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非審計服務的提供是否會影響審計品質？企業社會責任（CSR）報告確信服務與財務報表審計之例證

何里仁[*]　江向才[**]

摘要：為增進上市櫃公司企業社會責任之履行，台灣證券交易所在2014年訂定規範，要求符合規範條件的上市櫃公司必須在2015年編製及揭露其企業社會責任報告書。此外，食品及以食品為主要業務的相關公司，必須針對其編製之企業社會責任報告書取得會計師確信意見，企業社會責任報告書之確信服務成為會計師的重要非審計服務之一。然而，學術及實務上對非審計服務對審計品質的可能影響仍有所爭議。雖然，不少過去研究對於此議題加以探討，但並未有針對企業社會責任報告書提供確信服務的相關證據。由於企業社會責任報告書的確信意見將會放在報告書中，提供給包括投資人、債權人及主管機關等外部使用者，與其他非審計服務意見主要提供給管理當局，在本質上有很大的不同。因此，本研究旨在探討會計師為其審計客戶提供企業社會責任報告書確信服務對審計品質的影響。實證結果顯示，企業社會責任報告書確信服務和財務報表審計由相同會計師提供的公司，其實質盈餘管理和裁決性應計盈餘管理程度皆較低。換言之，為審計客戶提供企業社會責任確信服務對審計品質有正面影響；此外，研究結果顯示，此影響在合夥人層級較事務所層級更為顯著。

關鍵詞：企業社會責任（CSR）、非審計服務、確信服務、審計品質

[*] 國立雲林科技大學會計系助理教授（通訊作者，地址：雲林縣斗六市大學路三段 123 號；聯絡電話：(05)552-4927；E-mail: lijenho@yuntech.edu.tw）
[**] 逢甲大學會計系教授

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Does Providing Non-audit Service Impact Audit Quality? Evidence of Corporate Social Responsibility (CSR) Report Assurance and Financial Report Audit Quality

Li-Jen He* Hsiang-Tsai Chiang**

Abstract: The joint provision of audit and non-audit services by auditors has been discussed intensively in the literature; however, the effects of providing non-audit services on audit quality remains a matter of debate. The assurance of CSR report differs from other non-audit services in terms of users, level of supervision, and influence of reputation; and it has recently been mandated for food industry in Taiwan. This study aims to explore the effects of engaging auditors to provide CSR assurance services for their audit clients on audit quality. The empirical results reveal that companies that receive CSR assurance services as well as audit services for their financial statements from a single audit firm display significantly lower real earnings manipulation and lower absolute discretionary accruals. In other words, providing CSR assurance service for audit clients has positive impact on audit quality. Our results also indicate that the association between the provision of CSR report assurance services to audit clients and audit quality is more pronounced at the audit partner level.

Keywords: corporate social responsibility, non-audit service, assurance service, audit quality

* Assistant professor, Department of Accounting, National Yunlin University of Science and Technology (Corresponding author, lijenho@yuntech.edu.tw)
** Professor, Department of Accounting, Feng Chia University

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I. Introduction

The increasing global awareness of corporate social responsibility (CSR) has led to a significant increase in the publishing of standalone CSR reports around the world (Guidry and Patten, 2010; Wang and Li, 2016). As documented by KPMG (2013), almost three-quarters (71%) of the top 100 companies from 41 countries surveyed in 2013 have produced such reports (KPMG, 2013). Taiwan has followed this trend in recent years; on November 26, 2014, the Taiwan Stock Exchange Corporation (TWSE) promulgated Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies and required listed companies in the food, financial, and chemical industries and companies with capital stock of more than NT$10 billion to compose and publish Chinese CSR reports starting in 2015.

According to the above-mentioned CSR reporting rules of Taiwan, listed companies must disclose the Global Reporting Initiative (GRI) Content Index referring to the Sustainability Reporting Guidelines. Since companies are required to provide standalone CSR reports, the content of these reports and the reliance on independent assurance have grown for improving the relevance and reliability of CSR information as a result (Simnett, Vanstraelen, and Chua, 2009; KPMG, 2013; Cohen and Simnett, 2015). Because poisonous starch, fake oil, and other serious pollution incidents have intensified regulators' attention to accountability of CSR reports, the CSR reports prepared by the food industry and the listed companies, whose revenue is mainly derived from food and beverage-related activities[1], must obtain an auditor's assurance report. With respect to the mandate for CSR reports prepared by the food-related industry to obtain this report, the assurance of CSR reports has become an important non-audit service for audit firms. However, the effects of providing such non-audit services on audit quality are still a subject of debate.

With respect to the influence of auditor independence, Frankel, Johnson, and Nelson (2002) and Ferguson, Seow, and Young (2004) report that high levels of non-audit service fees are associated with higher levels of discretionary accruals. Moreover, many commentators, citing anecdotal evidence from, for example, Enron and WorldCom, argue that auditors are more lenient in dealing with difficult and vague accounting issues when a client purchases significant amounts of non-audit services from the firm (Knechel and

[1] According to "Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies," in addition to companies in the food industry, companies whose financial report for the most recent fiscal year submitted pursuant to Article 36 of the Securities and Exchange Act indicates that no less than 50% of the company's revenue is derived from food and beverage must obtain a certified public accountant report of opinion as well.

Sharma, 2012). On the other hand, from the knowledge spillover perspective, studies and practices of the accounting profession suggest that the joint provision of audit and non-audit services improves the performance of the audit (e.g., Kinney Jr., Palmrose, and Scholz, 2004; Srinidhi and Gul, 2007; Robinson, 2008; Lee, Mande, and Son, 2009). That is, although providing assurance services may impair audit quality by increasing auditors' economic bonds with their audit clients, it may also improve audit quality due to the enhanced knowledge of companies gained from the work of issuing an assurance opinion of their CSR report. In addition, with respect to the performance of audit firms, Chang, Chen, Duh, and Li (2011) examine data on the operations of 51 audit firms in Taiwan for 1993 and 2003 and find that audit firms with higher growth in non-audit services possess significantly higher productivity growth via greater information technology (IT) capital and human capital accumulation than firms that remain focused on traditional audit services. In other words, under the circumstance of retaining auditor independence, non-audit services may not be harmful but rather have some positive impacts on the audit firms' performance.

Although some prior studies have documented the influence of non-audit services on auditor independence and audit quality (e.g., Frankel et al., 2002; DeFond, Raghunandan, and Subramanyam, 2002; Ashbaugh, LaFond, and Mayhew, 2003; Geiger and Rama, 2003; Raghunandan, Read, and Whisenant, 2003; Ferguson et al., 2004; Duh, Lee, and Hua, 2009), to the best of our knowledge, no study has explored this question from the perspective of assurance of CSR reports.

The assurance of CSR reports is important and different from other non-audit services. For example, unlike with financial information systems design and implementation, internal audit outsourcing services, or other non-audit services that mainly provide opinions to the management of client companies, the opinion of CSR assurance reports is provided to external stakeholders, including investors, creditors, and the competent authority. Therefore, compared to other non-audit services, the assurance of CSR reports is more strictly monitored by institutional mechanisms. From the perspective of auditor reputation, Lim, Ding, and Charoenwong (2013) suggest that, because of reputation concerns and potential litigation exposure, auditors are more likely to provide high audit quality when they also provide non-audit services to clients, particularly when clients are subject to high institutional monitoring. Since the assurance of CSR reports is more strictly monitored by institutional mechanisms than other non-audit services, the effects of assurance of CSR reports on audit quality differ as well. To date, there has been a relative paucity of research to inform assurance related to CSR

reporting (Cohen and Simnett, 2015). Accordingly, this study aims to explore the effects of engaging auditors to provide CSR assurance services for audit clients on audit quality.

The empirical results reveal that a company whose CSR reports are assured by the auditor that provides audit services for its financial statement possesses significantly lower real earnings manipulation (*REM*). For the aggregate measurement of real earnings management, providing CSR report assurance for the same audit clients is significantly negatively associated with *REM* at both the firm level and the partner level when exploring the association individually. On the other hand, the results for both the firm level and partner level reveal that when considering audit firms and audit partners together, the effects of providing CSR report assurance on audit quality are significant only at the partner level. This finding supports our hypotheses that the provision of CSR report assurance services to audit clients is positively associated with audit quality and the association between the provision of CSR report assurance services to audit clients and audit quality of financial reports induced by knowledge spillover is more significant at the audit partner level. For earnings manipulation among different activities, the results suggest that while the effect of providing CSR report assurance on audit quality is significant for both the firm level and the partner level as a whole, the effects are more pronounced for overproduction manipulation and discretionary expense manipulation at the partner level while it is more pronounced for sales manipulation at the firm level.

In addition, by exploring the associations between engaging auditors to assure the CSR report and audit quality for industry specialization and non-industry specialization auditors separately, the results reveal that, while the association between providing CSR report assurance services and audit quality is more significant for companies that are audited by a non-industry auditor at the partner level, the association between providing CSR report assurance services and audit quality is significant only for companies that are audited by industry specialists at the firm level. This study argues that the impact of firms on audit quality is more likely to be driven by increased reputation costs while the influence of partners on audit quality is more likely to be induced by the effect of knowledge spillover. The findings suggest that, rather than impairing audit quality, the assurance of CSR reports is more likely to have positive impacts on audit quality.

For the additional test, this study explores the impact of providing CSR assurance services on discretionary accruals and finds that the positive impacts of providing CSR report assurance services on discretionary accruals are mainly from company income-decreasing management activities at the audit firm level whereas those impacts are mainly from income-increasing management activities at the audit partner level, respectively. In addition, we find that the association between providing CSR report

assurance and audit quality is mainly from companies that are required to provide CSR reports.

This study contributes to two streams of research. First, it fits into the emerging literature on CSR assurance. Cohen and Simnett (2015) indicate that, compared to the financial statement audit, assurance of CSR information has unique and specific characteristics that add to the potential significance of this research topic. Distinct from financial statement audits, the accounting profession does not have a monopoly on assurance services related to CSR, so audit firms must compete with other types of service providers. This competitive nature of the market for assurance services is expected to create market incentives to develop and offer assurance services in a cost-efficient yet effective way. The provision of audit client CSR assurance services may enhance the cost-efficiency of audit firms' audit work with financial statements and improve the audit quality due to the enhanced knowledge about the company. Such knowledge is gained through the work on the CSR report assurance since the report is expected to contain and describe a broad range of qualitative and quantitative information and relationships, the scope of the effectiveness of different types of risk assessment, and evidence-gathering techniques. Furthermore, while Cohen and Simnett (2015) suggest that unique skills, traditional work and training, and an extensive network provide a different level of assurance services that other types of assurance providers may not provide, knowing the possible impacts of CSR assurance on financial audits is important. The findings of this study provide empirical evidence of CSR assurance and its implications for financial reporting quality to supplement the existing CSR-related literature. Second, while the assurance of CSR reports is important and different from other non-audit services, as mentioned above, the effects of assurance of CSR reports on audit quality are worthwhile to explore. By examining the CSR assurance service, which is a new context that reexamines the trade-off between auditor independence and knowledge spillover, this study extends a long-standing debate in the audit quality literature on the effect of non-audit services on audit quality.

The remainder of this paper is organized as follows. We first introduce the institutional background of the CSR standalone report requirement in Taiwan. Next, we review related literature and develop the main hypotheses for this study. Sample selection, the empirical model, and the methodology are presented after that. Subsequently, we discuss the descriptive statistics and empirical results. Concluding remarks and limitations of this study are offered last.

II. Institutional Background

To increase the creditability of CSR reports, TWSE promulgated Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies on November 26, 2014, and required listed companies in the food, financial, and chemical industries and companies with capital stock of more than NT$10 billion to compose and publish Chinese CSR reports starting in 2015. According to Taiwan's CSR reporting rules, listed companies must disclose the GRI Content Index referring to the Sustainability Reporting Guidelines and specify in the index tables whether the disclosure items in the CSR report have been assured, verified, or certified by a third party. In addition, the performance indicator must be evaluated and disclosed by adopting the standards in compliance with the rules of the competent authorities. If the competent authorities have not promulgated applicable standards, the companies must adopt the approach of evaluation commonly used in practice. Listed companies under the regulation scheme must disclosed their CSR report and the link to the file of that report on the companies' websites on the internet information reporting system designated by TWSE by June 30, 2015. For the first year under the regulation, the date of filing may have been extended to December 31, 2015[2]. Moreover, the CSR reports prepared by the food industry and the listed companies whose revenue is mainly from food and beverage-related activities must obtain an auditor's assurance opinion issued according to the rules published by the Auditing Standards Committee in Taiwan[3]. This requirement for CSR reports for food-related companies makes assurance of CSR reports an important non-audit service for audit firms in Taiwan. According to the CSR Sustainability Reporting Platform, large domestic enterprises are willing to spend about NT$800,000 to NT$1 million per year to prepare a CSR report and are even willing to spend an additional NT$200,000 to NT$300,000 to obtain third-party verification or conviction to improve the quality and credibility of the information disclosed in the report.

The assurance of auditors is required to follow ISO26000, GRI, or AA1000; Panel A of Table 1 shows a comparison of these three indexes. Panel B of Table 1 summarizes the CSR reports announced by listed companies from 2015 to 2016. Table 1 shows that 648

[2] According to Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies, if listed companies do not prepare a CSR report in the most recent year or do not prepare the report by referring to the GRI Guidelines, or the CSR report has obtained an auditor's opinion according to the certification rules, the filing may be completed by December 31 in the same year.

[3] The Auditing Standards Committee in Taiwan published SAES No. 1, Assurance Engagements Other than Audits or Reviews of Historical Financial Information, to establish rules that deal with assurance engagements other than audits or reviews of historical financial information on June 9, 2015.

companies announced their CSR report from 2015 to 2016; 423 announced their CSR report mandatorily while the other 225 announced it voluntarily. In addition, among the 648 companies that disclosed their CSR report, 100 obtained an assurance opinion from auditors, which is approximately 15% of all companies that announced their CSR reports from 2015 to 2016. The number suggests that because the assurance of an auditor is required only for companies that meet specific conditions, relatively few companies had an auditor's assurance for their CSR reports.

Auditors provide non-audit services and whether they adversely affect audit quality or auditor independence has been discussed continuously by professional practice, academic, and regulatory bodies in countries around the world. In the United States (US), non-audit services became a great concern after the accounting scandals at Enron Corp. and WorldCom, Inc. that ultimately led to passage of the Sarbanes-Oxley Act (SOX) in 2002[4].

Section 201 of SOX specifically prohibits the provision of most non-audit services by companies' incumbent external auditor. With the aim of enhancing auditor independence, listed companies in Taiwan must also pay more attention to auditors' non-audit services provided to their audit clients after the serious scandal of Procomp[5]. Article 47 of the Certified Public Accountant Act dictates that auditors not perform audits on financial reports when they provide management consulting or other non-audit services that affect their independence. In addition, the Regulations Governing Information to Be Published in Annual Reports of Public Companies requires companies reaching certain conditions to disclose audit and non-audit fees. That is, although non-audit services are not prohibited, they are controlled by the regulatory bodies in Taiwan.

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[4] According to Section 201 of the SOX, services including (1) bookkeeping or other services related to the accounting records or financial statements of the audit client, (2) financial information systems design and implementation, (3) appraisal or valuation services, fairness opinions, or contribution-in-kind reports, (4) actuarial services, (5) internal audit outsourcing services, (6) management functions or human resources, (7) broker or dealer, investment adviser, or investment banking services, (8) legal services, and (9) expert services unrelated to the audit are considered to impair auditors' independence and auditors are prohibited from providing these services to their audit clients.

[5] Procomp Informatics Ltd., a manufacturer of personal computer (PC)-related and compound semiconductor products, incorporated in Taiwan in 1991. On June 14, 2004, Procomp filed for re-organization after failing to raise funds through issuing global depositary receipts (GDRs) to redeem outstanding bonds which were due. The amount due was about US$92 million. A financial scandal broke out when it was revealed that the balance of cash and cash equivalents shown in the financial statements did not exist. The Securities and Futures Commission (SFC) took many additional actions to mitigate the expectation gap between investors and auditors, including mandatory auditor rotation, inspection of audit working papers, amendment of the certified public accountant law in Taiwan to proscribe auditors from providing non-audit services that could impair independence, and asking accounting firms to purchase professional liability insurance.

III. Literature Review and Research Questions

The joint provision of audit and non-audit services by incumbent auditors has been intensively debated in the literature; nonetheless, the empirical evidence provided in prior studies of the association between non-audit services and audit quality is somewhat mixed.

Table 1 Overview of CSR Report Assurance in Taiwan

Panel A: Comparison of Certifications Can Be Used

Contents that are required to be included in the certification statement	*ISO26000*	*GRI*	*AA1000*
Standard identification	Yes	Yes	Yes
Date of certification report	No	Yes	Yes
Major event information and identification and description of major events, as appropriate	Yes	Yes	Yes
Executive summary of the work	Yes	Yes	Yes
Practitioner's conclusions	-	Yes	No
Confidence in the interpretation of any major, implicit restriction associated with the assessment or measurement of a major event against a standard	Yes	Yes	Yes
Identify responsible groups and descriptions of the group and the practitioners	No	Yes	Yes
Third-party verification report statement	No	Yes	No
Sustainability	No	No	Yes

Panel B: Summary of CSR Reports Announced by Taiwan Listed Companies 2015-2016

	Announced by		*Obtain an auditor assurance opinion*	
Industry	*Required*	*Voluntary*	*Yes*	*None*
Cement	5	3	0	8
Foods	31	0	31	0
Plastics	16	4	1	19
Textiles	9	1	0	10
Electric	3	1	1	3
Wire	2	0	1	1
Chemical	81	0	6	75
Biotechnology medical treatment	1	25	2	24

Table 1 Overview of CSR Report Assurance in Taiwan (Continued)

Panel B: Summary of CSR Reports Announced by Taiwan Listed Companies 2015-2016

	Announced by		*Obtain an auditor assurance opinion*	
Industry	*Required*	*Voluntary*	*Yes*	*None*
Glass	1	0	1	0
Paper and pulp	7	1	0	8
Steel and iron	8	9	0	17
Semiconductor	28	19	2	45
Rubber	5	1	0	6
Motor	6	2	0	8
Electronics	82	119	17	184
Construction	10	5	4	11
Transportation	15	3	1	17
Tourism	12	2	7	7
Department stores	7	6	2	11
Financial insurance	83	0	15	68
Other	11	24	9	26
Total	423	225	100	548
	648		648	

The fundamental issue is that, while non-audit services may impair auditor independence, knowledge spillovers from these services can increase audit efficiency. While regulators and financial statement users are concerned that auditors compromise their independence by allowing for clients that contract for non-audit services, providing non-audit services in addition to an audit might lead to knowledge spillovers that enable the audit to be performed more competitively.

From the viewpoint of auditor independence, prior studies have explored the association between non-audit service fees paid to an external auditor and audit quality, which is measured by discretionary accruals (e.g., Frankel et al., 2002; Ferguson et al., 2004; Cahan, Emanuel, Hay, and Wong, 2008), financial restatements (e.g., Raghunandan et al., 2003; Kinney et al., 2004; Habib and Islam, 2007), the frequency of issuing going-concern modification opinions (e.g., DeFond et al., 2002; Basioudis, Papakonstantinou, and Geiger, 2008; Ratzinger-Sakel, 2013), and the difference between audited earnings and forecast earnings (Duh et al., 2009). The main argument of these studies is that non-audit service fees paid to external auditors increase the economic bond between auditors and their clients and may reduce audit quality based on a presumed

impairment of auditor independence. However, other than Frankel et al. (2002) and Ferguson et al. (2004), who find an association between high levels of non-audit service fees and higher levels of discretionary accruals, most studies fail to replicate this result using U.S. data (e.g., Ashbaugh et al., 2003; Chung and Kallapur, 2003; Raghunandan et al., 2003; Kinney Jr. et al., 2004; Cahan et al., 2008; Knechel and Sharma, 2012). In addition, while Duh et al. (2009) indicate a negative association between non-audit fees and audit adjustments by using Taiwan data and suggest a negative impact of non-audit services on audit quality, both Wu, Hsu, and Haslam (2016), who use a sample of United Kingdom (UK) failed firms, and Ratzinger-Sakel (2013), who focuses on the relationship between non-audit service fees and the likelihood of receiving a going-concern modification in Germany, find no association between non-audit service fees and auditor independence or audit quality.

On the other hand, from the viewpoint of knowledge spillover, another stream of studies suggests that providing non-audit services may increase the efficiency of the audit (e.g., Simunic, 1984; Abdel-khalik, 1990; Lee et al., 2009; Knechel and Sharma, 2012). Simunic (1984) argues that efficiencies are associated with the joint supply of the two services because non-audit services and audit services require a common knowledge base about a client. In addition, both Lee et al. (2009) and Knechel and Sharma (2012) document the negative associations between non-audit service fees and audit report lags, which suggest that the provision of non-audit services increases auditor learning, thus reducing audit delays. Also, by exploring non-audit service fee data from 1978 to 1980, Koh, Rajgopal, and Srinivasan (2013) find evidence of improved earnings quality when auditors provide non-audit services, especially those related to information services. This is consistent with better audit quality resulting from knowledge spillovers in the joint offering of audit and consulting services.

Understanding a client, including its operating environment and business processes, is necessary for both audits of the financial report and assurance of the CSR report, and such knowledge may be enriched when the audit firm provides both services together. Consequently, a reduction in transaction costs and production factors such as start-up time and learning effects can exist, resulting in more efficient audits (Simunic, 1984; Newton and Ashton, 1989; Bamber, Bamber, and Schoderbek, 1993; Davis, Ricchiute, and Trompeter, 1993; Knechel and Payne, 2001; Knechel, Sharma, and Sharma, 2012). Distinct from most other non-audit services that have been examined in prior studies, such as financial information systems design and implementation, internal audit outsourcing services, and other non-audit services whose opinions are mainly provided to client company managements, the opinion of CSR report assurance is provided to

external stakeholders, including investors, creditors, and the competent authority. In other words, compared to other non-audit services, the assurance of CSR reports is more strictly monitored by institutional mechanisms. From the auditor reputation perspective, Lim et al. (2013) suggest that because of reputation concerns and potential litigation exposure, auditors are more likely to provide high audit quality when they also provide non-audit services to clients, particularly when clients are subject to high institutional monitoring. Since the assurance of CSR reports is more strictly monitored by institutional mechanisms than other non-audit services, the effects of assurance of CSR reports on audit quality differ as well.

Cohen and Simnett (2015) point out the possible reasons why practitioners from the accounting profession are well placed to deliver CSR assurance services. First, the risk model used for financial statement audits, which involves understanding the entity and assessing the risk of material misstatement, and then appropriately responding to assessed risks, translates well when assuring reporting domains (Huggins, Green, and Simnett, 2011). In addition, assurance practitioners from accounting backgrounds have the assurance competencies to undertake these engagements and are supported by a detailed code of ethics that emphasizes importance, independence, objectivity, and other core ethical concepts. Last, the value of accountants' unique skills and the audit tradition of facilitating the provision of ''high-quality, decision-making information'' are highly relevant in the CSR context. Also, Duh, Hsu, and Teng (2017) suggest that since the nature of CSR assurance is similar to financial statement assurance, compared to other non-audit services, it is easier to receive knowledge spillovers when conducting CSR assurance.

In practice, Liang and Zeng (2016), the deputy chief operating officer and climate change and sustainability services auditor of EY, document that when processing CSR assurance, auditors focus on material misstatements, emphasize the correctness of the data, and use the audit method to make the assurance of the CSR reports as rigorous as the audit of the financial statements.

For the practice of CSR assurance, according to the G4[6] regulations, the auditors must determine the "major issues" of the company. This determination may incorporate advice or feedback from both internal stakeholders, such as managers and employees, and external stakeholders, such as suppliers and industry peers. For example, the major tire manufacturers across the world operate under different national conditions and accommodate the different interests of stakeholders in various countries; thus, even in the

[6] The fourth Sustainability Reporting Guidelines established by Global Reporting Initiatives (GRI).

same industry, companies have different major issues. For instance, for chemical industry, in order to reduce the negative impact of products, activities or services on the environment, the CSR reports shall at least contain the information of manufacturing, processing and performance indicators management of raw materials, materials and final goods; as well as their mechanisms for accidents inside and outside the factory. For the food industry, important risk indicators such as the number and frequency of violations of food safety and health management regulations, the number and percentage of audited suppliers, audit items and results, and the situation of product tracking management are also included in major issues. Exploring the major issues of client companies can help auditors develop a substantial understanding of the clients' inherent risks and control risks. Furthermore, to issue a suitable opinion of CSR assurance, the auditors must collect information about the evaluation, measurement, and representation of the major issues. Through such assurance work, auditors can obtain not only financial but also important non-financial information (e.g., knowledge) of companies.

Regarding the above competing arguments concerning the potential effects of non-audit services on audit quality, since the assurance fee is relatively small[7] and CSR assurance services, which are more strictly monitored by institutional mechanisms, differ from other non-audit services in nature, this study argues that the work of CSR assurance helps auditors more effectively and efficiently audit the financial statements and enhances audit quality rather than impairing auditor independence through an increased economic bond. Therefore, this study proposes the first hypothesis, as follows:

H1: The provision of CSR report assurance services to audit clients is positively associated with audit quality.

With respect to knowledge spillover, prior studies have argued that the separation of audit and non-audit personnel within the large firms makes it very difficult for knowledge spillovers to actually occur (Joe and Vandervelde, 2007; Knechel and Sharma, 2012). Joe and Vandervelde (2007) indicate that to obtain a positive knowledge transfer from non-audit services to audit services, the same personnel must work on both engagements. Joe and Vandervelde's results reveal that auditors who completed the non-audit task transferred the knowledge about client risks and provided higher audit risk assessments than auditors who only reviewed non-audit working papers, which suggests that auditors might exhibit less professional skepticism for clients when their firm performs non-audit services. Specifically, the knowledge spillover effects of non-audit services on audit services may be

[7] According to the CSR Sustainability Reporting Platform, large domestic enterprises are willing to spend about NT$800,000 to NT$1 million per year to prepare a CSR report to obtain third-party verification or conviction to improve the quality and credibility of the information disclosed in the report.

more significant for the auditors themselves than for the audit firm. In addition, for the development of audit knowledge, since professional judgments rely on an individual auditor's knowledge and task experience, an individual auditor is more likely to possess account expertise than an audit firm (Chin and Chi, 2009). Hence, the association between assurance of CSR reports and audit quality induced by knowledge spillover is more pronounced for audit partners than for audit firms.

Therefore, based on the above arguments, this study proposes the second hypothesis, as follows:

H2: The association between the provision of CSR report assurance services to audit clients and audit quality induced by knowledge spillover is more significant at the audit partner level.

IV. Research Method

Data Selections

To increase the creditability of CSR reports, TWSE requires listed companies in the food, financial, and chemical industries and companies with capital stock of more than NT$10 billion to compose and publish Chinese CSR reports starting in 2015. To understand the executory circumstances of CSR assurance reports precisely, instead of only indicating companies that are assured by auditors, this study uses hand-collected data and traces the data for auditors' names on CSR assurance reports. Under the regulation scheme, listed companies must disclose their CSR report and post the link to that report on the companies' websites using the internet information reporting system designated by TWSE by June 30, 2015[8]. Thus, this study uses data from 2015 and 2016 to explore the association between CSR report assurance and audit quality.

Since the decision of whether to issue a CSR report may be driven by firm and auditor characteristics that have significant impacts on audit quality, this study uses the propensity score matching (PSM) method to reduce the possible endogeneity concerns, according to prior studies (e.g., Armstrong, Jagolinzer, and Larcker, 2010; Lawrence, Minutti-Meza, and Zhang, 2011). Considering the companies' characteristics, corporate governance environment, operating performance, and the impact of auditor characteristics on their CSR report disclosure and issuance intention, we include company size (*SIZE*), number of years of establishment (*AGE*), comprehensive corporate governance indicators (*CG*), growth opportunities (*GROW*), performance (*ROA*), and auditor characteristic (*BIGN*) as matching variables and use a basis of 0.05 match tolerance for one-to-one PSM

[8] For the first year under the regulation, the completed date of filing could be extended to December 31, 2015.

pairing. The results of PSM are presented in Table 2. Panel A of Table 2 reveals that among the above characteristic factors, company size (*SIZE*), number of years of establishment (*AGE*), performance (*ROA*), and auditor characteristic (*BIGN*) are positively associated with the issuance of a CSR report; that is, companies that are of larger size, have a longer history, have better performance, and are audited by large audit firms are more likely to issue a CSR report.

Table 2 Matching Results of PSM

Panel A: Logistic Regression

	Coeff.	*Wald*
SIZE	0.838	377.026***
AGE	0.020	24.077***
CG	0.074	2.074
GROW	0.037	0.039
ROA	0.015	2.952*
BIGN	0.452	5.239**
CONST.	-16.171	484.944***
N	3099	
Cox and Snell R^2	0.192	
Nagelkerke R^2	0.318	

Panel B: Case Control Matching Statistics

Match Type	*Count*
Exact Matches	0
Fuzzy Matches	424
Unmatched Including Missing Keys	117
Unmatched with Valid Keys	109

Panel C: Case Control Match Tolerances

Match Variables	*Value*	*Fuzzy Match Tries*	*Incremental Rejection Percentage*
Exact (All Variables)		322950.000	100.000
PS	0.050	322950.000	99.869

The definition of variables are as follows. *SIZE*: companies size is measured by natural logarithm of the book value of total assets at year-end. *AGE*: number of years of establishment is measured by the total number of operating years of companies since it was established. *CG*: comprehensive corporate governance indicators is measured by a corporate governance index that captures the degree of the corporate governance circumstances over a company. The index is constructed based on 7 corporate governance provisions, including board size, board share-holdings ratio, the percentage of shares pledged to board members, the ratio of independent directors and supervisors, the ratio of family-controlled directors and supervisors, and institutional holdings ratio, where a high *CG* index indicates stronger governance; thus, we code firms 1 (for strong governance) if the above specific *CG* indicator is beyond the sample median and 0 otherwise. *GROW*: growth opportunity of companies is measured by the rate of net sales over the previous year. *ROA*: performance is measured by the return of asset over the previous year. *BIGN*: whether it is audited by big N auditors is measured by a dummy variable equal to1 if the company is audited by a Big 4 audit firm, and 0 otherwise.

For PSM matching statistics, Panel B and Panel C of Table 2 reveal that 848 companies (424 pairs) have been matched under the 0.05 match tolerance. The sample selection process and distribution of companies that announced CSR reports are presented in Table 3. Table 3 shows that the original number of sample companies for this study is 3,287 and, after deleting companies in the financial services and insurance industries and companies that did not have sufficient data, we have 3,024 sample companies for use in exploring the analyses before matching. After processing the PSM matching, the study has 848 sample companies. The final sample includes 440 listed companies for 2015 and 408 listed companies for 2016, which accounts for 53.64% and 46.08% of the total sample, respectively[9].

Table 3 Sample Selection and Distribution of Observations

Panel A: Sample Selection

	Number of observations
Original sample firms for year 2015-2016	3,287
Less: financial services and insurance companies	(86)
Less: without sufficient data of CSR assurance report	(39)
Less: without sufficient auditor data	(35)
Less: without sufficient financial data	(103)
Sample companies before matching	3,024
Less: loss from matching	(2,176)
Final sample of this study	848

Panel B: Sample Composition

Year	*Sample Companies*	*With CSR assurance report*	%	*Without CSR assurance report*	%
2015	440	236	53.64	204	46.36
2016	408	188	46.08	220	53.92
Total	848	424	50.00	424	50.00

Measurement of Real Earnings Management

Following prior studies, this study uses abnormal cash flow from operations (*AbnCFO*), abnormal production costs (*AbnPROD*), discretionary expenses (Abn*ADISX*), and the aggregate measurement of real earnings management (*REM*) to capture companies' real earnings management activities through sales, production, and discretionary expenditures.

[9] Since the data used in this study are based on the cross-sectional analysis approach which applies the "firm-year" as a sample selection criterion, we utilize each "firm-year" as the basis for pairing as well. Therefore, the sample size for two different years after pairing is not exactly the same.

Abnormal cash flow from operations (*AbnCFO*)

Roychowdhury (2006) suggests that cash flow from operations can serve as a measurement of sales manipulation. Following Roychowdhury (2006), this study defines abnormal cash flows from operations (*AbnCFO*), which are estimated using the following cross-sectional regression for every two-digit standard industrial classification (SIC) industry and year:

$$CFO_t / A_{t-1} = \alpha_1(1/A_{t-1}) + \beta_1(S_t / A_{t-1}) + \beta_2(\Delta S_t / A_{t-1}) + \varepsilon \quad (1)$$

where CFO_t is cash flows from operations, A_{t-1} is the total assets for last year, S_t is the sales of the current year, and ΔS_t is the change in sales from prior year from year t-1 to t. After the estimation of parameters in equation (1), *AbnCFO* is measured as the residual value of equation (1). Since the signed value of abnormal cash flows from operations decreases with sales manipulation, a lower value of *AbnCFO* indicates higher real earnings management.

Abnormal production costs *(AbnPROD)*

According to Roychowdhury (2006), abnormal production costs is a measurement of overproduction. Following Roychowdhury (2006), this study defines production costs as the sum of the costs of goods sold and change in the inventory, as follows:

$$COGS_t / A_{t-1} = \alpha_1 + \beta_1(1/A_{t-1}) + \beta_2(S_t / A_{t-1}) + \varepsilon \quad (2)$$

$$\Delta INV_t / A_{t-1} = \alpha_1 + \beta_1(1/A_{t-1}) + \beta_2(\Delta S_t / A_{t-1}) + \beta_3(\Delta S_{t-1} / A_{t-1}) + \varepsilon \quad (3)$$

where $COGS_t$ is the cost of goods sold for the current year, ΔINV_t is the change in inventory, A_{t-1} is the total assets for the last year, S_t is the sales in the current year, and ΔS_t is the change in sales from prior year from year t-1 to t.

The following regression model then is used to compute abnormal production costs (*AbnPROD*):

$$PROD_t / A_{t-1} = \alpha_1(1/A_{t-1}) + \beta_1(S_t / A_{t-1}) + \beta_2(\Delta S_t / A_{t-1}) + \beta_3(\Delta S_{t-1} / A_{t-1}) + \varepsilon \quad (4)$$

where $PROD_t$ is the production costs for the current year and the definition of other variables is the same as in equations (1) and (2). Equation (4) is estimated for every two-digit SIC industry and year. The residuals from equation (4) are used to measure the abnormal production costs. Since the signed value of abnormal production increases with overproduction manipulation, a higher value of *AbnPROD* indicates higher real earnings management.

Discretionary expenses (*AbnDISX*)

Roychowdhury (2006) indicated that managers may reduce discretionary expenditures to increase earnings as these expenditures are generally expensed in the same period in which they are incurred, and companies that opportunistically cut discretionary expenditures will have unusually lower discretionary expenses. Following Roychowdhury (2006), this study measures discretionary expenditures as the sum of advertising expenses, research and development (R&D) expenses, and selling, general, and administrative expenses. To disentangle the abnormal part of discretionary expenditures, the following regression is applied for every two-digit SIC industry and year:

$$DISX_t / A_{t-1} = \alpha_1(1/A_{t-1}) + \beta_1(S_{t-1}/A_{t-1}) + \varepsilon \quad (5)$$

where $DISX_t$ is discretionary expenses, and the definition of other variables is the same as in equation (2). As a reduction in discretionary expenditures leads to lower values of abnormal discretionary expenses, a lower value of *AbnDISX* reflects higher real earnings management.

Aggregate Measure of Real Earnings Management

Following Roychowdhury (2006), this study uses the sum of the above three measures of real earnings management as the aggregate measure of real earnings management (*REM*).

Since the audit of financial statements is processed before the assurance of CSR reports in practice, the knowledge spillover of the CSR report assurance should be effective in the next year's audit; thus, this study uses one-year lagged real earnings management numbers (*REM*, *AbnCFO*, *AbnPROD*, and *AbnDISX* of the following year) to measure the audit quality that is influenced by CSR report assurance.

Empirical Model

To examine the hypotheses, this study provides the following regression to test the impacts of the provision of CSR report assurance services on audit quality for sample companies:

$$\begin{aligned} REM = {} & \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE \\ & + \beta_6 GROW + \beta_7 LEV + \beta_8 CG + \beta_9 ROA + \beta_{10} DA + \beta_{11} BIGN \\ & + \beta_{12} CPATEN + \beta_{13} CIMP + \beta_{14} YearDummies + \beta_{15} IndustryDummies + \varepsilon \end{aligned} \quad (6)$$

Where

REM = The aggregate measurement of real earnings management to capture companies' real earnings management activities through sales, production, and discretionary expenditures.

CSR = A dummy variable equal to 1 if a sample company issues a CSR this year and 0 otherwise.

CSRAR = A dummy variable equal to 1 if a sample company's CSR report is assured by an audit firm this year and 0 otherwise.

SAME_F = A dummy variable equal to 1 if a sample company's CSR report is assured by the audit firm that provides audit services for its financial statement this year and 0 otherwise.

SAME_P = A dummy variable equal to 1 if a sample company's CSR report is assured by the audit partner that provides audit services for its financial statement this year and 0 otherwise.

SIZE = Natural logarithm of the book value of total assets at year-end.

GROW = The growth rate of net sales over the previous year.

LEV = Total debt divided by total assets.

CG = Corporate governance index that captures the degree of the corporate governance circumstances in a company. The index is constructed based on seven corporate governance provisions, including board size, board share-holdings ratio, the percentage of shares pledged to board members, the ratio of independent directors and supervisors, the ratio of family-controlled directors and supervisors, and institutional holdings ratio, where a high CG index indicates stronger governance. Thus, we code firms 1 (for strong governance) if the appointing firm's above specific CG indicator is beyond the sample median and 0 otherwise.

ROA = Return on assets, defined as net income divided by total assets.

DA = Performance-matched abnormal accruals.

BIGN = A dummy variable equal to1 if the company is audited by a Big 4 audit firm and 0 otherwise.

CPATEN = Audit tenure of the audit partners, which is measured by the longer continuous audit years for a company of two audit partners.

CIMP = A dummy variable which is equal to 1 if the total assets of a client account for more than 10% of the total assets of all clients audited by any one of the audit partners and 0 otherwise.

The main variables of interest in this study are *SAME_F* and *SAME_P*, which denote companies for which the CSR report is assured by their financial report audit firms and audit partners, respectively. From the auditor independence perspective, the provision of CSR assurance for audit clients' reports may increase the economic bond between

auditors and clients and reduce audit quality via the impairment of auditor independence as a result. However, from the knowledge spillover perspective, the provision of assurance for CSR reports for audit clients may increase the efficiency of the audit and thus improve audit quality. Hence, the coefficient of *SAME_F* is expected to be significantly associated with audit quality without the prediction of direction for the first hypothesis of this study. For the second hypothesis, the main variable of interest is *SAME_P*, which denotes companies whose CSR reports are assured by their financial report audit partner. For the viewpoint of knowledge spillover, prior studies have argued that the separation of audit and non-audit personnel within the largest firms makes it difficult for knowledge spillovers to actually occur (Joe and Vandervelde, 2007; Knechel and Sharma, 2012). For this reason, the knowledge spillover effects of non-audit services on audit services may be more significant for the auditors themselves than the audit firm. Hence, the coefficient of *SAME_P* is expected to be significant, which establishes that the association between assured CSR reports for audit clients and audit quality are more significant when CSR report assurance and financial report auditing are provided by the same partner (compared with assurance by other audit partners in the same firm).

To control the regression results, we consider the following variables, suggested to have a significant impact on earnings manipulations. Regarding manipulation flexibilities and costs, Watts and Zimmerman (1978) indicate that, compared to small companies, large companies generally face greater political costs and, therefore, have less flexibility and weaker incentives to overstate earnings. In addition, Roychowdhury (2006) indicates the systematic variations in growth prospects and size effects for abnormal cash flow from operations, production costs, and discretionary expenditures. To control the influence of size effects and growth opportunities, we include firm size (*SIZE*) and growth opportunity (*GROW*) in the regression model. In addition, we include *ROA* to control the possible measurement errors that derive from the correlation between *REM* estimation and firm performance suggested in prior studies (Roychowdhury, 2006; Visvanathan, 2008; Cohen and Zarowin, 2010; Zang, 2012). We also include leverage (*LEV*) to control for the influence of the debt ratio on earnings management intentions indicated in prior studies (Roychowdhury, 2006; Matsuura, 2008; Garven, 2009). For earnings management methods, prior studies have demonstrated that firms simultaneously manipulate accrual-based earnings management and *REM* to fulfill their targets (Roychowdhury, 2006; Cohen, Dey, and Lys, 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012; Young, Tsai, Chen, and Liao, 2012; Achleitner, Günther, Kaserer, and Siciliano, 2014; Tai, 2015; Järvinen and Myllymäki, 2016; Choi, Choi, and Sohn, 2018). To control the influence of simultaneously used earnings management methods, we

include performance-matched abnormal accrual (*DA*) in the regression. In addition, prior empirical evidence has shown that lower earnings management intensions are expected for firms with a stronger corporate governance mechanism (Francis, Reichelt, and Wang, 2005); we include *CG* to control for the higher intensity to restrain companies from extreme accruals as suggested by prior studies. Finally, since auditor independence and audit quality have significant effects on client companies' extent of earnings manipulation (Frankel et al., 2002; Ferguson et al., 2004), we include *BIGN*, *CPATEN*, and *CIMP* to control for the influence of audit firm size, auditor tenure, and client importance on earnings management, respectively.

V. Empirical Results

Descriptive Statistics

Table 4 presents the descriptive statistics (Panel A) and T test results (Panel B) of the main variables used for exploring the hypotheses of this study. From Panel A, we can see that, since this study matches the sample in a one-to-one manner, companies with and without CSR reports each account for half of the sample; the mean of *CSR* is 0.050[10]. In addition, the mean of *CSRAR* at 0.077 shows that only about 15.4% (0.077/0.50) of companies that announced their standalone CSR reports obtained an assurance opinion from audit firms for their CSR reports. Furthermore, the means of *SAME_F* and *SAME_P* are 0.059 and 0.019, respectively, indicating that, while about 77% (0.059/0.077) of companies obtained an assurance opinion for their CSR reports from their audit firm, only about 25% (0.019/0.077) obtained the assurance opinion from their audit partner. The mean of *SIZE* is 16.062, which is close to that of Taiwan's listed companies, which possess a mean of 15.285 for the natural logarithm of total assets at the end of 2016. This study argues that this occurs because larger companies are more likely to issue CSR reports (voluntary or mandatory); in the matching process, larger companies are more likely to be chosen as matched companies, and the sample after matching is slightly larger than the overall listed companies as a result. The mean of *DA* is -0.005, which is close to the means of prior studies (e.g., Li, Yang, and Cheng, 2016; Hsu, Chen, and Chen, 2013). The mean of *LEV* is 41.8, which shows that the average leverage of sample companies is about 41.8%, and the mean of *BIGN* is 0.882, which demonstrates that about 88% of

[10] For the unmatched sample of CSR disclosure, the mean of *CSR* is 0.175; the number is close to the percentage of companies that provide CSR reports to total listed companies, which reveals that although the CSR report is required by TWSE for companies that meet the disclosure criteria, relatively few listed companies in Taiwan announced their standalone CSR report for 2015 and 2016. Since the decision of whether to issue CSR reports may be driven by firm and auditor characteristics that have significant impacts on audit quality, this study uses the PSM method to reduce any possible endogeneity concerns.

sample companies are audited by Big N firms. These numbers are similar to those of prior studies, which demonstrates that the distribution of sample companies is free from possible selection bias.

Panel B of Table 4 displays the T test results between companies with and without CSR reports. The results show that companies that issued CSR reports are significantly less likely to process sales manipulation (*AbnCFO*); companies with a larger size (*SIZE*), lower leverage (*LEV*), and better corporate governance (*CG*) are more likely to engage Big N auditors to audit their financial statements (*BIGN*).

Table 5 shows the Pearson correlation between variables. From the table, one can see that the announcement of CSR reports (*CSR*) is significantly positively associated with abnormal cash flow from operations (*AbnCFO*), which suggests that companies that announce their CSR report are likely to have fewer sales manipulations. Furthermore, Table 5 reveals that CSR reports assured by the audit firms or auditors that provide audit services for a company's financial statement (*SAME_F* and *SAME_P*) are significantly negatively associated with the aggregate measurement of real earnings management (*REM*) as well.

Table 4 Descriptive and T Statistics

Panel A: Descriptive Statistics (N=844)					*Panel B: T test of With and Without CSR report*		
					With (N=424)	*Without (N=424)*	
Variable	*Mean*	*Std. Dev.*	*Min*	*Max*	*Mean*	*Mean*	*T Statistic*
REM	0.014	0.214	-1.135	1.148	0.006	0.021	-1.056
AbnCFO	0.005	0.078	-0.330	0.266	0.011	0.000	2.136**
AbnPROD	0.009	0.113	-0.562	0.714	0.007	0.011	-0.514
AbnDISX	-0.010	0.081	-0.298	0.483	-0.010	-0.010	0.025
CSR	0.500	0.500	0.000	1.000			
CSRAR	0.077	0.266	0.000	1.000			
SAME_F	0.059	0.236	0.000	1.000			
SAME_P	0.019	0.136	0.000	1.000			
SIZE	16.062	1.310	12.496	21.128	16.145	15.978	1.857*
GROW	0.046	0.296	-2.199	0.794	-0.042	-0.051	0.456
LEV	41.799	17.515	4.160	82.850	39.924	43.673	-3.133***

Table 4 Descriptive and T Statistics (Continued)

Panel A: Descriptive Statistics (N=844)					*Panel B: T test of With and Without CSR report*		
					With (N=424)	*Without (N=424)*	
Variable	*Mean*	*Std. Dev.*	*Min*	*Max*	*Mean*	*Mean*	*T Statistic*
CG	3.480	1.115	0.000	7.000	3.627	3.333	3.880***
ROA	4.729	7.044	-37.250	33.310	5.095	4.362	1.515
DA	-0.005	0.089	-0.274	0.351	-0.004	-0.005	0.190
BIGN	0.882	0.323	0.000	1.000	0.910	0.854	2.562**
CPATEN	4.600	1.771	1.000	9.000	4.517	4.684	-1.377
CIMP	0.217	0.259	0.000	1.000	0.201	0.233	-1.784*

Variable definitions: *REM*, *AbnCFO*, *AbnPROD*, and *AbnDISX* are the aggregate measures of real earnings management, real earnings management through sales, over production, and discretionary expenditures according to Roychowdhury (2006). *CSR*: a dummy variable equal to 1 if a sample company issue a CSR this year, and equal to 0 otherwise; *CSRAR*: a dummy variable equal to 1 if a sample company's CSR report is assured by an audit firm this year, and equal to 0 otherwise; *SAME_F*: a dummy variable equal to 1 if a sample company's CSR report is assured by the audit firms that provide audit service for its financial statement this year, and equal to 0 otherwise; *SAME_P*: a dummy variable equal to 1 if a sample company's CSR report is assured by the audit partner that provide audit service for its financial statement this year, and equal to 0 otherwise; *SIZE*: natural logarithm of the book value of total assets at year-end; *GROW*: the growth rate of net sales over the previous year; *LEV*: total debt divided by total assets; *CG*: corporate governance index that captures the degree of the corporate governance circumstances over a company. We code firms 1 (for strong governance) if the appointing firm's CG index is beyond the sample median, and 0 otherwise; *ROA*: return on asset, which is measured by income before interest and tax expense to the total asset at the year-end; *DA*: one year lagged performance-matched abnormal accruals; *BIGN*: a dummy variable equal to 1 if the company is audited by a Big 4 audit firm, and 0 otherwise; *CPATEN*: audit tenure of the audit partners which is measure by the longer continuous audit years for a company between audit partners; *CIMP*: a dummy variable equal to 1 if the total assets of a client account for more than 10% of the total assets of all clients audited by any one of the audit partners, and 0 otherwise.

That is, from Table 5, the positive association between the provision of CSR report assurance services to audit clients and audit quality is supported by these preliminary results.

Associations between engaging auditors to assure the CSR report and REM

Table 6 presents the regression results for our main hypotheses that explore the association between the provision of CSR report assurance services to audit clients and audit quality.

Panel A of Table 6 shows that, for the aggregate measurement of real earnings management, the coefficients of the indicator variables of providing CSR report

assurance for the same audit clients at the firm level (*SAME_F*) and the partner level (*SAME_P*) are both significantly negatively associated with *REM*. The findings support our first hypothesis that the provision of CSR report assurance services to audit clients is positively associated with audit quality. On the other hand, the results in column (3) of Panel A, which includes both firm-level and partner-level indicator variables in the regression, reveal that when considering audit firms and audit partners together, the effects of providing CSR report assurance on audit quality is significant only at the partner level.

This finding provides evidence supporting Joe and Vandervelde (2007), who suggest that the knowledge spillover effects of non-audit services on audit services may be more significant for the auditors themselves than for the audit firm; this finding also supports our second hypothesis that the association between the provision of CSR report assurance services to audit clients and audit quality of financial reports induced by knowledge spillover is more significant at the audit partner level.

For earnings manipulation among different activities, the coefficients of indicator variables of providing CSR report assurance for the same audit clients at the partner level (*SAME_P*), presented in column (2) of Panels B, C, and D of Table 6, are significantly associated with earnings management activities for both *AbnPROD* and *AbnDISX* ; the coefficients of indicator variables at the firm level (*SAME_F*), presented in column (1) of Panels B, C, and D of Table 6, are significantly associated with earnings management activities only for *AbnCFO*. In other words, while the effects of providing CSR report assurance on audit quality is significant for both the firm level and the partner level as a whole (*REM*), the effects are more pronounced for overproduction manipulation and discretionary expense manipulation at the partner level and more pronounced for sales manipulation at the firm level.

The influence of auditor industry specialization[11]

[11] Since the audit reports of public companies in Taiwan must disclose the names of the audit partners and the audit firms, we can measure the specialization of specific audit firms and auditors. We use the client asset-based market shares of an audit partner or an audit firm to measure the specialization in a specific industry-year, as follows:

$$SPECIALIZATION_{ik} = \frac{\sum_{j=1}^{J_{ik}} ASSET_{ijk}}{\sum_{j=1}^{J_k} \sum_{i=1}^{I_{jk}} ASSET_{ijk}}$$

where *ASSET* is the clients' assets, and the numerator is the sum of assets of all of auditor i's clients in industry k. The denominator in equation (1) is the total sales of industry k. Then we identify the audit parts and audit firms with the top three market shares as industry specialists.

Although the positive impacts of providing CSR report assurance on audit quality can include the knowledge spillover effects of the assurance task, the effects may differ between industry specialization and non-industry specialization auditors since the industry knowledge and task experience of industry specialization auditors are distinct from those of non-specialization auditors (e.g., Balsam, Krishnan, and Yang, 2003; Dunn and Mayhew, 2004; Lim and Tan, 2008; Chin and Chi, 2009). Consequently, this study explores the associations between engaging auditors to assure the CSR report and audit quality for industry specialization and non-industry specialization auditors separately. The results of Table 7 reveals that, the coefficient of *SAME_P* is more significant with *REM* in Panel A which represented clients that audited by non-specialization auditors.

That is, the association between providing CSR report assurance service and audit quality is more significant for companies that are audited by non-industrial specialist auditors compared to companies audited by specialist auditors. We infer this result from that compared to specialist auditors, non-specialist auditors process fewer client or industrial specific knowledge, and the advantages of knowledge spill-over from CSR assurance work are more significant as a result.

In other words, auditor that with industry specialty is better in auditing knowledge experience and indeed the knowledge spillover effect from non-audit service (CSR report review) to audit service (financial statement auditing) will less significant. On the other hand, a non-specialist auditor that gaining understanding and experience from CSR report review, in consequence, will have better knowledge spillover effect when they perform financial statement auditing. This finding furthering support the argument that providing CSR report assurance positively impact audit quality through the knowledge spillover effects of the assurance task, and the impact is more significant at partner level.

On the other hand, the results of the firm level reveal that the coefficient of *SAME_F* is significant with *REM* only in Panel B, which represents clients that are audited by specialization auditors. That is, the association between providing CSR report assurance services and audit quality is significant only for companies that are audited by industry specialists at the firm level. Taking the results of the audit firm level and audit partner level together, we argue that the impact of firms on audit quality is more likely to be driven by increasing reputation costs while the influence of partners on audit quality is more likely to be induced by the effect of knowledge spillover.

Table 5 Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)																
REM	1.000															
(2)																
AbnCFO	-0.650***															
(3)	(0.000)															
AbnPROD	0.945***	-0.525***														
(4)	(0.000)	(0.000)														
AbnDISX	-0.705***	0.022	-0.606***													
(5)	(0.000)	(0.229)	(0.000)													
CSR	-0.001	0.054***	0.014	-0.030												
(6)	(0.963)	(0.003)	(0.426)	(0.101)												
CSRAR	-0.121***	0.037**	-0.112***	0.128***	0.370***											
(7)	(0.000	(0.040)	(0.000)	(0.000)	(0.000)											
SAME_P	-0.177***	0.019	-0.175 ***	0.207***	0.170***	0.459***										
(8)	(0.000)	(0.305)	(0.000)	(0.000)	(0.000)	(0.000)										
SAME_F	-0.108***	0.031*	-0.095 ***	0.122***	0.314	0.849	0.512***									
(9)	(0.000)	(0.083)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)									
SIZE	0.039**	0.076***	0.073 ***	-0.077***	0.466***	0.143***	0.042**	0.114***								
(10)	(0.032)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.018)	(0.000)								

Table 5 Correlation Matrix (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
GROW	-0.155***	0.129***	-0.160 ***	0.064***	0.020	0.012	0.008	0.018	0.045**							
(11)	(0.000)	(0.000)	(0.000)	(0.000)	(0.253)	(0.496)	(0.664)	(0.307)	(0.011)							
LEV	0.151***	-0.111***	0.144 ***	-0.094***	0.076***	0.035**	0.001	0.016	0.330***	0.020						
(12)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.049)	(0.998)	(0.364)	(0.000)	(0.257)						
CG	-0.137 ***	0.131***	-0.132 ***	0.053***	-0.002	-0.028	-0.023	-0.026	-0.046***	0.108***	-0.088***					
(13)	(0.000)	(0.000)	(0.000)	(0.004)	(0.895)	(0.112)	(0.190)	(0.150)	(0.010)	(0.000)	(0.000)					
BIGN	-0.085 ***	0.066***	-0.066 ***	0.069***	0.068***	0.033*	0.003	0.032*	0.107***	0.119***	-0.036**	0.112***				
(14)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.066)	(0.849)	(0.071)	(0.000)	(0.000)	(0.045)	(0.000)				
CPATEN	-0.030*	0.030*	-0.024	0.017	-0.013	-0.013	-0.051***	-0.020	0.014	0.017	0.005	0.012	0.007			
(15)	(0.098)	(0.094)	(0.195)	(0.341)	(0.480)	(0.472)	(0.005)	(0.257)	(0.445)	(0.336)	(0.762)	(0.520)	(0.696)			
CIMP	0.063***	0.019	0.072 ***	-0.087***	0.228***	0.073***	0.016	0.062***	0.446***	-0.046**	0.203***	-0.066***	-0.492***	-0.016		
(16)	(0.000)	(0.283)	(0.000)	(0.000)	(0.000)	(0.000)	(0.363)	(0.001)	(0.000)	(0.010)	(0.000)	(0.000)	(0.000)	(0.376)		
DA	0.179***	-0.122***	0.137 ***	-0.165 ***	-0.011	-0.008	-0.001	-0.008	0.027	0.089***	0.259***	0.016	0.006	0.028	-0.017	
(17)	(0.000)	(0.000)	(0.000)	(0.000)	(0.533)	(0.669)	(0.956)	(0.680)	(0.142)	(0.000)	(0.000)	(0.390)	(0.730)	(0.124)	(0.355)	
ROA	-0.310***	0.402***	-0.324 ***	-0.015	0.058***	0.033*	0.013	0.018	0.147***	0.325***	-0.172 ***	0.168***	0.096***	0.047***	-0.001	0.045**
	(0.000)	(0.000)	(0.000)	(0.412)	(0.001)	(0.068)	(0.469)	(0.331)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)	(0.974)	(0.014)

1. Variable definitions are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 6 Regression Results of Providing CSR Report Assurance and Real Earnings Managements

$$REM = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 LEV + \beta_8 CG + \beta_9 ROA + \beta_{10} DA + \beta_{11} BIGN + \beta_{12} CPATEN + \beta_{13} CIMP + \beta_{14} YearDummies + \beta_{15} IndustryDummies + \varepsilon$$

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*
CSR	0.013	0.014	0.013	-0.004	-0.002	-0.003	0.006	0.008	0.007	-0.003	-0.003	-0.003
	(0.420)	(0.397)	(0.410)	(0.457)	(0.671)	(0.655)	(0.488)	(0.366)	(0.389)	(0.692)	(0.618)	(0.630)
CSRAR	-0.107**	-0.068**	-0.101**	0.015	0.025**	0.013	-0.067***	-0.031*	-0.065***	0.024	0.013	0.023
	(0.023)	(0.043)	(0.030)	(0.366)	(0.045)	(0.445)	(0.009)	(0.092)	(0.010)	(0.197)	(0.352)	(0.227)
SAME_F	-0.026*		0.052	0.019**		0.019**	-0.007*		0.055**	0.013		-0.016
	(0.059)		(0.307)	(0.027)		(0.031)	(0.080)		(0.047)	(0.513)		(0.438)
SAME_P		-0.238***	-0.257***		0.013	0.007		-0.136***	-0.156***		0.088***	0.094***
		(0.000)	(0.000)		(0.473)	(0.740)		(0.000)	(0.000)		(0.000)	(0.000)
SIZE	-0.005	-0.007	-0.007	0.003	0.001	0.001	-0.003	-0.006	-0.006	-0.001	0.001	0.001
	(0.456)	(0.309)	(0.295)	(0.236)	(0.806)	(0.828)	(0.420)	(0.135)	(0.120)	(0.758)	(0.770)	(0.753)
GROW	-0.017	-0.018	-0.019	-0.004	-0.003	-0.003	-0.010	-0.010	-0.011	0.011	0.011	0.011
	(0.462)	(0.441)	(0.416)	(0.642)	(0.723)	(0.692)	(0.410)	(0.425)	(0.378)	(0.256)	(0.245)	(0.232)

Table 6 Regression Results of Providing CSR Report Assurance and Real Earnings Managements (Continued)

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*
LEV	0.001	0.001	0.001	0.001**	0.001*	0.001*	0.001	0.001	0.001	0.001*	0.001**	0.001**
	(0.489)	(0.828)	(0.782)	(0.038)	(0.062)	(0.071)	(0.263)	(0.510)	(0.437)	(0.097)	(0.041)	(0.046)
CG	-0.017***	-0.018***	-0.018***	0.008***	0.008***	0.008***	-0.005	-0.005	-0.005*	0.004	0.004*	0.004*
	(0.006)	(0.003)	(0.003)	(0.000)	(0.000)	(0.000)	(0.158)	(0.100)	(0.099)	(0.109)	(0.074)	(0.074)
ROA	-0.008	-0.008***	-0.008***	0.005***	0.004***	0.004***	-0.004***	-0.004***	-0.004***	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.041)	(0.028)	(0.025)
DA	0.370***	0.359***	0.359***	-0.128***	-0.127***	-0.127***	0.160***	0.154***	0.154***	-0.081**	-0.078**	-0.078
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.012)	(0.015)	(0.015)
BIGN	0.019	0.035	0.034	-0.021***	-0.012	-0.013	0.010	0.027*	0.025*	0.012	0.003	0.004
	(0.352)	(0.171)	(0.194)	(0.005)	(0.202)	(0.181)	(0.355)	(0.059)	(0.078)	(0.141)	(0.757)	(0.720)
CPATEN		-0.007**	-0.007**		0.003**	0.003**		-0.002	-0.002		0.002	0.002
		(0.041)	(0.045)		(0.022)	(0.020)		(0.243)	(0.271)		(0.161)	(0.170)
CIMP		0.033	0.032		0.021	0.020		0.035*	0.033*		-0.019	-0.019
		(0.347)	(0.367)		(0.116)	(0.125)		(0.071)	(0.084)		(0.179)	(0.189)
Constant	0.170*	0.243**	0.245**	-0.069**	-0.063*	-0.063*	0.076	0.124**	0.126**	-0.025	-0.056	-0.056
	(0.078)	(0.016)	(0.016)	(0.048)	(0.088)	(0.092)	(0.147)	(0.024)	(0.021)	(0.523)	(0.173)	(0.168)

Table 6 Regression Results of Providing CSR Report Assurance and Real Earnings Managements (Continued)

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	Firm Level	*Partner Level*	*Both Level*	*Firm Level*	*Partner Level*	*Both Level*	*Firm Level*	*Partner Level*	*Both Level*	*Firm Level*	*Partner Level*	*Both Level*
Year	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	848	848	848	848	848	848	848	848	848	848	848	848
Adj. R^2	0.282	0.303	0.303	0.280	0.284	0.284	0.243	0.269	0.271	0.188	0.208	0.208
F Value	9.899***	10.362***	10.129**	9.834***	9.554***	9.340***	8.292***	8.902***	8.811***	6.267***	6.667***	6.512***
Sig.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

1. The definition of variables are as follows. *REM*, *AbnCFO*, *AbnPROD*, and *AbnDISX* are the aggregate measures of real earnings management, real earnings management through sales, over production, and discretionary expenditures according to Roychowdhury (2006). Definitions of other variable are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Additional Analysis

The influence of audit tenure and client importance

Regarding the impact of audit tenure, prior studies have revealed that audit quality may increase if auditors develop a greater understanding of their client's business and industry. From the viewpoint of customer-specific knowledge accumulation, audit tenure may affect the knowledge spillover of non-audit services. In other words, compared with auditors who have audited the company for a long period, the knowledge spillover effects of non-audit services may be more pronounced for auditors with a shorter tenure. Although we have considered and controlled the impact of audit tenure in the regression of the main analysis, this study further processes the regressions to consider the interaction of the dual service of CSR report assurance and financial report audit (*SAME_P*) and an indicator variable (denoted as 1) for auditors that have audited a certain company for less than three years (*CPATEN_S3*) to explore the possible impact of audit tenure.

The results when considering the influence of tenure are presented in Panel A of Table 8. The result indicates that although the coefficient of the interaction variable of the dual service of CSR report assurance and financial report audit and the short audit tenure indicator (*SAME_P*×*CPATEN_S3*) is negative, it is not significant.

Table 7 The Influence of Auditor Industry Specialization on the Association between CSR Report Assurance and REM

$$REM = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 LEV + \beta_8 CG + \beta_9 ROA + \beta_{10} DA + \beta_{11} BIGN + \beta_{12} CPATEN + \beta_{13} CIMP + \beta_{14} YearDummies + \beta_{15} IndustryDummies + \varepsilon$$

	Panel A : Non-Specialization		*Panel B: Specialization*	
	(1) Firm Level	*(2) Partner Level*	*(1) Firm Level*	*(2)Partner Level*
CSR	-0.074	0.012	0.015	0.025
	(0.150)	(0.468)	(0.416)	(0.690)
CSRAR	-0.210*	-0.087**	-0.025	0.207
	(0.060)	(0.013)	(0.640)	(0.119)
SAME_F	0.059		-0.086**	
	(0.584)		(0. 031)	

Table 7 The Influence of Auditor Industry Specialization on the Association between CSR Report Assurance and REM (Continued)

	Panel A : Non-Specialization		*Panel B: Specialization*	
	(1) Firm Level	*(2) Partner Level*	*(1) Firm Level*	*(2)Partner Level*
SAME_P		-0.208***		-0.783*
		(0.000)		(0.086)
SIZE	0.052***	-0.007	-0.015**	0.001
	(0.004)	(0.385)	(0.037)	(0.974)
GROW	-0.025	-0.024	-0.014	-0.056
	(0.573)	(0.318)	(0.634)	(0.595)
LEV	-0.001	0.001	0.001	0.002
	(0.406)	(0.857)	(0.602)	(0.469)
CG	-0.017	-0.016**	-0.019***	-0.003
	(0.268)	(0.011)	(0.006)	(0.924)
ROA	-0.008***	-0.008***	-0.008***	-0.007*
	(0.002)	(0.000)	(0.000)	(0.061)
DA	0.311	0.393***	0.387***	0.545
	(0.100)	(0.000)	(0.000)	(0.190)
BIGN	-0.036	0.048*	-0.034	-0.052
	(0.285)	(0.074)	(0.546)	(0.684)
CPATEN		-0.009**		-0.010
		(0.016)		(0.546)
CIMP		0.057		-0.048
		(0.124)		(0.787)
Constant	-0.618**	0.231**	0.362***	-0.048
	(0.020)	(0.035)	(0.004)	(0.935)
Year	Included	Included	Included	Included
Industry	Included	Included	Included	Included
N	682	759	166	89
Adj. R^2	0.296	0.289	0.291	0.439
F Value	3.017***	8.834***	8.473***	2.966***
Sig.	0.000	0.000	0.000	0.000

The influence of client importance

With respect to the auditor-client economic bond, prior studies have suggested that audit quality may be influenced by the client's importance to the auditor. To examine the possible influence of client importance on the association between CSR report assurance and the quality of financial report audits, this study further processes the regressions to consider the interaction of the dual service of CSR report assurance and financial report audit (*SAME_P*) and an indicator variable of client importance (*CIMP_10*), denoted as 1 if the total assets of a client account for more than 10% of the total assets of all the auditor's clients.

The results when considering the influence of tenure are presented in Panel B of Table 8. The table indicates that although the coefficient of the interaction variable of the dual service of CSR report assurance and financial report audit and the indicator variable of client importance (*SAME_P* ×*CIMP_10*) is positive, it is not significant.

For companies that announce CSR report as required or voluntarily

From Panel B of Table 1, we can see that although a large number of companies has been mandated to provide CSR reports since 2015, many companies that are not regulated by TWSE have provided CSR reports voluntarily. To examine whether the association between providing CSR report assurance and audit quality differs between companies that mandatorily and voluntarily provide CSR reports, this study further processes the regressions to consider the interaction of the dual service of CSR report assurance and financial report audit (*SAME_P*) and an indicator variable of the company issuing its CSR report under the requirement (*RCSR*).

The results are presented in Panel C of Table 8. The table indicates that the coefficient of the interaction variable of the dual service of CSR report assurance and the indicator variable of financial report audit and required CSR report (*SAME_P* ×*RCSR*) is significantly negative, which suggests that the association between providing CSR report assurance and audit quality is mainly from companies that are required to provide CSR reports.

Alternative measures of audit quality: Discretionary accruals

Myers, Myers, and Omer (2003) suggest that discretionary accruals are associated with numerous indicators of audit quality, such as auditor litigation (Heninger, 2001), issuance of qualified opinions (Bartov, Gul, and Tsui, 2000), and audit failure (Geiger and Raghnandan, 2002). To recognize whether the impacts of providing CSR assurance services on audit quality can be extended to other audit quality measures, this study further explores the impact of providing CSR assurance services on discretionary accruals.

Table 8 The Consideration of Audit Tenure, Client Importance, and the Requirement of CSR report

Panel A:

$$REM = \alpha_1 + \beta_1 CSRAR + \beta_2 SAME\_F + \beta_3 SAME\_P + \beta_4 CPATEN\_S3 + \beta_5 SAME\_P \times CPATEN\ S3 + \beta_6 SIZE + \beta_7 GROW + \beta_8 LEV + \beta_9 CG + \beta_{10} ROA + \beta_{11} DA + \beta_{12} BIGN + \beta_{13} CPATEN + \beta_{14} CIMP + \beta_{15} YearDummies + \beta_{16} IndustryDummies + \varepsilon$$

Panel B:

$$REM = \alpha_1 + \beta_1 CSRAR + \beta_2 SAME\_F + \beta_3 SAME\_P + \beta_4 CIMP\_10 + \beta_5 SAME\_P \times CIMP\_10 + \beta_6 SIZE + \beta_7 GROW + \beta_8 LEV + \beta_9 CG + \beta_{10} ROA + \beta_{11} DA + \beta_{12} BIGN + \beta_{13} CPATEN + \beta_{14} CIMP + \beta_{15} YearDummies + \beta_{16} IndustryDummies + \varepsilon$$

Panel C:

$$REM = \alpha_1 + \beta_1 CSRAR + \beta_2 SAME\_F + \beta_3 SAME\_P + \beta_4 RCSR + \beta_5 SAME\_P \times RCSR + \beta_6 SIZE + \beta_7 GROW + \beta_8 LEV + \beta_9 CG + \beta_{10} ROA + \beta_{11} DA + \beta_{12} BIGN + \beta_{13} CPATEN + \beta_{14} CIMP + \beta_{15} YearDummies + \beta_{16} IndustryDummies + \varepsilon$$

	Panel A: Tenure	*Panel B: Client Importance*	*Panel C: Required CSR*
CSRAR	-0.088	-0.111**	-0.079
	(0.139)	(0.017)	(0.189)
SAME_F	0.056	0.060	0.019
	(0.345)	(0.239)	(0.752)
SAME_P	-0.192**	-0.294***	-0.339***
	(0.014)	(0.000)	(0.000)
CPATEN_S3	0.049**		
	(0.045)		
SAME_P ×CPATEN_S3	-0.147		
	(0.221)		
CIMP_10		-0.012	
		(0.512)	
SAME_P ×CIMP_10		0.119	
		(0.231)	
RCSR			-0.008
			(0.818)

Table 8 The Consideration of Audit Tenure, Client Importance, and the Requirement of CSR report(Continued)

	Panel A: Tenure	*Panel B: Client Importance*	*Panel C: Required CSR*
SAME_P ×RCSR			-0.290**
			(0.024)
SIZE	0.008	-0.007	0.010
	(0.529)	(0.381)	(0.451)
GROW	-0.041	-0.016	-0.049
	(0.432)	(0.479)	(0.352)
LEV	-0.001	0.001	-0.001
	(0.274)	(0.594)	(0.175)
CG	-0.027***	-0.018***	-0.027***
	(0.006)	(0.003)	(0.005)
ROA	-0.007***	-0.008***	-0.007***
	(0.000)	(0.000)	(0.000)
DA	0.426***	0.352***	0.441***
	(0.001)	(0.000)	(0.001)
BIGN	0.065	0.033	0.051
	(0.173)	(0.203)	(0.276)
CPATEN			-0.012*
			(0.052)
CIMP	0.045		0.029
	(0.481)		(0.655)
Constant	0.123	0.195*	0.179
	(0.473)	(0.067)	(0.335)
Year	Included	Included	Included
Industry	Included	Included	Included
N	424	424	424
Adj. R^2	0.326	0.300	0.331
F Value	6.036***	9.784***	6.003***
Sig.	(0.000)	(0.000)	(0.000)

1. The definition of variables are as follows. *CPATEN_S3* is an indicator variable (denoted as 1) for auditors that have audited a certain company for less than three years; *SAME_P ×CPATEN_S3* is the interaction variable of the dual service of CSR report assurance and financial report audit and the short audit tenure indicator; *CIMP_10* is an indicator variable of client importance which denoted as 1 if the total assets of a client account for more than 10% of the total assets of all the auditor's clients; *SAME_P ×CIMP_10* is the interaction variable of the dual service of CSR report assurance and financial report audit and indicator variable of client importance; *RCSR* is an indicator variable of the company issuing its CSR report under the requirement; *SAME_P ×RCSR* is the interaction variable of the dual service of CSR report assurance and the indicator variable of financial report audit and required CSR report. Definitions of other variable are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Accordingly, following prior studies (e.g., Frankel et al., 2002; Ferguson et al., 2004; Cahan et al., 2008; Knechel and Sharma, 2012), we use discretionary accruals to measure audit quality and process a cross-sectional version of the modified Jones model (Dechow, Sloan, and Sweeney, 1995) to estimate discretionary accruals and control for the company's prior performance, as Kothari, Leone, and Wasley (2005)[12] suggest, to compute discretionary accruals (DAs), as follows:

$$TACC_t / A_{t-1} = \alpha_1(1/A_{t-1}) + \beta_1(\Delta S_t / A_{t-1} - \Delta REC_t / A_{t-1}) + \beta_2(PPE_t / A_{t-1}) + \beta_3 ROA_{t-1} + \varepsilon \quad (7)$$

where

$TACC_t$	=	Earnings before extraordinary items minus net cash flow from operations.
A_{t-1}	=	Total assets for year *t*-1.
ΔS_t	=	Change in sales from prior year from year *t*-1 to t.
ΔREC_t	=	Change in receivables from prior year from year *t*-1 to t.
PPE_t	=	Gross year-end property, plant, and equipment in year t.
ROA_{t-1}	=	Rate of return on total assets for year *t*-1
ε	=	Error term for year t.

We denote the residuals from equation (7) as the discretionary accrual. Since the audit of the financial statement is processed before the assurance of the CSR report in practice, the knowledge spillover of the CSR report assurance should be effective in the next year's audit; this study uses a one-year lagged discretionary accrual (*DA* of following year) to measure whether the audit quality is influenced by the CSR report assurance. Our analysis uses the absolute value of discretionary accruals (*ABSDA*) to measure the combined effect of income-increasing and income-decreasing decisions related to earnings management. In accordance with prior research (Frankel et al., 2002), we analyze which companies have income-increasing and income-decreasing discretionary accruals (*DA*+ and *DA*-, respectively) as well.

This study provides the following regression to test the impacts of the provision of CSR report assurance services on audit quality measured by discretionary accruals for sample companies for additional test:

[12] Kothari et al. (2005) document that discretionary accrual measures are affected by company performance and suggest using performance-matched discretionary accrual (on return on assets) to enhance the reliability of the inferences from earnings management research.

$$DA = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 CFO + \beta_8 LOSS + \beta_9 LEV + \beta_{10} ABSTAC + \beta_{11} CG + \beta_{12} ROA + \beta_{13} BIGN + \beta_{14} REM + \beta_{15} CPATEN + \beta_{16} CIMP + \beta_{17} YearDummies + \beta_{18} IndustryDummies + \varepsilon \quad (8)$$

where

DA = One-year lagged performance-matched abnormal accruals, measured in absolute, positive, and negative values.

CFO = Net cash flows from operations scaled by the beginning book value of total assets.

LOSS = A dummy variable equal to 1 for companies with negative income before extraordinary items.

ABSTAC = Absolute value of total accruals, scaled by lagged total assets.

Definitions of other variables are the same as those for regression (6).

In addition to the variables included in the real earnings management regression, we include cash flow from operations (*CFO*), an indicator variable of negative income (*LOSS*), and the absolute value of total accruals as control variables (*ABSTAC*), in keeping with prior studies (e.g., Dechow et al., 1995; Reynolds and Francis, 2000; Chin, Tsao, and Chi, 2007). Prior studies suggest that firms with strong operating cash flow are less likely to employ discretionary accruals to boost earnings. In regard to debt contracts, researchers have found that managers use discretionary accruals to avoid the violation of debt contracts (e.g., Watts and Zimmerman, 1990; DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002).

Moreover, Skinner (1993) reports that firms with high growth opportunities tend to report higher discretionary current accruals to avoid underinvestment. Also, Francis et al. (2005) find that firms with high amounts of total accruals also have more abnormal accruals. Last, to control for the influence of simultaneously used earnings management methods, we include the aggregate measurement of real earnings management (*REM*) in the regression according to prior studies (e.g., Cohen et al., 2008; Zang, 2012).

Table 9 presents the regression results for the association between the provision of CSR report assurance services to audit clients and audit quality, measured by discretionary accruals. Panel A of Table 9 shows that the coefficient of the indicator variable of providing CSR report assurance for audit clients at the firm level (*SAME_F*) is significant for absolute DA and negative DA. These results suggest that the positive impacts of providing CSR report assurance services on audit quality are mainly from company income-decreasing management activities at the audit firm level. This result is

consistent with Lee and Kao (2007), who suggest that to avoid the attention of governance bodies induced by client companies' tax evasion-related downward earnings management, audit firms have an incentive to restrain companies' downward earnings management activities. The incentive may be more apparent when the firm provides both financial statement audits and CSR report assurance for the client via increasing reputation cost. On the other hand, from the results in Panel B of Table 9, we find that the coefficient of the indicator variable of providing CSR report assurance for audit clients at the partner level (*SAME_P*) is significant only for positive DA (*DA+*); which suggested that the negative association between *SAME_P* and discretionary accruals is mainly attributed to positive DA.

When including both firm-level and partner-level indicator variables in the regression, the results, presented in Panel C of Table 9, reveal that when considering audit firms and audit partners together, the effects of providing CSR report assurance on audit quality is significant for different directions for the audit firm level and partner level, as well. Taken as a whole, the findings are consistent with our first hypothesis that the provision of CSR report assurance services to audit clients is positively associated with audit quality although the earnings management restraint directions are different between the firm and partner level.

Although both the firm level and the partner level have a significant impact on the restraint of earnings management, due to the different directions of inhibition, this study suggests that the impact of firms on audit quality is more likely to be driven by increasing reputation costs while the influence of partners on audit quality is more likely to be induced by the effect of knowledge spillover. Therefore, this study considers the results to be consistent with our second hypothesis, which suggests that compared with the effect of audit firms, the impact induced by knowledge spillover of engaging audit partners to provide CSR report assurance services is more significant for audit quality. The results, again, are consistent with our hypotheses and expectations. Since several control variables in the regression have been used as the basis for matching for PSM, including company size (*SIZE*), performance (*ROA*), and auditor characteristic (*BIGN*), the effect of these variables on *ABSDA* (*DA+*, *DA-*) in the regression equation becomes insignificant.

Alternative control for possible endogeneity concerns

To control the possible endogeneity concerns, this study applied PSM to select the research sample according to prior studies (e.g., Armstrong et al., 2010; Lawrence et al., 2011). Although the PSM can preclude the possible estimating question of MILLS

variable (Lennox, Francis, and Wang, 2012), we lost lots of sample during matching processes. To ensure the results of this study are not driven by the endogenous control approach, we utilize Heckman (1979) two-stage for sample selection and testing additionally. The results of Heckman two-stage are presented in Table 10. From Table 10 we can see that results of our main variable are similar with the results under PSM, which suggest that the results of this study are robust between different sample selection approaches.

Alternative control for the influence of simultaneously used earnings management methods

To control for the influence of simultaneously used earnings management methods, we include the original value of performance-matched abnormal accrual (*DA*) in the main analyses according to prior studies (Cohen et al., 2008; Zang, 2012; Young et al., 2012; Achleitner et al., 2014; Tai, 2015; Järvinen and Myllymäki, 2016; Choi et al., 2018). To ensure that the main results of this study are robust for different measurements of discretionary earnings management, we apply the absolute value of performance-matched abnormal accrual (*ABSDA*) to control for the influence of simultaneously used earnings management methods and testing further.

The results of applying the absolute value of performance-matched abnormal accrual (*ABSDA*) to control for the influence of simultaneously used earnings management methods are presented in Table 11; we can see that the results of the main variable are similar to the results when applying the original value of abnormal accrual to control for the simultaneously used earnings management methods, presented in Table 6, which suggests that the results of this study are robust for considering different measurements of discretionary earnings management.

VI. Conclusion

The increasing global awareness of corporate social responsibility has led to a significant increase in the publishing of standalone CSR reports around the world, and Taiwan has followed this trend in recent years. In Taiwan, listed companies in the food, financial, and chemical industries and companies with capital stock of more than NT$10 billion are required to compose and publish Chinese CSR reports starting in 2015. In addition, the CSR reports prepared by the food industry and the listed companies whose revenue is mainly gained from food and beverage-related activities must obtain an auditor’s assurance opinion.

Table 9 Regression Results of Providing CSR Report Assurance and DA

$$DA = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 CFO + \beta_8 LOSS + \beta_9 LEV + \beta_{10} ABSTAC + \beta_{11} CG + \beta_{12} ROA + \beta_{13} BIGN + \beta_{14} REM + \beta_{15} CPATEN + \beta_{16} CIMP + \beta_{17} YearDummies + \beta_{18} IndustryDummies + \varepsilon$$

	Panel A: Firm Level			*Panel B: Partner Level*			*Panel C: Both Level*		
	(1) ABSDA	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*
CSR	0.006	-0.003	-0.005	0.006	-0.007	-0.006	0.006	-0.007	-0.006
	(0.176)	(0.613)	(0.271)	(0.187)	(0.310)	(0.167)	(0.177)	(0.310)	(0.151)
CSRAR	0.014	0.018	-0.014	0.002	0.021*	0.003	0.016	0.020	-0.016
	(0.273)	(0.272)	(0.337)	(0.801)	(0.091)	(0.756)	(0.226)	(0.213)	(0.291)
SAME_F	-0.024*	-0.015	0.023*				-0.021	0.001	0.027*
	(0.079)	(0.394)	(0.100)				(0.136)	(0.978)	(0.077)
SAME_P				-0.020	-0.079***	0.005	-0.012	-0.079***	-0.004
				(0.175)	(0.001)	(0.693)	(0.446)	(0.002)	(0.789)
SIZE	0.001	0.004	0.001	-0.001	0.006**	0.004*	-0.001	0.006**	0.003*
	(0.963)	(0.140)	(0.486)	(0.558)	(0.048)	(0.054)	(0.586)	(0.048)	(0.061)
GROW	-0.004	-0.036***	-0.002	-0.005	-0.036***	-0.002	-0.004	-0.036***	-0.002
	(0.523)	(0.005)	(0.712)	(0.468)	(0.004)	(0.755)	(0.511)	(0.004)	(0.664)
CFO	-0.092***	-0.024	0.086***	-0.093***	-0.026	0.086***	-0.094***	-0.026	0.084***
	(0.003)	(0.580)	(0.004)	(0.002)	(0.533)	(0.004)	(0.002)	(0.538)	(0.005)

Table 9 Regression Results of Providing CSR Report Assurance and DA(Continued)

	Panel A: Firm Level			*Panel B: Partner Level*			*Panel C: Both Level*		
	(1) ABSDA	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*
LOSS	0.003	-0.003	-0.007	0.003	0.001	-0.007	0.003	0.001	-0.007
	(0.657)	(0.711)	(0.259)	(0.627)	(0.991)	(0.263)	(0.624)	(0.991)	(0.241)
LEV	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001*
	(0.351)	(0.317)	(0.158)	(0.220)	(0.161)	(0.124)	(0.191)	(0.161)	(0.087)
ABSTAC	0.130***	0.534***	0.370***	0.133***	0.543***	0.371***	0.132***	0.543***	0.368***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CG	0.003	-0.001	-0.004**	0.003	-0.001	-0.004**	0.003	-0.001	-0.004**
	(0.088)	(0.672)	(0.014)	(0.106)	(0.751)	(0.023)	(0.104)	(0.752)	(0.017)
ROA	0.001***	0.001	-0.002***	0.001***	0.001	-0.002***	0.001***	0.001	-0.002***
	(0.001)	(0.989)	(0.000)	(0.001)	(0.919)	(0.000)	(0.001)	(0.920)	(0.000)
BIGN	-0.008	0.004	0.005	-0.001	-0.007	-0.005	0.001	-0.007	-0.007
	(0.174)	(0.604)	(0.396)	(0.909)	(0.525)	(0.449)	(0.984)	(0.526)	(0.342)
REM	0.023**	0.062***	-0.004	0.020*	0.059***	-0.003	0.020	0.059	-0.004
	(0.020)	(0.000)	(0.731)	(0.051)	(0.000)	(0.784)	(0.045)	(0.000)	(0.723)
CPATEN				-0.002	-0.004**	0.001	-0.002*	-0.004***	0.001
				(0.112)	(0.014)	(0.479)	(0.100)	(0.015)	(0.414)

Table 9 Regression Results of Providing CSR Report Assurance and DA(Continued)

	Panel A: Firm Level			*Panel B: Partner Level*			*Panel C: Both Level*		
	(1) ABSDA	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*	*(1) ABSDA*	*(2) DA+*	*(3) DA-*
CIMP				0.015	-0.018	-0.026***	0.016	-0.018	-0.027***
				(0.132)	(0.207)	(0.008)	(0.119)	(0.208)	(0.006)
Constant	0.037	-0.094**	-0.113***	0.058**	-0.092	-0.142***	0.058**	-0.092	-0.140***
	(0.181)	(0.034)	(0.000)	(0.047)	(0.043)	(0.000)	(0.050)	(0.044)	(0.000)
Year	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	848	361	487	848	361	487	848	361	487
Adj. R^2	0.261	0.61	0.403	0.262	0.628	0.408	0.263	0.627	0.411
F Value	8.400***	15.118***	9.427***	8.103***	15.495***	9.166***	7.979***	15.077***	9.066***
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1. The definition of variables are as follows. *ABSDA* is the absolute value of performance-adjusted discretionary accruals (Kothari et al. 2005); DA+, and DA- are signed discretionary accruals which represent the positive value of discretionary accruals and the negative value of discretionary accruals, respectively. Definitions of other variable are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 10 Heckman Selection Two-stage Results

Second Step:

$$REM = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 LEV + \beta_8 CG + \beta_9 ROA + \beta_{10} DA + \beta_{11} BIGN + \beta_{12} CPATEN + \beta_{13} CIMP + \beta_{14} LAMBDA + \varepsilon$$

First Step:

$$BN = \alpha_1 + \beta_1 SIZE + \beta_2 AGE + \beta_3 LEV + \beta_4 CG + \beta_5 GROW + \varepsilon$$

Panel A: Regression Results

	(1)*REM*	(2)*AbnCFO*	(3)*AbnPROD*	(4)*AbnDISX*
CSR	0.007	0.005	0.002	-0.009
	(0.659)	(0.384)	(0.762)	(0.141)
CSRAR	-0.094*	0.006	-0.057**	0.032
	(0.070)	(0.768)	(0.038)	(0.137)
SAME_F	-0.031*	0.021**	0.002	0.012
	(0.062)	(0.037)	(0.941)	(0.640)
SAME_P	-0.401***	-0.004	-0.222***	0.183***
	(0.000)	(0.886)	(0.000)	(0.000)
SIZE	0.019***	-0.001	0.014***	-0.004**
	(0.000)	(0.655)	(0.000)	(0.044)
GROW	-0.043**	0.005	-0.027***	0.010
	(0.017)	(0.406)	(0.004)	(0.166)
LEV	0.001	0.001	0.001	0.001
	(0.816)	(0.722)	(0.568)	(0.639)
CG	-0.010**	0.004***	-0.005**	0.001
	(0.023)	(0.008)	(0.030)	(0.669)
ROA	-0.010***	0.005***	-0.006***	0.001*
	(0.000)	(0.000)	(0.000)	(0.059)
DA	0.392***	-0.117***	0.165***	-0.110***
	(0.000)	(0.000)	(0.000)	(0.000)
BIGN	-0.272*	0.020	-0.207***	0.046
	(0.050)	(0.701)	(0.005)	(0.420)
CPATEN	-0.002	0.001	0.001	0.001
	(0.352)	(0.453)	(0.766)	(0.227)

Table 10 Heckman Selection Two-stage Results(Continued)

	(1)*REM*	(2)*AbnCFO*	(3)*AbnPROD*	(4)*AbnDISX*
CIMP	-0.009	0.022*	-0.001	-0.013
	(0.787)	(0.067)	(0.974)	(0.301)
Year	Included	Included	Included	Included
Industry	Included	Included	Included	Included
Number of obs	3,024	3,024	3,024	3,024
Selected	2,652	2,652	2,652	2,652
Nonselected	372	372	372	372
Wald chi2(42)	935.880***	800.070***	875.230***	595.950***
Prob > chi2	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: Probit regression				
Log likelihood=-1018.5197				
		BN		
SIZE		0.147***		
		(0.000)		
AGE		-0.027***		
		(0.000)		
LEV		-0.006***		
		(0.000)		
CG		0.032		
		(0.254)		
GROW		0.385***		
		(0.000)		
/mills				
lambda	0.125**	-0.006	0.051**	-0.068***
	(0.015)	(0.749)	(0.058)	(0.001)
rho	0.519	-0.069	0.406	-0.672
sigma	0.241	0.086	0.125	0.102

1. Variable definitions are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 11 Regression Results of Alternative Control for the Influence of Simultaneously Used of Earnings Management Methods

$$REM = \alpha_1 + \beta_1 CSR + \beta_2 CSRAR + \beta_3 SAME\_F + \beta_4 SAME\_P + \beta_5 SIZE + \beta_6 GROW + \beta_7 LEV + \beta_8 CG + \beta_9 ROA + \beta_{10} ABSDA + \beta_{11} BIGN + \beta_{12} CPATEN + \beta_{13} CIMP + \beta_{14} YearDummies + \beta_{15} IndustryDummies + \varepsilon$$

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*
CSR	0.008	0.009	0.009	-0.003	-0.001	-0.001	0.004	0.006	0.006	-0.002	-0.002	-0.002
	(0.603)	(0.564)	(0.583)	(0.654)	(0.899)	(0.883)	(0.626)	(0.473)	(0.504)	(0.816)	(0.724)	(0.740)
CSRAR	-0.105**	-0.063*	-0.100**	0.015	0.023**	0.013	-0.066***	-0.029	-0.064***	0.024	0.012	0.023
	(0.026)	(0.061)	(0.032)	(0.376)	(0.063)	(0.439)	(0.010)	(0.117)	(0.011)	(0.202)	(0.393)	(0.230)
SAME_F	-0.021*		0.059	0.017**		0.016**	0.008*		0.057**	0.012		-0.017
	(0.067)		(0.254)	(0.033)		(0.040)	(0.077)		(0.041)	(0.557)		(0.398)
SAME_P		-0.241***	-0.262***		0.014	0.008		-0.138***	-0.159***		0.089***	0.095***
		(0.000)	(0.000)		(0.467)	(0.689)		(0.000)	(0.000)		(0.000)	(0.000)
SIZE	-0.006	-0.008	-0.008	0.003	0.001	0.001	-0.004	-0.006	-0.006	0.001	0.001	0.001
	(0.329)	(0.289)	(0.275)	(0.165)	(0.803)	(0.820)	(0.314)	(0.120)	(0.107)	(0.853)	(0.751)	(0.734)
GROW	-0.009	-0.010	-0.011	-0.007	-0.006	-0.006	-0.007	-0.007	-0.008	0.009	0.009	0.009
	(0.688)	(0.658)	(0.624)	(0.432)	(0.497)	(0.476)	(0.574)	(0.585)	(0.528)	(0.341)	(0.323)	(0.307)

Table 11 Regression Results of Alternative Control for the Influence of Simultaneously Used of Earnings Management Methods (Continued)

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*
LEV	0.001	0.001	0.001	0.001*	0.001*	0.001***	0.001*	0.001	0.001	0.001	0.001	0.001**
	(0.114)	(0.253)	(0.226)	(0.003)	(0.006)	(0.007)	(0.063)	(0.156)	(0.123)	(0.223)	(0.110)	(0.123)
CG	-0.017***	-0.018***	-0.018***	0.008***	0.008***	0.008***	-0.005	-0.005	-0.005	0.004	0.004*	0.004*
	(0.006)	(0.003)	(0.003)	(0.000)	(0.000)	(0.000)	(0.156)	(0.104)	(0.102)	(0.102)	(0.072)	(0.072)
ROA	-0.008***	-0.008***	-0.008***	0.005***	0.005***	0.005***	-0.004***	-0.004***	-0.004***	-0.001*	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.053)	(0.035)	(0.031)
ABSDA	0.399***	0.352***	0.359***	-0.161***	-0.162***	-0.160***	0.142**	0.111*	0.118*	-0.096*	-0.078	-0.081**
	(0.001)	(0.004)	(0.003)	(0.000)	(0.000)	(0.000)	(0.034)	(0.093)	(0.074)	(0.054)	(0.111)	(0.102)
BIGN	0.024	0.033	0.031	-0.023***	-0.011	-0.012	0.012	0.026*	0.024*	0.011	0.004	0.004
	(0.247)	(0.202)	(0.231)	(0.002	(0.235)	(0.215)	(0.276)	(0.070)	(0.093)	(0.182)	(0.723)	(0.683)
CPATEN		-0.007**	-0.006*		0.003**	0.003**		-0.002	-0.002		0.002	0.002
		(0.075)	(0.082)		(0.045)	(0.042)		(0.319)	(0.357)		(0.206)	(0.218)
CIMP		0.019	0.018		0.026**	0.026		0.029	0.028		-0.016	-0.016
		(0.588)	(0.620)		(0.047)	(0.051)		(0.130)	(0.152)		(0.259)	(0.274)

Table 11 Regression Results of Alternative Control for the Influence of Simultaneously Used of Earnings Management Methods (Continued)

	Panel A: REM			*Panel B: AbnCFO*			*Panel C: AbnPROD*			*Panel D: AbnDISX*		
	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*	(1) *Firm Level*	(2) *Partner Level*	(3) *Both Level*
Constant	0.149*	0.209**	0.210**	-0.060**	-0.048	-0.047*	0.069	0.113**	0.114**	-0.019	-0.048	-0.049
	(0.129)	(0.042)	(0.040)	(0.090)	(0.204)	(0.208)	(0.193)	(0.042)	(0.039)	(0.619)	(0.243)	(0.238)
Year	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	848	848	848	848	848	848	848	848	848	848	848	848
Adj. R^2	0.272	0.293	0.293	0.275	0.279	0.279	0.235	0.260	0.262	0.186	0.205	0.205
F Value	9.487***	9.904***	9.693***	9.591***	9.341***	9.121***	7.961***	8.540***	8.465***	6.178***	6.554***	6.405***
Sig.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

1. Variable definitions are the same as that in Table 4.
2. *p*-values in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Although some prior studies have documented the influence of non-audit services on auditor independence and audit quality, no study has explored this question from the perspective of assurance of CSR reports to the best of our knowledge. The assurance of CSR reports is important and different from other non-audit services because the opinion of CSR assurance reports is provided to external stakeholders while most other non-audit services mainly provide opinions to the management of client companies. Therefore, compared to other non-audit services, the assurance of CSR reports is more strictly monitored by institutional mechanisms. The requirement of obtaining an auditor's assurance opinion for CSR reports provides us the opportunity to explore the impacts of. Accordingly, this study aims to explore the effects of engaging auditors to provide CSR assurance services for their audit clients on audit quality.

The empirical results reveal that companies whose CSR reports are assured by the auditor that provides audit services for their financial statements possess significantly lower real earnings manipulation. For the aggregate measurement of real earnings management, the coefficients of the indicator variables of providing CSR report assurance for the same audit clients at the firm level and the partner level are both significantly negatively associated with *REM* when exploring the influence of audit firms and audit partners individually. The findings support our first hypothesis that the provision of CSR report assurance services to audit clients is positively associated with audit quality. Nevertheless, the results including both the firm level and the partner level reveal that when considering audit firms and audit partners together, the effects of providing CSR report assurance on audit quality is significant only at the partner level, which supports our second hypothesis that the association between the provision of CSR report assurance services to audit clients and audit quality of financial reports induced by knowledge spillover is more significant at the audit partner level. For earnings manipulation among different activities, the results suggest that while the effects of providing CSR report assurance on audit quality are significant for both the firm level and the partner level as a whole, the effects are more pronounced for overproduction manipulation and discretionary expense manipulation at the partner level and more pronounced for sales manipulation at the firm level.

Since the positive impacts of providing CSR report assurance on audit quality include the knowledge spillover effects of the assurance task and may be influenced by auditors' industry specialization, this study explores the associations between engaging auditors to assure the CSR report and audit quality for industry specialization and non-industry specialization auditors separately. The results reveal that the association between providing CSR report assurance services and audit quality is more significant for

companies that are audited by non-industry specialist auditors at the partner level. We infer this result based on the fact that since industry specialization auditors possess better industry- or client-specific knowledge and experience, the knowledge spillover effects from non-audit services (i.e., CSR report review) to audit services (i.e., financial statement auditing) are less significant. On the other hand, understanding and experience from a CSR report review by non-industry specialization auditors has a more significant effect on the audit quality. We believe this finding provides further support for the knowledge spillover effects through non-audit services. Instead, the results of the firm level reveal that the association between providing CSR report assurance services and audit quality is significant only for companies that are audited by industry specialists at the firm level. Taking the results of the audit firm level and audit partner level together, we suggest that the impact of firms on audit quality is more likely to be driven by increasing reputation costs while the influence of partners on audit quality is more likely to be induced by the effect of knowledge spillover.

For the additional analysis, the results demonstrate that the impacts of providing CSR report assurance services on audit quality can also be extended to discretionary accrual earnings management. In addition, the results of separating estimations for income-increasing and income-decreasing discretionary accruals suggest that the impacts of providing CSR report assurance services on audit quality come mainly from company income-decreasing management activities at the audit firm level while the impacts of providing CSR report assurance services on audit quality are mainly from company income-increasing management activities at the audit partner level. Due to the different direction of inhibition, this study argues that the impact of firms on audit quality is more likely to be driven by increasing reputation costs while the influence of partners on audit quality is more likely to be induced by the effect of knowledge spillover. Therefore, the results are consistent with our second hypothesis, which suggests that compared with the effect of audit firms, the impact induced by knowledge spillover of engaging an audit partner to provide CSR report assurance services is more significant for audit quality.

This study makes the following contributions for regulators, professional practitioners, and academics. For regulators, this study provides evidence that demonstrates the effects of providing CSR report assurance on financial report audit quality. The empirical results suggest that providing assurance services for audit clients' CSR report has a positive impact on audit quality, which implies that the requirement standalone CSR reports has become an unavoidable trend around the world, it may be to obtain an auditor's assurance should be strengthened as currently there is only one rule for a few industries. For audit professional practice, since the publishing of worthwhile to

commit resources to their assurance if this is allowed by governance. For academics, by exploring the influence of CSR report assurance, which is a category of non-audit services that has rarely been examined in prior studies, this study provides fresh evidence for the existing non-audit services literature.

This study has the following limitations. First, since 2015 and 2016 are the first two years that the requirement of standalone CSR report announcement has been active, the sample size of this study is relatively smaller than in other studies; we suggest that future research extend the sample size to process more extensive analyses. In addition, while the provision of non-audit services to audit clients is not prohibited in Taiwan, caution is needed if attempting to extend the results of this study to countries that prohibit audit firms from providing non-audit services to their audit clients.

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