040	1.160	1.240	1.190	1.360	1.230	1.650	1.120	1.210	1.370	1.450

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. VIF stands for variance inflation factor.

Variable definitions: $FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings; $CONSISTENCY\_U_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter; $CONSISTENCY\_M_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; $MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items); $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share); $ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q; $LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales; $ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q.

Table 6-4 Informativeness of non-GAAP earnings consistency

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 ln(N\_ANLST)_{i,q} + \beta_9 \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (4)$$

Variables	Original	CONSISTENCY_U$_{i,q}$	CONSISTENCY_M$_{i,q}$
Constant	0.033	0.034	0.049**
	(0.133)	(0.126)	(0.036)
$FE_{i,q}$	**2.102*** **	**1.686** **	**3.223*** **
	(0.000)	**(0.012)**	**(0.000)**
$CONSISTENCY_{i,q}$		−0.003	−0.008**
		(0.202)	(0.032)
$FE_{i,q}*CONSISTENCY_{i,q}$		**0.660**	**−1.905***
		(0.423)	**(0.089)**
$EXCL_{i,q}$	−0.168***	−0.166***	−0.191***
	(0.000)	(0.000)	(0.000)
$ln(MV)_{i,q}$	−0.002**	−0.002*	−0.003**
	(0.049)	(0.052)	(0.033)
$LEV_{i,q}$	−0.001*	−0.001*	−0.001*
	(0.097)	(0.096)	(0.085)
$BTM_{i,q}$	−0.010**	−0.010**	−0.012**
	(0.043)	(0.044)	(0.014)
$ln(N\_ANLST)_{i,q}$	−0.005	−0.005	−0.007
	(0.325)	(0.343)	(0.168)
$\%INST_{i,q}$	0.012	0.012	0.009
	(0.191)	(0.180)	(0.379)
INDUSTRY	Included	Included	Included
QTR	Included	Included	Included
N	4,314	4,314	3,787
F-statistics	8.27***	7.48***	11.77***
R-squared	3.7%	3.8%	4.2%

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: $CAR_{i,q}$ = three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter; $FE_{i,q}$ = difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings; CONSISTENCY_U$_{i,q}$ = number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter; CONSISTENCY_M$_{i,q}$ = sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; $EXCL_{i,q}$ = value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share); $ln(MV)_{i,q}$ = logarithm of firm i's market value of equity in quarter q; $LEV_{i,q}$ = firm i's total debts divided by total equity, both at the end of quarter q; $BTM_{i,q}$ = book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter; $\Delta SALES_{i,q}$ = changes in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales; $ln(N\_ANLST)_{i,q}$ = logarithm of number of analysts following firm i in quarter q; $\%INST_{i,q}$ = number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q; INDUSTRY = industry dummies; QTR = fiscal quarter dummies.

Table 6-5 Influence of opportunistic non-GAAP disclosures on informativeness of non-GAAP earnings consistency

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 ln(N\_ANLST)_{i,q} + \beta_9 \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (4)$$

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 OPPORTUNISM_{i,q} + \beta_5 FE_{i,q}*OPPORTUNISM_{i,q} + \beta_6 FE_{i,q}*CONSISTENCY_{i,q}*OPPORTUNISM_{i,q} + \beta_7 EXCL_{i,q} + \beta_8 ln(MV)_{i,q} + \beta_9 LEV_{i,q} + \beta_{10} BTM_{i,q} + \beta_{11} ln(N\_ANLST)_{i,q} + \beta_{12} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (5)$$

Panel A: Consistency of use of non-GAAP exclusion items

	Potentially opportunistic sample; Model (4)			Non-opportunistic sample; Model (4)			Full sample; Model (5)		
VARIABLES	$MBF_{i,q}$ = 1	$CNV_{i,q}$ = 1	Higher $RECUR_{i,q}$	$MBF_{i,q}$ = 0	$CNV_{i,q}$ = 0	Lower $RECUR_{i,q}$	$MBF_{i,q}$	$CNV_{i,q}$	$RECUR_{i,q}$
Constant	0.035	−0.027	0.066**	0.045*	0.037*	−0.035	0.043**	0.033	0.037*
	(0.405)	(0.802)	(0.017)	(0.065)	(0.091)	(0.297)	(0.047)	(0.129)	(0.085)
$FE_{i,q}$	**1.251**	**4.754****	**1.231**	**1.674****	**1.575****	**2.530*****	**1.578****	**1.613****	**2.187*****
	(0.302)	**(0.045)**	**(0.285)**	**(0.024)**	**(0.024)**	**(0.001)**	**(0.029)**	**(0.021)**	**(0.002)**
$CONSISTENCY_{i,q}$	−0.001	−0.011	−0.002	−0.007**	−0.003	−0.004	−0.008**	−0.004	−0.003
	(0.869)	(0.532)	(0.702)	(0.019)	(0.230)	(0.276)	(0.015)	(0.201)	(0.413)
$FE_{i,q}$*$CONSISTENCY_{i,q}$	**4.711****	**−2.637**	**1.940**	**0.420**	**0.732**	**−1.336**	**0.435**	**0.710**	**−1.029**
	(0.039)	**(0.423)**	**(0.211)**	**(0.611)**	**(0.377)**	**(0.149)**	**(0.599)**	**(0.393)**	**(0.305)**
$MBF_{i,q}$							0.000		
							(0.958)		
$CNV_{i,q}$								−0.015	
								(0.300)	
$RECUR_{i,q}$									0.017
									(0.346)
$FE_{i,q}$*$MBF_{i,q}$							−0.625		
							(0.631)		
$FE_{i,q}$*$CNV_{i,q}$								2.300	
								(0.314)	
$FE_{i,q}$*$RECUR_{i,q}$									−3.962
									(0.379)
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$MBF_{i,q}$							**4.603****		
							(0.042)		
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$CNV_{i,q}$								**−2.591**	
								(0.416)	
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$RECUR_{i,q}$									**13.606***
									(0.053)
Controls	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1627	186	2842	2687	4128	1472	4314	4314	4314
F-statistics	4.78***	6.70***	5.61***	8.05***	4.34***	2.85***	9.36***	7.00***	7.59***
R-squared	4.5%	16.4%	4.3%	5.0%	3.4%	4.7%	4.6%	3.8%	4.3%

Table 6-5 Influence of opportunistic non-GAAP disclosures on informativeness of non-GAAP earnings consistency (continued)

Panel B: Magnitude consistency of non-GAAP exclusion items

	Potentially opportunistic sample; Model (4)			Non-opportunistic sample; Model (4)			Full sample; Model (5)		
VARIABLES	$MBF_{i,q}$ = 1	$CNV_{i,q}$ = 1	Higher $RECUR_{i,q}$	$MBF_{i,q}$ = 0	$CNV_{i,q}$ = 0	Lower $RECUR_{i,q}$	$MBF_{i,q}$	$CNV_{i,q}$	$RECUR_{i,q}$
Constant	0.045	−0.06	0.064**	0.062**	0.054**	−0.041	0.054**	0.049**	0.050**
	(0.275)	(0.571)	(0.024)	(0.013)	(0.021)	(0.323)	(0.016)	(0.036)	(0.029)
$FE_{i,q}$	**2.799****	**3.199****	**4.890*****	**3.117*****	**3.295*****	**0.851**	**3.020*****	**3.328*****	**1.733***
	(0.018)	**(0.015)**	**0.000**	**0.000**	**0.000**	**(0.398)**	**0.000**	**0.000**	**(0.076)**
$CONSISTENCY_{i,q}$	−0.017***	0.017	−0.005	−0.001	−0.009**	−0.016**	−0.003	−0.010**	−0.007
	(0.009)	(0.314)	(0.302)	(0.750)	(0.027)	(0.014)	(0.494)	(0.016)	(0.146)
$FE_{i,q}$*$CONSISTENCY_{i,q}$	**3.05**	**−0.304**	**−3.494****	**−1.954***	**−2.107***	**1.065**	**−1.961***	**−2.123***	**−0.604**
	(0.128)	**(0.862)**	**(0.015)**	**(0.075)**	**(0.070)**	**(0.494)**	**(0.072)**	**(0.068)**	**(0.658)**
$MBF_{i,q}$							0.013***		
							(0.007)		
$CNV_{i,q}$								−0.015**	
								(0.030)	
$RECUR_{i,q}$									0.004
									(0.817)
$FE_{i,q}$*$MBF_{i,q}$							−0.275		
							(0.827)		
$FE_{i,q}$*$CNV_{i,q}$								−0.423	
								(0.727)	
$FE_{i,q}$*$RECUR_{i,q}$									13.639**
									(0.030)
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$MBF_{i,q}$							**4.860***		
							(0.057)		
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$CNV_{i,q}$								**1.749**	
								(0.337)	
$FE_{i,q}$*$CONSISTENCY_{i,q}$*$RECUR_{i,q}$									**−12.776**
									(0.190)
Controls	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1585	185	2739	2202	3602	1048	3787	3787	3787
F-statistics	15.26***	9.19***	6.56***	6.65***	15.58***	1.89***	11.58***	27.63***	10.69***
R-squared	4.8%	16.3%	5.3%	5.2%	3.9%	4.4%	4.9%	4.4%	4.7%

Table 6-5 Influence of opportunistic non-GAAP disclosures on informativeness of non-GAAP earnings consistency (continued)

***, **, and * denote significance at p < 0.01, p < 0.05, and p < 0.10 levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

[a] Higher $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is greater than or equal to the full sample median of $RECUR_{i,q}$.

[b] Lower $RECUR_{i,q}$ sub-sample includes observations whose $RECUR_{i,q}$ is less than the full sample median of $RECUR_{i,q}$.

Variable definitions: $MBF_{i,q}$ = one if firm i's non-GAAP earnings meet or beat the consensus analyst forecast when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise; $CNV_{i,q}$ = one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise; $RECUR_{i,q}$ = number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items). The remaining variables are defined as in Table 6-4.

Table 6-6 Informativeness of non-GAAP earnings consistency—frequency of non-GAAP reporting

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 ln(N\_ANLST)_{i,q} + \beta_9 \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (4)$$

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 FRQT_{i,q} + \beta_5 FE_{i,q}*FRQT_{i,q} + \beta_6 FE_{i,q}*CONSISTENCY_{i,q}*FRQT_{i,q} + \beta_7 EXCL_{i,q} + \beta_8 ln(MV)_{i,q} + \beta_9 LEV_{i,q} + \beta_{10} BTM_{i,q} + \beta_{11} ln(N\_ANLST)_{i,q} + \beta_{12} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (6)$$

Variables	$CONSISTENCY\_U_{i,q}$			$CONSISTENCY\_M_{i,q}$		
	Model (4) $FRQT_{i,q} = 1$	Model (4) $FRQT_{i,q} = 0$	Model (6) Full sample	Model (4) $FRQT_{i,q} = 1$	Model (4) $FRQT_{i,q} = 0$	Model (6) Full sample
Constant	0.014	0.030	0.036*	0.024	0.046	0.048**
	(0.711)	(0.211)	(0.092)	(0.555)	(0.106)	(0.040)
$FE_{i,q}$	**1.306*** **	**2.014** **	**1.994** **	**4.877*** **	**4.890*** **	**4.850*** **
	(0.007)	**(0.027)**	**(0.024)**	**(0.004)**	**(0.006)**	**(0.005)**
$CONSISTENCY_{i,q}$	0.009	−0.007**	−0.007**	−0.006	0.003	0.004
	(0.104)	(0.016)	(0.018)	(0.522)	(0.667)	(0.602)
$FE_{i,q}*CONSISTENCY_{i,q}$	**1.027**	**0.382**	**0.399**	**−5.729** **	**−4.637***	**−4.581***
	(0.179)	**(0.738)**	**(0.727)**	**(0.044)**	**(0.092)**	**(0.090)**
$FRQT_{i,q}$			−0.009*			0.007
			(0.065)			(0.240)
$FE_{i,q}*FRQT_{i,q}$			−0.675			0.117
			(0.492)			(0.959)
$FE_{i,q}*CONSISTENCY_{i,q}*FRQT_{i,q}$			**0.273**			**−1.543**
			(0.839)			**(0.678)**
$EXCL_{i,q}$	−0.151	−0.167***	−0.164***	−0.227**	−0.184***	−0.197***
	(0.105)	(0.000)	(0.000)	(0.011)	(0.000)	(0.000)
$LnMV_{i,q}$	−0.002	−0.002	−0.002*	−0.003	−0.003*	−0.003**
	(0.293)	(0.151)	(0.064)	(0.242)	(0.080)	(0.026)
$LEV_{i,q}$	0.000	0.000	−0.001	0.000	0.000	0.000
	(0.861)	(0.336)	(0.156)	(0.941)	(0.516)	(0.366)
$BTM_{i,q}$	−0.003	−0.009	−0.010**	−0.001	−0.013**	−0.012**
	(0.722)	(0.191)	(0.044)	(0.922)	(0.043)	(0.016)
$N\_ANLST_{i,q}$	−0.011	−0.002	−0.005	−0.011	−0.003	−0.006
	(0.174)	(0.776)	(0.301)	(0.202)	(0.702)	(0.242)
$\%INST_{i,q}$	0.046**	−0.001	0.011	0.044**	−0.005	0.007
	(0.010)	(0.960)	(0.223)	(0.012)	(0.691)	(0.505)
INDUSTRY	Included	Included	Included	Included	Included	Included
QTR	Included	Included	Included	Included	Included	Included
N	1637	2677	4314	1539	2188	3727
F-statistics	3.14***	10.35***	8.96***	3.16***	3.70***	4.96***
R-squared	3.9%	4.6%	4.0%	4.2%	5.6%	4.7%

Table 6-6 Informativeness of non-GAAP earnings consistency—frequency of non-GAAP reporting (continued)

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.
Variable definitions: $FRQT_{i,q}$ = one if firm i is a frequent non-GAAP reporter, and zero otherwise, where a frequent non-GAAP reporter is defined as a firm that reports non-GAAP earnings in equal to or more than 90^{th} percentile of the number of quarters that my sample firms disclose non-GAAP earnings in the quarterly press releases. The remaining variables are defined as in Table 6-4.

Table 6-7 Informativeness of non-GAAP earnings consistency—recurring and non-recurring item exclusions

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 CONSISTENCY_{i,q} + \beta_3 FE_{i,q}*CONSISTENCY_{i,q} + \beta_4 EXCL_{i,q} + \beta_5 ln(MV)_{i,q} + \beta_6 LEV_{i,q} + \beta_7 BTM_{i,q} + \beta_8 ln(N\_ANLST)_{i,q} + \beta_9 \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (4)$$

Variables	Original	Recurring exclusions		Non-recurring exclusions	
		$CONSISTENCY\_U\_RECUR_{i,q}$	$CONSISTENCY\_M\_RECUR_{i,q}$	$CONSISTENCY\_U\_NRECUR_{i,q}$	$CONSISTENCY\_M\_NRECUR_{i,q}$
Constant	0.033	0.033	0.050**	0.033	0.058**
	(0.133)	(0.139)	(0.039)	(0.134)	(0.023)
$FE_{i,q}$	**2.102*** **	**1.315**	**4.987*** **	**2.137*** **	**2.397*** **
	(0.000)	**(0.173)**	**(0.000)**	**(0.001)**	**(0.008)**
$CONSISTENCY_{i,q}$		0.000	−0.001	0.000	−0.007
		(0.819)	(0.922)	(0.998)	(0.125)
$FE_{i,q}*CONSISTENCY_{i,q}$		**0.957**	**−5.250*** **	**−0.058**	**−0.614**
		(0.381)	**(0.007)**	**(0.931)**	**(0.639)**
$EXCL_{i,q}$	−0.168***	−0.165***	−0.197***	−0.168***	−0.171***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
$ln(MV)_{i,q}$	−0.002**	−0.002*	−0.003**	−0.002**	−0.003*
	(0.049)	(0.054)	(0.024)	(0.048)	(0.052)
$LEV_{i,q}$	−0.001*	−0.001*	0	−0.001*	−0.001*
	(0.097)	(0.090)	(0.289)	(0.097)	(0.069)
$BTM_{i,q}$	−0.010**	−0.010**	−0.012**	−0.010**	−0.011**
	(0.043)	(0.037)	(0.014)	(0.043)	(0.022)
$ln(N\_ANLST)_{i,q}$	−0.005	−0.005	−0.006	−0.005	−0.008
	(0.325)	(0.303)	(0.254)	(0.325)	(0.133)
$\%INST_{i,q}$	0.012	0.012	0.009	0.012	0.004
	(0.191)	(0.180)	(0.401)	(0.190)	(0.725)
INDUSTRY	Included	Included	Included	Included	Included
QTR	Included	Included	Included	Included	Included
N	4,314	4,314	3,727	4,314	3,315
F-statistics	8.27***	6.61***	5.84***	7.53***	11.08***
R-squared	3.7%	3.8%	4.6%	3.7%	3.8%

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: $CONSISTENCY\_U\_RECUR_{i,q}$ = number of consistent recurring non-GAAP adjustments for firm i in quarter q, divided by total number of recurring non-GAAP adjustments for same firm-quarter; $CONSISTENCY\_M\_RECUR_{i,q}$ = sum of absolute change in firm i's individual consistent recurring non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings; $CONSISTENCY\_U\_NRECUR_{i,q}$ = number of consistent non-recurring non-GAAP adjustments for firm i in quarter q, divided by total number of non-recurring non-GAAP adjustments for same firm-quarter; $CONSISTENCY\_M\_NRECUR_{i,q}$ = sum of absolute change in firm i's individual consistent non-recurring non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings. The remaining variables are defined as in Table 6-4.

Table 6-8 Informativeness of consistency of individual recurring item exclusions

$$CAR_{i,q} = \beta_0 + \beta_1 FE_{i,q} + \beta_2 M\_RECUR\_D\&A_{i,q} + \beta_3 M\_RECUR\_SBC_{i,q} + \beta_4 M\_RECUR\_INTEXP_{i,q} + \beta_5 M\_RECUR\_R\&D_{i,q} + \beta_6 M\_RECUR\_INVEST_{i,q} + \beta_7 M\_RECUR\_PENSION_{i,q} + \beta_8 M\_RECUR\_FCEX_{i,q} + \beta_9 FE_{i,q} * M\_RECUR\_D\&A_{i,q} + \beta_{10} FE_{i,q} * M\_RECUR\_SBC_{i,q} + \beta_{11} FE_{i,q} * M\_RECUR\_INTEXP_{i,q} + \beta_{12} FE_{i,q} * M\_RECUR\_R\&D_{i,q} + \beta_{13} FE_{i,q} * M\_RECUR\_INVEST_{i,q} + \beta_{14} FE_{i,q} * M\_RECUR\_PENSION_{i,q} + \beta_{15} FE_{i,q} * M\_RECUR\_FCEX_{i,q} + \beta_{16} EXCL_{i,q} + \beta_{17} \ln(MV)_{i,q} + \beta_{18} LEV_{i,q} + \beta_{19} BTM_{i,q} + \beta_{20} \ln(N\_ANLST)_{i,q} + \beta_{21} \%INST_{i,q} + INDUSTRY + QTR + \varepsilon_{i,q} \quad (7)$$

Variables	$CONSISTENCY\_M_{i,q}$
Constant	0.008
	(0.773)
$FE_{i,q}$	**46.871*** **
	(0.004)
$M\_RECUR\_D\&A_{i,q}$	0.000
	(0.378)
$M\_RECUR\_SBC_{i,q}$	0.000
	(0.433)
$M\_RECUR\_INTEXP_{i,q}$	0.000
	(0.929)
$M\_RECUR\_R\&D_{i,q}$	0.004
	(0.294)
$M\_RECUR\_INVEST_{i,q}$	0.001**
	(0.020)
$M\_RECUR\_PENSION_{i,q}$	0.002
	(0.167)
$M\_RECUR\_FCEX_{i,q}$	0.009***
	(0.000)
$FE_{i,q} * M\_RECUR\_D\&A_{i,q}$	**−0.034**
	(0.454)
$FE_{i,q} * M\_RECUR\_SBC_{i,q}$	**−0.223***
	(0.068)
$FE_{i,q} * M\_RECUR\_INTEXP_{i,q}$	**−0.401***
	(0.074)
$FE_{i,q} * M\_RECUR\_R\&D_{i,q}$	**−10.620**
	(0.139)
$FE_{i,q} * M\_RECUR\_INVEST_{i,q}$	**−0.148****
	(0.032)
$FE_{i,q} * M\_RECUR\_PENSION_{i,q}$	**0.120**
	(0.791)
$FE_{i,q} * M\_RECUR\_FCEX_{i,q}$	**−3.731***
	(0.054)
Controls	Included
Observations	3727
F-statistics	6.07***
R-squared	5.4%

***, **, and * denote significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$ levels (2-tailed), respectively. Figures in parentheses are p values that are based on robust standard errors clustered by firms.

Variable definitions: $M\_RECUR\_D\&A_{i,q}$ = absolute change in values of firm i's exclusions related to depreciation and amortization charges in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_SBC_{i,q}$ = absolute change in values of firm i's exclusions related to stock-based compensation charges in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_INTEXP_{i,q}$ = absolute change in values of firm i's exclusions related to interest expense or income in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_R\&D_{i,q}$ = absolute change values of firm i's exclusions related to research and development charges in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_INVEST_{i,q}$ = absolute change in values of firm i's exclusions related to gain or loss on investments in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_PENSION_{i,q}$ = absolute change in values of firm i's exclusions related to pension charges in quarter q from quarter q-4, multiplied by minus 1; $M\_RECUR\_FCEX_{i,q}$ = absolute change in values of firm i's exclusions related to foreign currency exchange gain or loss in quarter q from quarter q-4, multiplied by minus 1; The remaining variables are defined as in Table 6-4.

7 CONCLUSION

7.1 Main conclusions and limitations

This thesis empirically examines whether the management's opportunistic incentives for non-GAAP disclosures drive the consistency of non-GAAP earnings, and whether this consistency of non-GAAP earnings has additional information content for investors. Since the existing regulations on non-GAAP disclosures have afforded a high level of discretion to managers in defining non-GAAP earnings, one of the unexpected results is the violation of consistency in non-GAAP reporting. In this thesis, the consistency of non-GAAP earnings is measured as the consistency in the use of non-GAAP exclusion items (usage consistency) and the value steadiness of items excluded from non-GAAP earnings (magnitude consistency).

Chapter 5 examines whether the consistency in non-GAAP reporting is associated with managers' opportunistic motive of non-GAAP earnings disclosures. I find that the managers' opportunistic incentives for non-GAAP disclosures are positively associated with the usage consistency of non-GAAP exclusion items and negatively related to the magnitude consistency of items excluded from non-GAAP earnings. In other words, opportunistic managers manipulate the magnitude of excluded non-GAAP items under the guise of consistent use of those items to guide investors' perceptions of firms' performance. Additionally, I find that the exclusions of stock-based compensation charges and investment gain or loss are significantly associated with the opportunistic managers' violation of consistency in non-GAAP reporting. Moreover, the supplemental evidence on the intervention effect of non-GAAP reporting frequency confirms the results on the opportunism-driven consistency of non-GAAP earnings.

Chapter 6 examines whether the consistency of non-GAAP earnings reporting has information content to investors around the earnings announcements. By examining the association between the consistency of non-GAAP earnings and earnings announcement period abnormal returns, I find that the relatively high magnitude consistency of non-GAAP exclusion items reduces the informativeness of non-GAAP

earnings to investors. However, the usage consistency of non-GAAP exclusion items does not significantly raise concerns from investors who rely on non-GAAP earnings disclosures. Moreover, the investors' negative reaction to the magnitude consistency of non-GAAP exclusions is primarily because of the steady values of recurring item exclusions, rather than that of non-recurring item exclusions. Specifically, investors' aversion to steady recurring item exclusions results from relatively low degrees of variability in the values of stock-based compensation exclusions, interest expenses or income exclusions, investments gain or loss exclusions, or foreign currency exchange exclusions.

In addition, this thesis examines whether investors understand the association between the consistency of non-GAAP earnings and the management's opportunistic incentives for non-GAAP disclosures when they react to non-GAAP earnings consistency. I find that investors who rely on non-GAAP earnings disclosures react more to opportunistic managers' (i.e., using non-GAAP earnings to meet or beat analysts' earnings expectations that would be missed by GAAP earnings or excluding an increasing number of recurring items) consistent use of non-GAAP exclusion items. The evidence indicates that investors do not appreciate managers' opportunistic motive behind the consistent use of non-GAAP items and are systematically fooled by managers in some cases of opportunistic non-GAAP disclosures. Conversely, investors reward non-GAAP reporting firms that move a position from missing the consensus analyst forecast based on GAAP earnings to meeting the earnings benchmark on a non-GAAP basis with higher stock returns when the exclusions of non-GAAP items are less varied in values. This result indicates that investors somewhat understand the negative effect of managerial opportunism of non-GAAP disclosures on the magnitude consistency of non-GAAP earnings.

Overall, my research suggests that opportunistic managers are less likely to provide consistent non-GAAP earnings disclosures by violating the values of non-GAAP exclusion items, especially that of recurring item exclusions. However, they intend to

divert investors' attention from the opportunism of non-GAAP disclosures by enhancing the consistency of use of non-GAAP exclusion items, because the corporate reporting environment creates a good impression of reporting consistency among the market participants. While the consistency of non-GAAP earnings somewhat plays a role in influencing investors' pricing of non-GAAP earnings, investors' reactions indicate that they do not fully understand the opportunism-driven consistency in non-GAAP reporting.

While my research suggests that the consistency of non-GAAP earnings is significantly driven by the management's opportunistic incentives for non-GAAP earnings disclosures and that investors seem to not fully understand this association, one must be cautious in drawing a counter-inference (as opposed to the reported results based on the consistency of non-GAAP earnings) from my results. The reason is that the consistency measurement in my research aims to capture the management's intentional exclusions of non-GAAP items. However, the remaining inconsistent non-GAAP exclusion items do not fully result from managers' manipulation. That is, the inconsistency in non-GAAP exclusion items may be due to the non-occurrence of the same items in the corresponding quarter of prior year. Conversely, managers may intentionally select items to exclude from non-GAAP earnings to achieve their reporting targets. This also leads to the inconsistent non-GAAP exclusion items over time. Since the inconsistency of non-GAAP earnings results from mixed situations, it is too inclusive to decide that there is the opposite association between the inconsistency of non-GAAP earnings and managerial opportunism of non-GAAP disclosures or to infer investors' opposite perceptions of the inconsistency of non-GAAP earnings. Moreover, the magnitude consistency of non-GAAP exclusion items only catches the value steadiness of consistently excluded items from non-GAAP earnings. It ignores the value variation of inconsistently excluded items that is ineligible to be calculated owing to the missing benchmarks. Therefore, one needs to be careful about interpreting the results.

7.2 Implications

My study mainly examines the management's motivation behind the consistency in non-GAAP reporting and the information content of such consistency to the capital market by using non-GAAP quarterly disclosures of U.S. S&P 500 firms. The findings of my study, firstly, shed light on the existing regulations on non-GAAP disclosures. The implicit guidelines on defining non-GAAP earnings unexpectedly allow managers to mislead investors through manipulating the consistency of non-GAAP exclusion items, especially the consistency of recurring item exclusions. As a result, investors, to some extent, fail to understand the management's violation of consistency in non-GAAP reporting. To provide a better financial reporting environment, regulators need to improve the existing regulations on non-GAAP financial disclosures. For example, they could consider whether the high level of discretion afforded with the current guidelines on non-GAAP reporting is appropriate and whether the relaxation of the position on prohibiting exclusions of recurring items is efficient in regulating informative non-GAAP disclosures. Further, they could consider whether to focus on the magnitude, rather than the mere use, of items excluded from non-GAAP earnings.

Second, the results of my research raise questions about the mandatory financial reporting standards. Managers commonly claim that they exclude transitory or non-operating components of GAAP earnings to inform investors about firms' core operating performance, because the "one-size fits all" GAAP standards are not efficient in revealing the true operating performance. For example, the current mandatory guidelines on financial reporting require firms to include some non-cash or non-operating items, for example, stock-based compensation charges and depreciation and amortization charges. As a result, these items lead to high time-series consistency of non-GAAP exclusions when managers adjust these items in the non-GAAP voluntary disclosures. Owing to the potential misleading role of the consistency in non-GAAP reporting, standard setters would need to closely examine the non-GAAP voluntary disclosures as part of their initiative in modifying the current mandatory standards.

Third, apart from investors, the results of my study would be useful to other non-GAAP users. For example, some creditors rely on non-GAAP metrics in framing debt covenants. They can make efficient and beneficial decisions on gaining a comprehensive understanding of the management's reporting incentives behind non-GAAP disclosures. Another group of users, auditors, may also benefit from understanding managers' altruistic use of non-GAAP disclosures, because they could charge higher audit fees to compensate for the potential risk related to their assurance if they realize the potential opportunism of managers.

Lastly, the implications of my results are expected to be constructive for firm managers. Informative managers may self-correct potentially misleading non-GAAP disclosures, such as the consistent exclusions of constant recurring items. With regard to opportunistic managers, the evidence on the unexpected economic consequences of the violated consistency in non-GAAP reporting would raise an alert.

7.3 Suggestions for future research

7.3.1 Sophistication of non-GAAP information users

Prior research provides both experimental and archival evidence on the extent to which investors' sophistication affects their reliance on non-GAAP earnings disclosures. For example, the disclosures of non-GAAP earnings (Allee et al., 2007; Bhattacharya et al., 2007; Frederickson & Miller, 2004) and the relative prominence of non-GAAP earnings metrics to GAAP figures (Allee et al., 2007; Elliott, 2006) significantly influence less sophisticated investors' trading decisions. In contrast, sophisticated investors' valuation of firms is not significantly affected by the presence of non-GAAP earnings disclosures (Frederickson & Miller, 2004) and they appear to be more active in trading on GAAP-only earnings announcements (Allee et al., 2007; Christensen et al., 2014). While the experimental evidence suggests that sophisticated investors place more weight on non-GAAP disclosures with reconciliations (Elliott, 2006), the archival research indicates that neither more sophisticated investors, nor less sophisticated investors,

incrementally react to the provision of non-GAAP reconciliations in the mandatory reconciliation period (Allee et al., 2007).

My research finds that the consistency of non-GAAP earnings, an important feature of non-GAAP earnings disclosures, significantly affects investors' pricing of these earnings. While prior studies suggest that various non-GAAP information users conduct different trading activities, future research could investigate whether more and less sophisticated investors react to non-GAAP earnings consistency differently. Additionally, my research suggests that investors that rely on the consistency of non-GAAP earnings partially understand the managerial opportunism behind non-GAAP earnings consistency. Examination of investor reliance on the consistency of non-GAAP earnings by different investor groups would provide further evidence on the effects of investor sophistication on trading activities.

7.3.2 Alternative measurement of non-GAAP earnings consistency

The literature adopts a variety of approaches to measure financial information consistency. In addition to the time-series consistency of financial disclosures (Hilary et al., 2014; Peterson et al., 2015; Tang & Venkataraman, 2018), Tan et al. (2015) suggest the informativeness of consistency between different performance benchmarks, which is measured as whether the difference between actual earnings performance and two performance benchmarks are in the same direction. Thus, future research could measure the consistency in non-GAAP reporting by the extent to which non-GAAP earnings differ from the GAAP operating earnings or management forecasts focusing on sustainable operating performance. Additionally, measuring the consistency between the management's non-GAAP exclusions and items excluded by analysts in actual non-GAAP disclosures would be a fruitful area of future research.

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APPENDICES

Appendix 1 Variable definitions

Variable Name	Definition
$\%INST_{i,q}$	= number of shares of firm i held by institutional investors in quarter q to total number of shares of firm i outstanding in quarter q
ACCTPRIN	= non-GAAP exclusions related to accounting change charges divided by Compustat-defined diluted number of common shares (DCOMSH)
$AGE_{i,q}$	= number of years from firm i's incorporation until quarter q
$BTM_{i,q}$	= book value of common equity for firm i in quarter q, divided by firm i's market value of same quarter
CAPFIN	= non-GAAP exclusions related to capital financing charges divided by DCOMSH
$CAR_{i,q}$	= three-day cumulative market-adjusted abnormal returns centered on firm i's non-GAAP earnings announcement date in quarter q, scaled by share price at the beginning of the quarter
$CNV_{i,q}$	= one if firm i converts a GAAP loss from operations into a non-GAAP profit in quarter q, and zero otherwise
CONSENSUS	= consensus analyst forecasts from I/B/E/S database
$CONSISTENCY\_M\_NRECUR_{i,q}$	= sum of absolute change in firm i's individual consistent non-recurring non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$CONSISTENCY\_M\_RECUR_{i,q}$	= sum of absolute change in firm i's individual consistent recurring non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$CONSISTENCY\_M\_UNC_{i,q}$	= sum of absolute change in firm i's individual consistent uncommon non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$CONSISTENCY\_M_{i,q}$	= sum of absolute change in firm i's individual consistent non-GAAP exclusions in quarter q from quarter q-4, multiplied by minus 1 to make greater values indicating more consistent non-GAAP earnings
$CONSISTENCY\_U\_NRECUR_{i,q}$	= number of consistent non-recurring non-GAAP adjustments for firm i in quarter q, divided by total number of non-recurring non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_U\_RECUR_{i,q}$	= number of consistent recurring non-GAAP adjustments for firm i in quarter q, divided by total number of recurring non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_U\_UNC_{i,q}$	= number of consistent uncommon non-GAAP adjustments for firm i in quarter q, divided by total number of uncommon non-GAAP adjustments for same firm-quarter
$CONSISTENCY\_U_{i,q}$	= number of consistent non-GAAP adjustments for firm i in quarter q, divided by total number of non-GAAP adjustments for same firm-quarter
D&A	= non-GAAP exclusions related to depreciation and amortization charges divided by DCOMSH
DISCOPS	= non-GAAP exclusions pertaining to income tax related to other non-GAAP adjustments divided by DCOMSH
EPS_{GAAP}	= Compustat-defined net income divided by DCOMSH
EPS_{GAAP_BXT}	= Compustat-defined income before extraordinary items and discontinued operations divided by DCOMSH
EPS_{GAAP_OP}	= Compustat-defined income from operations divided by DCOMSH
EPS_{NG}	= non-GAAP earnings disclosed by managers divided by DCOMSH
$EXCL_{i,q}$	= value of total non-GAAP exclusions for firm i in quarter q (non-GAAP earnings per diluted share minus GAAP earnings before extraordinary items and discontinued operations per diluted share)

Appendix 1 Variable definitions (continued)

Variable Name	Definition
EXDEBT	= non-GAAP exclusions related to gain or loss on extinguishment of debt divided by DCOMSH
EXTRITEM	= non-GAAP exclusions related to extraordinary items divided by DCOMSH
FCEX	= non-GAAP exclusions related to foreign currency exchange gain or loss divided by DCOMSH
$FE_{i,q}$	= difference between firm i's non-GAAP earnings and the consensus analyst forecasts in quarter q, where the consensus analyst forecast is the mean of analysts' forecasts of earnings under GAAP that is consistent with the prior literature on non-GAAP earnings
$FRQT_{i,q}$	= one if firm i is a frequent non-GAAP reporter, and zero otherwise, where a frequent non-GAAP reporter is defined as a firm that reports non-GAAP earnings in equal to, or more than, 90th percentile of the number of quarters (out of 28) that my sample firms disclose non-GAAP earnings
IMPAIR	= non-GAAP exclusions related to impairment charges divided by DCOMSH
INDUSTRY	= industry dummies
INFRQT	= non-GAAP exclusions related to infrequent or firm-specific items divided by DCOMSH
INTEXP	= non-GAAP exclusions related to interest expense or income divided by DCOMSH
INVEST	= non-GAAP exclusions related to gain or loss on investments divided by DCOMSH
ITOADJ	= non-GAAP exclusions pertaining to income tax related to other non-GAAP adjustments divided by DCOMSH
$LEV_{i,q}$	= firm i's total debts divided by total equity, both at the end of quarter q
LITIGATION	= non-GAAP exclusions related to litigation charges divided by DCOMSH
$ln(AGE)_{i,q}$	= logarithm of years from firm i's incorporation until quarter q
$ln(MV)_{i,q}$	= logarithm of firm i's market value of equity in quarter q
$ln(N\_ANLST)_{i,q}$	= logarithm of number of analysts following firm i in quarter q
$M\_RECUR\_D\&A_{i,q}$	= absolute change in values of firm i's exclusions related to depreciation and amortization charges in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_FCEX_{i,q}$	= absolute change in values of firm i's exclusions related to foreign currency exchange gain or loss in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_INTEXP_{i,q}$	= absolute change in values of firm i's exclusions related to interest expense or income in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_INVEST_{i,q}$	= absolute change in values of firm i's exclusions related to gain or loss on investments in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_PENSION_{i,q}$	= absolute change in values of firm i's exclusions related to pension charges in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_R\&D_{i,q}$	= absolute change values of firm i's exclusions related to research and development charges in quarter q from quarter q-4, multiplied by minus 1
$M\_RECUR\_SBC_{i,q}$	= absolute change in values of firm i's exclusions related to stock-based compensation charges in quarter q from quarter q-4, multiplied by minus 1
M&A	= non-GAAP exclusions related to merger and acquisition charges divided by DCOMSH
$MBF_{i,q}$	= one if firm i's non-GAAP earnings meet or beat the consensus analyst forecasts when GAAP earnings from operations fall short of the consensus in quarter q, and zero otherwise
$MV_{i,q}$	= firm i's market value of equity in quarter q
$N\_ANLST_{i,q}$	= number of analysts following firm i in quarter q

Appendix 1 Variable definitions (continued)

Variable Name	Definition
OTHER	= non-GAAP exclusions that managers directly describe as “other,” “unusual items,” “special items,” or “other non-operating items” divided by DCOMSH
PENSION	= non-GAAP exclusions related to pension charges divided by DCOMSH
QTR	= fiscal quarter dummies
R&D	= non-GAAP exclusions related to research and development charges divided by DCOMSH
$RECUR\_D\&A_{i,q}$	= one if depreciation and amortization-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_FCEX_{i,q}$	= one if foreign exchange-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_INTEXP_{i,q}$	= one if interest expense-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_INVEST_{i,q}$	= one if investment gain or loss-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_PENSION_{i,q}$	= one if pension-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_R\&D_{i,q}$	= one if research and development-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR\_SBC_{i,q}$	= one if stock-based compensation-related items excluded by managers of firm i in quarter q, and zero otherwise
$RECUR_{i,q}$	= number of recurring items excluded by managers, scaled by total number of recurring item exclusions (totally 7 types of recurring items)
RESTRUCT	= non-GAAP exclusions related to restructuring charges divided by DCOMSH
SBC	= non-GAAP exclusions related to stock-based compensation charges divided by DCOMSH
STOCKTRD	= non-GAAP exclusions related to stock listing and trading, such as IPO-related costs and stock redemption expense, divided by DCOMSH
TAXCHG	= non-GAAP exclusions related to gain or loss on taxation divided by DCOMSH
$\Delta SALES_{i,q}$	= change in sales of firm i in quarter q from quarter q-4, divided by absolute value of quarter q-4's sales