MATERIAL AND IMMATERIAL SUSTAINABILITY INVESTMENT IN THE
RESTAURANT INDUSTRY

A Thesis in
Hospitality Management

by
Bora Kim

© 2017 Bora Kim

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

May 2017
The thesis of Bora Kim was reviewed and approved* by the following:

Seoki Lee
Associate Professor of Hospitality Management
Thesis Advisor

Anna S. Mattila
Marriot Professor of Lodging Management
Professor-in-charge of Graduate Program

Amit Sharma
Associate Professor of Hospitality Management

*Signatures are on file in the Graduate School
ABSTRACT

Sustainability investment, an investing discipline that considers environmental, social, and governance criteria, is growing rapidly with ever-increasing attention from stakeholders such as investors and managers. Using a novel industry-specific materiality (critical sustainability topics that are likely to impact a firm’s financial circumstance and operating performance) classifications of sustainability issues, the current study empirically examines the impact of allocating a firm’s resources to material and immaterial issues, and its link to firm performance in the restaurant context. Based on stakeholder theory, the moderating role of franchising, among the most peculiar characteristics to the restaurant industry, is further examined. A two-way fixed-effects model with clustering standard errors has been employed to analyze sample panel data of publicly traded restaurant firms and to test the suggested hypotheses.
# TABLE OF CONTENTS

List of Figures .................................................................................................................. v

List of Tables ...................................................................................................................... vi

Chapter 1 Introduction ...................................................................................................... 1

Chapter 2 Literature Review ............................................................................................ 8

  Theoretical Background and Conceptual Development .............................................. 8
  Franchising and Stakeholder ...................................................................................... 10

Chapter 3 Methodology .................................................................................................. 14

  Data Collection ........................................................................................................... 14
  Variables .................................................................................................................... 16
    Dependent variable ................................................................................................. 16
    Main variables ........................................................................................................ 17
    Control variables ..................................................................................................... 18
  Model ......................................................................................................................... 19

Chapter 4 Result .............................................................................................................. 21

  Descriptive statistics ................................................................................................. 21
  Main analysis ............................................................................................................... 24

Chapter 5 Discussion and Conclusion ............................................................................ 26

  Limitations and Future Directions ............................................................................ 29

Appendix A SASB Materiality Map ............................................................................... 31

Appendix B How the Map is Created ............................................................................ 33

Appendix C Sensitivity Analysis .................................................................................... 34

Reference ......................................................................................................................... 35
LIST OF FIGURES

Figure 1-1. The Number and Types of Investment and Financial Institutions that Takes ESG Factors into Account in 2014 .................................................................2

Figure A-1. Sector Level Map ................................................................................31

Figure A-2. Industry Level Map ...........................................................................32
LIST OF TABLES

Table 4-1. Summary of Descriptive Statistics .................................................................21
Table 4-2. Summary of Pearson’s Correlations .................................................................23
Table 4-3. Main Results of Two-Way Fixed-Effects Model by Firm and Year ..................24
Table C-1. Main Results of Two-Way Random-Effects Model by Firm and Year ............34
Chapter 1

Introduction

The investment decisions of a firm prescribe how productive the firm is (Dempsey, 2003). One particular type of investment gaining ever-increasing attention from various stakeholders in the contemporary business environment is sustainability investment. According to The Forum for Sustainable and Responsible Investment’s (US SIF) 2014 report, US Sustainable, Responsible and Impact investing (SRI) that incorporates environmental, social and governance (ESG) factors has increased by 17 times in its number since 1995. In the same time span, the total net assets of ESG funds and community investing institutions of professionally managed assets in the US market increased from $12 billion to $4.31 trillion by 2014. The ESG funds include mutual funds, variable annuity funds, closed-end funds, exchange-traded funds, alternative investment funds (e.g., venture capital, private equity, hedge and responsible property funds) and other pooled products, excluding separate account vehicles and community investing institutions. (SIF, 2014). Figure 1 shows the number and types of investment and financial institutions that took ESG factors into account in 2014.
To be specific, by analyzing ESG factors institutional investors and asset managers attempt to distinguish appealing companies that are worth investing in because those firms boast superior management practices or impose fewer risks on investors and other stakeholders (SIF, 2016). As ESG factors develop overtime, they gradually integrate a broader range of indicators and unfolding trends and more firms incorporate the ESG principle in their financial analysis and portfolio development. The importance of the ESG factors emerged and investors and other stakeholders demanded companies disclose this important information so that investors may analyze risks and opportunities that ESG factors bring to the firms over the long term. (SIF, 2016). In this sense, the concept of materiality comes into play as the focal interest of this research.

Materiality (or important information) can be defined as “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available” (TSC Indus. v. Northway, Inc.,
Financial Accounting Standard Board (FASB) establishes that “information is material if omitting it or misstating it could influence decisions that users make on the basis of the financial information of a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude or both of the items to which the information relates in the context of an individual entity’s financial report.” Simply put, materiality is information that is important, especially in terms of a firm’s long-term health and performance, that can potentially affect the investors’ and other stakeholders’ decision to buy, sell, or hold a security and evaluation on a firm’s commitment to sustainability practices. Therefore, materiality should be disclosed through and should not be omitted from the form of corporate reporting to represent a firm’s condition thoroughly. Having access to all company information, investors can make a fair judgment on a firm’s investment value.

However, the enormous number of ESG topics raise the question of which sustainability issue is more critical and deserves managerial attention (Khan, Serafeim & Yoon, 2016). Since companies cannot deal with every possible sustainability issues that may considered as important by investors, they first need to identify what is materiality, the sustainability topics that are highly likely to pose a risk and bring potential opportunities to firms’ future operation. By distinguishing material sustainability issues, they may put managerial focus on those issues with improved internal corporate management efficiency and report the relevant material information in compliance with the external corporate reporting regulations.

As stated in FASB’s definition, materiality is entity-specific and dependent on the context of an individual entity. Therefore, material sustainability issues may differ from industry to industry and from firm to firm. Nonetheless, researching and identifying material sustainability issues to a given industry had been an arduous task for firms due to the lack of helpful reference until Sustainability Accounting Standard Board’s materiality guidance emerged (http://www.sasb.org). SASB is a non-profit organization that develops and distribute
sustainability accounting standards to help publicly traded firms to release material and useful information to investors in terms of decision making. In its industry-specific Materiality Map, SASB identifies sustainability topics that is highly likely to affect firm performance to form material information for 79 industries of 10 sectors. SASB’s industry-focused materiality guidance is novel in that the existing Corporate Social Responsibility database (e.g., MSCI KLD) rates firms’ sustainability efforts using uniform evaluation standard across various industries without considering the relative importance of sustainability topics in a given industry.

Now that the classification of industry-specific materiality is achievable, the current study attempts to classify MSCI KLD (Kinder, Lyndenberg, and Domini)’s firm-level sustainability data into material and immaterial sustainability issues based on SASB’s industry-specific materiality classification. This allows us to empirically examine the impact of allocating a firm’s resources to material and immaterial issues, and its link to firm performance in the restaurant context. A firm’s resource allocation to (im)material sustainability issues and its impact on firm performance will show the efficiency of the investment. Moreover, an attempt to evaluate the materiality investment of restaurants by identifying KLD items based on SASB guidance make it possible to show the effectiveness and room for improvement of the two database and method. As such, this research aims to offer (1) a focal industry’s sustainability investment efficiency status quo (i.e., how the industry allocates resources to material issues) and (2) implications regarding applicability and improvement considerations of sustainability measurement like KLD and SASB’s novel materiality classification. Results of the research may be of help to institutions that provide ESG ratings and set accounting standards in achieving their goals of offering a robust, decision-useful rating systems and market-driven industry level accounting standards.

Among many industries, the restaurant industry makes an interesting research area and it is now well-accepted that sustainability matters to the industry. As of 2014, the sales of the industry recorded more than 683 billion dollars and restaurants are deeply integrated into people’s
lifestyles in any community in the United States with almost 1 million locations and 13.5 million employees. Dining in a restaurant to share a pleasant moment with people and to celebrate special occasions is a part deeply embedded in the contemporary Americans’ lives. Although some issues and challenges lie across restaurant businesses, restaurant dining will continue to thrive. However, with its significant role in the society, the industry also contributes to worsening of landfills and trash dump problems in the United States, creating a massive amount of waste (Ellis, Lee, Reeder, & Yip, 2013).

According to the annual sustainability report of the National Restaurant Association (NRA), “sustainability has become a fact of life and business, and the restaurant industry has gotten the message.” It is found that restaurants are also searching for how to reduce waste and natural resource use that will save costs. In addition, the industry forecast from the association also reports that 46% of all consumers would choose to eat out at a restaurant that serves sustainable food and more than 50% of the respondents aged between 18 and 24 said they seek to patronize “restaurants that practice sustainability.” Various material issues in the restaurant sustainability practices discussed in the past literature include packaging and food waste management, composting, recycling and cost-efficient water and energy use, food safety, and supply chain management (Knight, Worosz, & Todd, 2007; Heller & Keoleian, 2003; Rathje & Murphy, 1992; Freeman, 2011).

Therefore, the concept of materiality (i.e., topics and information with relative importance in a given industry that should be considered by management and disclosed on the accounting report system) and corporate investment practices in the restaurant industry need to be further researched. In fact, the recent study of Kahn, Serafeim, and Yoon (2016) offered the first evidence in adopting industry-specific sustainability topic, but their study analyzed the aggregated data of the multiple sectors’ economy without providing industry-specific findings. In other words, Kahn et al. used the SASB’s materiality map at a sector level (six out of 10 sectors
included), not at an industry level (49 out of 79 industries in total included). On the other hand, the current study examines the restaurant industry, in particular, among others classified under service sectors such as cruise lines, hotels and lodging, and casinos and gaming industry.

The role of franchising is another dimension of this study. The restaurant industry is where the franchising strategy is the most prevalent (Koh, Lee, & Boo, 2009). As one of the most peculiar characteristics to the restaurant industry, franchising strategy creates an additional important group of stakeholders, franchisees, for restaurant firms. Thus, the impact of franchising needs to be considered to better explain the relationship between (im)material sustainability investment and firm performance in the restaurant industry. The current study measures the degrees of franchising and examines its interplay with (im)material sustainability investment and firms’ financial performance measured by Tobin’s q. Accordingly, with different approach and focus on a specific industry, the contributions of the current study differ from those of Kahn et al.’s; the current study shows the industry-level sustainability investment incorporating the moderating role of franchising to better understand the materiality and firm performance specifically in the restaurant context.

By examining whether investing in material issue, rather than in domains less relevant to the industry’s biggest sustainability concerns, will lead to a better firm performance in the restaurant industry, this study offers firms an insight on how to better manage sustainability practices and meet the disclosure requirements by releasing relevant material and decision-useful information of importance on the corporate accounting report. Investors will extend the understanding of the status quo of the investment efficiency in the restaurant industry and develop an effective capital allocation strategy according to their philosophy and values; for instance, investors interested in environmental and social performance of a firm will seek to invest in firms with sustainability investment practices that are aligned with their values. As for the implication for policy making and accounting standard-setting institutions, the use of SASB’s Materiality
Map in this study will lead to the evaluation of the applicability of and possible area where improvements can be made to the SASB’s classification of material sustainability topics.

This study reviews relevant literature for sustainability, materiality and franchising, and develops hypotheses in Chapter 2. The description of methodology is given in Chapter 3, while result is reported in Chapter 4. Finally, Chapter 5 offers discussion of results and conclusions, and concludes the study with theoretical and practical implication along with providing limitations and future research directions.
Chapter 2

Literature Review

Theoretical Background and Conceptual Development

In a firm’s value creating activities, stakeholders, defined as “any group or individual who can affect or is affected by the achievements of the organization’s objectives” (Freeman, 1984 p.46), are the intertwined influential bodies that impact the way a firm is managed and behaves (Perrini & Tencati, 2006). As shown in the stakeholder theory (Freeman, 2010), a firm’s capability to continue to operate not just depends on its shareholders, but it is determined by its relationship with the stakeholders (Perrini & Tencati, 2006); therefore, it is prudent for a firm to take its various stakeholders’ interests into account and to invest in domains that bring benefits to those stakeholders. As such, sustainability investment will be viewed as an efficient use of capital by multiple stakeholders. Previous literature found that high corporate sustainability performance leads a firm to achieve better financial performance (Waddock & Grave, 1997) as well as superior non-financial performance such as improved human resource practices, reputation, brand, and risk performance (Luo & Bhattacharya, 2009).

First, an explicit association between sustainability and financial performance has been found in the previous literature. Firms that manage ESG factors more advantageously and perform well on those issues are likely to make more profitable investment outcomes in the long run. Eccles, Ioannou, and Serafeim (2012) compared two matched sets of 180 companies in terms of environmental and social policy adoption. In their study that covers 18-year period, they found companies that voluntarily accepted environmental and social policies performed better on stock market and accounting performance than companies that accepted almost none of these policies. Similarly, an academic review of Deutsche Bank Climate Change Advisors (2012) found that
CSR and ESG factors are positively associated with remarkable risk-adjusted returns at a securities level. In addition, high corporate social performance can also enhance non-financial performance such as the reputations and attractiveness for prospective employees (Turban & Greening, 1997). Lai, Chiu, Yang, and Pai (2010) found the positive impact of CSR and corporate reputation on industrial brand equity and brand performance.

More importantly, potential investors and market assess a firm’s productivity by looking at how a firm utilizes its capital and thus the investment decisions a firm make (Dempsey, 2003). In specific, if a firm chooses to invest in material (i.e., perceived to be relatively more important and worth attentions of asset managers and top management team) sustainability issues, decided based on the SASB’s classification in this study, will be viewed more efficient compared to firms making investment in topics that are immaterial. It is because such investment in more important issues shows the firm understands what is more important to their business in a given industry and it can be interpreted as a superior managerial insight and risk management skills by investors (Anderson, & Anderson, 2009). Therefore, the current study proposes the following hypothesis.

**Hypothesis 1:** Material sustainability investment positively impacts firm performance.

On the other hand, firms investing heavily in immaterial (i.e., perceived to be less important in a given industry) sustainability issue may be regarded as not taking the most strategic move by financial markets. It is because focusing on less important issues is not highly expected to lead a firm to face profitable prospect. Although the impacts of investing in material and immaterial sustainability topics would possibly yield different results in such ways, however, investing in less important ‘sustainability’ issues is still engaging in a pro-CSR activities. Considering that society’s expectation for firms to be ‘good corporate citizens’ (Orsato, 2006), and the number of related CSR related research are continuously growing since 1950s, making
efforts to advance the sustainability-related activities and socially responsible engagement may be viewed by and large desirable albeit it is through investing in *immaterial* sustainability topics.

Moreover, it has not been proven if stakeholders or firms can actually distinguish the disadvantage of investing in less critical sustainability issues, and accordingly whether market will penalize firms for such investment. In fact, rather than identifying the more or less important sustainability topics and understanding the consequences of investing in each topic, companies rarely have a systematic plan for CSR. Due to the rapid growth of the concept of CSR, firms are devising plans, which are not always coherent and organized, as they proceed rather than having clear strategic CSR plans before the implementation (Cheney, 2010). In addition, Khan et al. (2016) recently offered the empirical findings that firms with good ratings on immaterial sustainability topics do not outperform firms with inferior ratings on the identical topics.

Thus, although perhaps not the most strategic choice, investing in *immaterial* sustainability items in a given industry is still pro-social sustainability efforts and may not lead to a significantly inferior financial firm performance just because it is classified as less crucial sustainability topics in a given industry. Based on these arguments, a restaurant firm’s investment in immaterial sustainability initiatives may not leave firms to be penalized by the market.

*Hypothesis 2: Immaterial sustainability investment does not impact firm performance.*

**Franchising and Stakeholder**

Taking franchising into account, however, can change the relationship between (im)material sustainability investment and financial performance. The United States Department of Commerce defines franchising as “an ongoing business relationship between franchisor and franchisee that includes not only the product, service and trademark, but the entire business
concept itself--a marketing strategy and plan, operating manuals and standards, quality control, and a continuing process of assistance and guidance” (Cook & Ryan, 2015 p.304). Franchising is a well-received strategic vehicle in pursuit of increasing market share and rapid expansion (Hoffman & Preble, 1991; Alon, Ni, & Wang, 2012), and achieving first mover advantage (Michael, 2003). The restaurant industry is where franchising strategy is the most prevalent (Koh, Lee, & Boo, 2009) and therefore has been a focal industry of many research projects in the franchising literature.

Stakeholder theory is one of the most widely discussed and frequently ingrained theories in sustainability and CSR research (Laplume, Sonpar, & Litz, 2008; Montiel & Delgado-Ceballos, 2014). The current research draws upon the stakeholder theory in making propositions, relating franchising to the link between (im)material sustainability investment and firm performance. Stakeholder theory proposes that firms need to bear a wide range of stakeholders, however defined, in mind so as to be successful (Altinay & Miles, 2006). The major foundation of stakeholder theory is balancing the divergent stakeholder interests overtime so that managers can sustain the support from groups of stakeholders with different wants and needs (Reynolds, Schultz, & Hekman, 2006). Schneider (2002, p.212), in his stakeholder model using the concept of organizational leadership, defined leader effectiveness as “the collective sense of the leader’s efficacy, based on the perceptions of multiple stakeholders.” Therefore, in this regard an effective leader would take multiple stakeholders into account when making investment decisions and balance their interests to make how they perceive the leader would be favorable. In this way, stakeholders influence corporate strategies such as investment decisions (Frooman, 1999).

The effect of franchising on a firm’s stakeholder relationship is that it adds additional stakeholder groups. For example, franchisees are a representative stakeholder group that should be considered due to the use of franchising strategies. The additional group may come with value, needs, and wants that are different from what the existing stakeholders have. For example,
franchisees typically have a strong tie to the local community. More and more franchising companies today believe that community involvement has a direct impact on the growth of franchisees in their market and success (Scrivano, 2006). Through strategic community relation initiatives, franchisees can enhance their brand awareness and build positive brand image beyond merely maintaining business. For example, franchisees of McDonald’s, Denny’s and Subway support various causes for the local community including scholarship and healthcare supports to children, childhood hunger relief program, educational TV shows for children and the local environment improvement program.

However, community relation is not evaluated as materiality for the restaurant industry based on SASB’s Map although numerous restaurants with franchising strategy may view the topic as actually material. It is because except for the six topics chosen as materiality topic for restaurants (i.e., 1) Energy and Waste management, 2) Food and packaging waste management, 3) Food safety, 4) Nutritional content, 5) Fair labor practices, and 6) Supply chain management and food sourcing), all other sustainability topics are mapped as immaterial by SASB. In fact, other immaterial-classified topics such as ‘water and wastewater management’, ‘water and hazardous materials management’ and ‘fair marketing and advertising’ are also likely to be considered as material by some stakeholder groups. The full list of various possible sustainability topics can be found at SASB website (http://www.sasb.org).

The further increased scope of relevant stakeholders due to franchising may increase the likelihood that sustainability topics that were classified as immaterial are deemed to be material by more stakeholder groups. For example, a group of stakeholders may view a certain sustainability topic (e.g., labor relations) as important and worth managerial attention while another group of stakeholders may consider other sustainability topics such as competitive behavior and environmental footprint as important. However, those topics are all examples of ‘immaterial’ sustainability topics for the restaurant industry according to SASB’s Materiality
Map. In summary, the more stakeholders a company has (such as franchisees), the more sustainability initiatives the company has to deal with which may go beyond the materiality classification set by the SASB. As Jensen (2002, p.235) suggests, managers need to make required tradeoffs among its stakeholders to create long term value of the firm. Accordingly, as a restaurant firm embraces more stakeholders through the franchising strategy, it would be increasingly more important to balance the diverse interests and views of stakeholders.

Taken together, if SASB’s materiality classification is valid and truly representative of different stakeholders’ view, sustainability topics that are classified as material may still be considered to be important topics, regardless of the increased stakeholders due to franchising. On the other hand, as noted above, the increasing variety of firms’ stakeholders due to franchising increases the likelihood that sustainability topics mapped as immaterial are deemed to be actually an important issue. Therefore, considering stakeholders' opinions, investing in topics that are currently classified as ‘immaterial’ by SASB may have a positive impact on stakeholder relations and thus firm performance. Accordingly, this research hypothesizes that franchising can positively moderate the relationship between immaterial sustainability investment and firm performance while such moderating role of franchising does not exist for the relationship between material sustainability investment and firm performance.

_Hypothesis 3a: The positive impact of material investment on firm performance does not change regardless of the increased level of franchising._

_Hypothesis 3b: As a firm’s degree of franchising increases, the impact of immaterial investment on firm performance becomes positive._
Chapter 3

Methodology

Data Collection

This study first makes use of SASB’s industry-specific Materiality Map in order to identify material sustainability issues in the restaurant industry. The industry is categorized under service sector and sub-sector of hospitality and recreation along with hotels and lodging, casino and gaming, leisure facilities and cruise lines industry. Second, KLD database, offered by MSCI ESG STATS (Statistical Tool for Analyzing Trends in Social and Environmental Performance) is used to collect information on firm-level CSR or sustainability performance. Next, this study matches KLD items to the industry-specific SASB materiality topics such that KLD items that measure the six materiality topics are mapped as material, and all the remainders as immaterial. After the mapping, the merged data is created so that the materiality and immateriality scores for firms each year can be evaluated. The sample of publicly traded restaurant firms, identified using NAICS (North American Industry Classification System) codes of 722110 and 722511 (full-service restaurant) and 722211 and 722513 (limited-service restaurants), are analyzed for the period of 2000-2015. Sampled firms’ financial data were collected from COMPUSTAT annual database.

MSCI ESG KLD STATS is an annual data set of positive and negative environmental, social, and governance (ESG) performance indicators applied to publicly traded firms (MSCI ESG Research INC., 2015). It evaluates companies’ ESG performance that affects investment decision-making. Its scores are given to the firms committed to environmental and social factors so that the data can be of help to investors, in particular those who are concerned about sustainability and/or those practice socially responsible investing (SRI) (Turner, 2013). Due to its
wide coverage of US company samples and historical database, MSCI KLD rating has been widely used for sustainability or corporate social performance (CSP) research (Bialkowski, & Starks, 2016; Dorfleitner, Halbritter, & Nguyen, 2015). KLD rating covers seven ESG domains: community, diversity, environment, corporate governance, human rights, employee relations and products. It rates companies’ ESG performance using a simple binary scoring system. For example, if a firm satisfies the assessment standard for a given indicator, it receives “1” for the indicator, and otherwise “0”. If a company has not been researched for a certain indicator, it receives “NR” for a corresponding ESG indicator. For each ESG domain, various topics are included for indicator items to be assessment. For instance, in positive governance performance indicators, ‘corruption & political instability’ and ‘financial system instability’ are included. Negative governance performance includes bribery and fraud and controversial investments. As for negative environment performance indicators, assigned issues include toxic emissions and waste, energy and climate change, impact of products and services, operational waste, and water stress.

While KLD does not distinguish its scoring data for each industry, SASB’s materiality engagement guide provides industry-specific information based on the idea that sustainability topics that are most likely to affect future risk and financial performance of a firm vary across different industries. SASB is an independent non-profit organization and develops sustainability accounting standards for 79 industries of 10 sectors. SASB standards are developed for the publication of material sustainability information in mandatory SEC filings, such as Form 10-K and 20-F, supporting publicly traded firms’ disclosure of material sustainability information in such a way that is decision-useful and cost-effective, according to SASB’s website.

SASB’s approach to determine materiality for the purpose of accounting standard-setting is informed by the federal securities laws and the regulations of SEC. SASB claims that its process is evidence-based, market-informed, and approved through research and quantitative
analysis in deciding whether performance on a certain topic would influence the financial circumstance and operating performance of the company; by that it is rationally likely for the institution’s guidance to impact a reasonable investor’s investment or voting decision. Through this process, SASB made Materiality Map that identifies and compares material sustainability issues, which are likely to affect and be material to investors and thus accredited to be included as a topic for standardized disclosure, such as Forms 10-K and 20-F. Then the topics prioritized for reasonable investors are mapped and suggested to be disclosed to enhance the confidence of investors across industries and sectors. The five dimensions of the Map are: Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance (see Appendices A and B for the example of Materiality Map and how the Map was created).

Variables

Dependent variable

Tobin’s q is adopted as a measurement for firms’ financial performance, the dependent variable. It is defined as “the ratio of the market value of a firm to the replacement cost of its assets” (Chung & Pruitt, 1994, p.70). Tobin’s q has been preferred as a more reliable measure that reflects the efficient market’s retrospective and prospective evaluations to accounting measures of return on asset or return on equity or to stock return (Fama, 1965; Youn, Song, Lee, & Kim, 2016). It is also perceived to be superior to binary proxy of firm’s growth opportunities (Szewczyk, Tsetsekos, & Zantout, 1996).

To measure Tobin’s q, a modified model of Tobin’s q has been employed due to the severe limitation of availability to obtain up-to-date and precise q data. Chung and Pruitt (1994) proved that their approximate q model explained at least more than 96% of the variability of
Tobin’s q compared to more theoretically precise model of Lindenberg and Ross (1981). The approximate Q calculation is preferred in many empirical studies (e.g., Carter, Rogers, & Simkins, 2006; Connolly & Hirschey, 2005) due to the data accessibility and clear computation. Approximate \( q = \frac{(\text{a firm’s share price} \times \text{the number of common stock shares outstanding}) + (\text{the liquidating value of the firm’s outstanding preferred stock}) + (\text{the value of the firm’s short-term liabilities net of its short-term assets, plus the book value of the firm’s long-term debt})}{\text{(the book value of the total assets of the firm)}} \).

**Main variables**

According to the SASB Materiality engagement guide for asset owners and asset managers, six topics are classified as material sustainability issues for the restaurant industry: 1) Energy and waste management, 2) Food and packaging waste management, 3) Food safety, 4) Nutritional content, 5) Fair labor practices, and 6) Supply chain management and food sourcing. Using these topics as a guide, the researcher classifies KLD indicators, which consist of strengths and concerns of ESG performance of a firm, into material and immaterial. That is, KLD items that measures the material sustainability topics become a firm’s material sustainability investment scores, while all the other KLD items that do not exactly measure the six restaurant materiality topics become a firm’s immaterial sustainability investment scores.

Adopted from Kahn et al. (2016), net materiality (NetMAT) is calculated by subtracting the sum of material KLD ‘concerns’ indicators from the sum of material KLD ‘strength’ indicators. Net immateriality (NetIMMAT) is calculated by subtracting the sum of immaterial KLD ‘concerns’ indicators from the sum of immaterial KLD ‘strength’ indicators as stated in the Model section above. The degree of franchising (DOF) is calculated by dividing the number of franchised properties by the total number of properties of a firm.
Measurement of NetMAT and NetIMMAT are summarized in the following calculations:

\[
Net\ Material_{it} = \sum Material\ KLD\ Strength_{it} - \sum Material\ KLD\ Concerns_{it}
\]

\[
Net\ Immaterial_{it} = \sum Immaterial\ KLD\ Strength_{it} - \sum Immaterial\ KLD\ Concerns_{it}
\]

**Control variables**

Following the previous literature, seven variables that can affect a restaurant firm’s performance, therefore possibly confound the results, are controlled in the proposed models: size, leverage, capital expenditure, turnover, profitability, advertising expense, and sales, general and administrative expense. First, a firm’s size (SIZE) is controlled for its possible effect on the firm’s performance. According to the resource scarcity theory, larger firms are likely to enjoy economies of scale, thus improving their firm performance (Zott & Amit, 2007; Minkler, 1990; Norton, 1988). Firm size in the current study is measured by the natural logarithm of a firm’s total sales to correct the potential positive skewness of the distribution of total sales amount.

Leverage (LEV) is controlled because if a firm increases the level of debt use, the firm may take advantage of tax shield (McConnell & Servaes, 1990), thus increasing its performance and at the same time, possibly retaining more resources for sustainability investment. Conversely, the immoderate use of debt may lead a firm to bear more risk and bankruptcy cost, therefore leaving a firm with poor performance and a choice of reducing sustainability investment. Leverage is measured by debt-to-asset ratio. Next, turnover (Turnover) is measured by dividing the number of shares outstanding by the number of shares traded. Return on asset (ROA) that represents a firm’s profitability is also controlled as a firm with higher profitability is likely to achieve a better market performance and may have more chances to make sustainability investment with its slack resources (Waddock & Graves, 1997). Capital expenditure (CAPEX)
represents growth opportunities while advertising expense (ADVEX) can be a proxy for customer goodwill (Kim, Jiraporn, Yoon, & Miller, 2008). Sales, general and administrative expense (SGA) may be used as the indicator of poor future operating performance (Janakiraman, 2010). CAPEX, ADVEX, SGA are each calculated by dividing the respective values by sales and, based on the previous literature, are included in the control variables due to their possible influence on firm performance (Khan, Serafeim, & Yoon, 2016).

**Model**

A firm-level panel regression analysis has been employed to investigate the impact of material and immaterial sustainability investment on firms’ financial performance and the moderating role of franchising on the relationship. Based on the result of Hausman test, the current research adopted a two-way fixed effects model by firm and year. To meticulously handle possible firm and year heterogeneities, clustering standard errors has been conducted in analyzing panel dataset with firm-year observations.

To test the main effect of Net Material (H1) and Net Immaterial (H2) on firm performance, the study performs the analysis on the following model:

\[
Tobin' s \, q_{it} = \alpha_0 + \alpha_1 NetMAT_{it} + \alpha_2 NetIMMAT_{it} + \alpha_3 DOF_{it} + \alpha_4 SIZE_{it} + \alpha_5 LEV_{it} + \alpha_6 CAPEXP_{it} + \alpha_7 Turnover_{it} + \alpha_8 ROA_{it} + \alpha_9 ADEXP_{it} + \alpha_{10} SGA_{it} + \epsilon_{it}
\]

To test the moderating effect of franchising on the relationship between Net Material (H3a) and Net Immaterial (H3b) and firm performance, the study conducts the analysis using the following model:
\[ Tobin's \ q_{it} = \alpha_0 + \alpha_1 NetMAT_{it} + \alpha_2 NetIMMAT_{it} + \alpha_3 DOF_{it} + \alpha_4 DOF_{it} \times NetMAT_{it} \]
\[ + \alpha_5 DOF_{it} \times NetIMMAT_{it} + \alpha_6 SIZE_{it} + \alpha_7 LEV_{it} + \alpha_8 CAPEXP_{it} \]
\[ + \alpha_9 Turnover_{it} + \alpha_{10} ROA_{it} + \alpha_{11} ADEXP_{it} + \alpha_{12} SGA_{it} + \varepsilon_{it} \]

Here, Tobin’s q represents firm performance measured by approximation of Tobin’s q; NetMAT represents net materiality scores calculated by subtracting material concern from material strength; NetIMMAT represents net immaterial score calculated by subtracting immaterial concern from immaterial strength; DOF represents the degree of franchising; SIZE represents the natural logarithm of the total sales; LEV represents a firm’s leverage; CAPEXP represents capital expenditures over sales; Turnover represents shares traded over shares outstanding; ROA represents return on asset; ADEXP represents advertising expenditures over sales; SGA represents sales, general and administrative expenditures over sales.
Chapter 4

Result

Descriptive statistics

Table 4-1. Summary of Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobin’s q</td>
<td>400</td>
<td>2.15</td>
<td>1.40</td>
<td>0.26</td>
<td>10.09</td>
</tr>
<tr>
<td>NetMAT</td>
<td>400</td>
<td>-0.01</td>
<td>0.64</td>
<td>-3</td>
<td>3</td>
</tr>
<tr>
<td>NetIMMAT</td>
<td>400</td>
<td>-0.09</td>
<td>3.27</td>
<td>-8</td>
<td>19</td>
</tr>
<tr>
<td>SIZE</td>
<td>400</td>
<td>3.12</td>
<td>0.50</td>
<td>1.91</td>
<td>4.45</td>
</tr>
<tr>
<td>Net Income (US $ millions)</td>
<td>400</td>
<td>$269.21</td>
<td>$787.88</td>
<td>-$479.74</td>
<td>$5585.90</td>
</tr>
<tr>
<td>Revenue (US $ millions)</td>
<td>400</td>
<td>$2897.23</td>
<td>$4901.72</td>
<td>$81.10</td>
<td>$28105.70</td>
</tr>
<tr>
<td>Total Asset (US $ millions)</td>
<td>400</td>
<td>$2629.00</td>
<td>$5965.17</td>
<td>$49.96</td>
<td>$37938.70</td>
</tr>
<tr>
<td>DOF</td>
<td>400</td>
<td>0.36</td>
<td>0.35</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>LEV</td>
<td>400</td>
<td>0.32</td>
<td>0.48</td>
<td>0</td>
<td>3.68</td>
</tr>
<tr>
<td>CAPEXP</td>
<td>400</td>
<td>0.08</td>
<td>0.46</td>
<td>0.001</td>
<td>0.28</td>
</tr>
<tr>
<td>Turnover</td>
<td>400</td>
<td>2,964,801</td>
<td>1,693,652</td>
<td>357,059.5</td>
<td>9,126,178</td>
</tr>
<tr>
<td>ROA</td>
<td>400</td>
<td>0.73</td>
<td>0.73</td>
<td>-0.43</td>
<td>0.32</td>
</tr>
<tr>
<td>ADEXP</td>
<td>400</td>
<td>0.02</td>
<td>0.016</td>
<td>0</td>
<td>0.06</td>
</tr>
<tr>
<td>SGA</td>
<td>400</td>
<td>0.11</td>
<td>0.08</td>
<td>0</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Note: Tobin’s q represents firm performance measured by approximation of Tobin’s q; NetMAT represents mean-centered net materiality score calculated by subtracting material concern from material strength; NetIMMAT represents mean-centered net immateriality score calculated by subtracting immaterial concern from immaterial strength; SIZE represents the natural logarithm of the total sales; DOF represents the mean-centered degree of franchising; LEV represents a firm’s leverage; CAPEXP represents capital expenditures over sales; Turnover represents shares traded over shares outstanding; ROA represents return on asset; ADEXP represents advertising expenditures over sales; SGA represents sales, general and administrative expenditures over sales.

Table 4-1 reports the summary of the main and control variables. Tobin’s q is distributed between 0.26 and 10.09, with a mean of 2.15 and a standard deviation of 1.40. NetMAT ranges from -3 to 3 with a mean of -0.01 and a standard deviation of 0.64. NetIMMAT averaged -0.09 with a standard deviation of 3.27 and the distribution between -8 and 19. All of the control variables in the model (i.e., SIZE, LEV, CAPEXP, Turnover, ROA, SGA), except for the
ADEXP with a small range, seem to sufficiently vary to account for lurking variables when the relationships of interest are examined.

Table 4-2 illustrates the bivariate relationships of every pair in the study based on Pearson’s correlation analysis. Tobin’s q is positively related with NetIMMAT \( (r=0.2277) \), DOF \( (r=0.2194) \), SIZE \( (r=0.2449) \), LEV \( (r=0.3329) \) and ROA \( (r=0.5967) \) while negatively related with DOF*Net IMMAT \( (r=-0.1781) \) at a 0.1% significance level. At a 5% significance level, Tobin’s q is negatively related with DOF*NetMAT \( (r=-0.1192) \) and SGA \( (r=-0.1208) \). NetMAT has a significant positive correlation with NetIMMAT \( (r=0.1860) \) and DOF*NetMAT \( (r=0.1468) \) at a 0.1% and 1% significance level, respectively.

NetMAT has a significantly negative correlation with DOF \( (r=-0.1465) \) at a 1% significance level, while with DOF*NetIMMAT \( (r=-0.1282) \) and ADEXP \( (r=-0.1146) \) at a 5% significance level. NetIMMAT shows significant negative correlations with DOF*NetMAT \( (r=-0.1201) \) and DOF*NetIMMAT \( (r=-0.4574) \) at a 5% and 0.1% significance level, respectively. It shows significant positive correlations with SIZE \( (r=0.4217) \) and ROA \( (r=0.1573) \) at a 0.1% and 1% significance level, respectively. DOF, at a 0.1% significance level, is positively correlated with LEV \( (r=0.4519) \), ROA \( (r=0.2644) \), and ADEXP \( (r=0.3752) \), while negatively correlated with CAPEXP \( (r=-0.2403) \). At a 5% significance level, it is positively correlated with DOF*NetIMMAT \( (r=0.1378) \) and negatively correlated with Turnover \( (r=-0.1340) \). DOF*NetMAT is negatively associated with SIZE \( (r=-0.2654) \) at a 0.1% significance level and with LEV \( (r=-0.1117) \), ROA \( (r=-0.1123) \) and ADEXP \( (r=-0.1247) \) at a 5% significance level. It is positively associated with DOF*NetIMMAT \( (r=0.1502) \) at a 1% significance level.
DOF*NetIMMAT is negatively related with SIZE (r=-0.1948) at a 0.1% significance level while positively associated with SGA (r=0.1133) at a 5% significance level. LEV shows positive associations with ROA (r=0.1905) at a 0.1%, and with ADEXP (r=0.1337) and SGA (r=0.1382) at a 1% significance level. On the other hand, it shows a negative association with CAPEXP (r=-0.3280) at a 0.1% significance level. ADEXP is negatively correlated CAPEXP (r=-0.1014) at a 5% and positively correlated with ROA (r=0.1475) at a 1% significance level. SGA is negatively associated with CAPEXP (r=-0.2290) at a 0.1% significance level.

Table 4-2. Summary of Pearson’s Correlations

<table>
<thead>
<tr>
<th></th>
<th>Tobin’s q</th>
<th>NetMAT</th>
<th>NetIMMAT</th>
<th>DOF</th>
<th>DOF*NetMAT</th>
<th>DOF*NetIMMAT</th>
<th>SIZE</th>
<th>LEV</th>
<th>CAPEXP</th>
<th>Turnover</th>
<th>ROA</th>
<th>ADEXP</th>
<th>SGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobin’s q</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetMAT</td>
<td>0.0324</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetIMMAT</td>
<td>0.2277*</td>
<td>0.1860**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF</td>
<td>0.2194*</td>
<td>-0.1465**</td>
<td>0.0078</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF*NetMAT</td>
<td>-0.1192*</td>
<td>0.1466**</td>
<td>-0.1201*</td>
<td>0.0842</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF*NetIMMAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.1781*</td>
<td>-0.1282*</td>
<td>0.4574**</td>
<td>0.1378**</td>
<td>0.1502**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.2449*</td>
<td>-0.0032</td>
<td>0.4217**</td>
<td>0.0671</td>
<td>0.2654**</td>
<td>0.1948**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.3329**</td>
<td>-0.0964</td>
<td>0.0034</td>
<td>0.4519**</td>
<td>-0.1117*</td>
<td>0.0809</td>
<td>0.0851</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPEXP</td>
<td>0.0651</td>
<td>0.0155</td>
<td>-0.0665</td>
<td>0.2403**</td>
<td>0.0689</td>
<td>0.0684</td>
<td>-0.2081</td>
<td>0.3280**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover</td>
<td>0.0592</td>
<td>-0.0902</td>
<td>-0.0407</td>
<td>0.1340**</td>
<td>0.0314</td>
<td>-0.0575</td>
<td>-0.0783</td>
<td>0.0409</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.5967**</td>
<td>-0.0247</td>
<td>0.1573**</td>
<td>0.2644**</td>
<td>-0.1123*</td>
<td>-0.0834</td>
<td>0.3230</td>
<td>0.1905**</td>
<td>-0.0366</td>
<td>0.0556</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADEXP</td>
<td>-0.0445</td>
<td>-0.1146*</td>
<td>-0.0153</td>
<td>0.3752**</td>
<td>-0.1247*</td>
<td>-0.0906</td>
<td>0.3387</td>
<td>0.1337**</td>
<td>-0.1014*</td>
<td>-0.0742</td>
<td>0.1475**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SGA</td>
<td>-0.1208*</td>
<td>-0.0241</td>
<td>-0.0650</td>
<td>0.0604</td>
<td>-0.0285</td>
<td>0.1133*</td>
<td>0.0123</td>
<td>0.1382**</td>
<td>0.2290**</td>
<td>-0.0313</td>
<td>-0.0656</td>
<td>0.0815</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: *, **, and*** denote 5%, 1%, and less than 0.1% significance levels, respectively.
Main analysis

Table 4-3. Main Results of Two-Way Fixed-Effects Model by Firm and Year

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>z-value</td>
<td>p-value</td>
<td>VIF</td>
<td>Coefficient</td>
<td>z-value</td>
<td>p-value</td>
<td>VIF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetMAT</td>
<td>-0.026</td>
<td>-0.44</td>
<td>0.658</td>
<td>1.08</td>
<td>-0.018</td>
<td>-0.30</td>
<td>0.764</td>
<td>1.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetIMMAT</td>
<td>-0.010</td>
<td>-0.60</td>
<td>0.550</td>
<td>1.32</td>
<td>0.002</td>
<td>0.09</td>
<td>0.925</td>
<td>1.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF</td>
<td>2.425***</td>
<td>4.19</td>
<td>0.000</td>
<td>1.59</td>
<td>2.522***</td>
<td>4.40</td>
<td>0.000</td>
<td>1.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF*NetMAT</td>
<td>-0.177</td>
<td>-1.26</td>
<td>0.208</td>
<td>1.14</td>
<td>0.111***</td>
<td>2.60</td>
<td>0.009</td>
<td>1.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOF*NetIMMAT</td>
<td>0.111***</td>
<td>2.60</td>
<td>0.009</td>
<td>1.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.806***</td>
<td>2.62</td>
<td>0.009</td>
<td>1.64</td>
<td>0.839***</td>
<td>2.74</td>
<td>0.006</td>
<td>1.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.379*</td>
<td>1.71</td>
<td>0.087</td>
<td>1.37</td>
<td>0.318</td>
<td>1.45</td>
<td>0.148</td>
<td>1.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPEXP</td>
<td>3.586***</td>
<td>2.89</td>
<td>0.004</td>
<td>1.25</td>
<td>3.424***</td>
<td>2.79</td>
<td>0.005</td>
<td>1.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TURNOVER</td>
<td>-0.000***</td>
<td>-2.93</td>
<td>0.003</td>
<td>1.05</td>
<td>-0.000***</td>
<td>-2.89</td>
<td>0.004</td>
<td>1.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>4.495***</td>
<td>5.99</td>
<td>0.000</td>
<td>1.24</td>
<td>4.119***</td>
<td>5.46</td>
<td>0.000</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADEXP</td>
<td>-9.528</td>
<td>-1.64</td>
<td>0.101</td>
<td>1.39</td>
<td>-7.104</td>
<td>-1.21</td>
<td>0.225</td>
<td>1.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGA</td>
<td>-1.696</td>
<td>-1.37</td>
<td>0.170</td>
<td>1.08</td>
<td>-1.984</td>
<td>-1.61</td>
<td>0.107</td>
<td>1.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald Chi²</td>
<td>1744.39***</td>
<td></td>
<td></td>
<td></td>
<td>1788.97***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *, **, and *** denote 10%, 5%, and less than 1% significance levels, respectively.

Tobin’s q represents firm performance measured by approximation of Tobin’s q; NetMAT represents mean-centered net materiality score calculated by subtracting material concern from material strength; NetIMMAT represents mean-centered net immateriality score calculated by subtracting immaterial concern from immaterial strength; SIZE represents the natural logarithm of the total sales; DOF represents the mean-centered degree of franchising; LEV represents a firm’s leverage; CAPEXP represents capital expenditures over sales; Turnover represents shares traded over shares outstanding; ROA represents return on asset; ADEXP represents advertising expenditures over sales; SGA represents sales, general and administrative expenditures over sales.

Model 1 in Table 4-3 reports the main effects of NetMAT and NetIMMAT on Tobin’s q. The coefficients of DOF is positive and significant (2.425 with a p-value of 0.000) but those of NetMAT and NetIMMAT are insignificant. These results provide a support for H2 (i.e., an
insignificant effect of immaterial investment on Tobin’s q), while there is not enough statistically significant evidence to support H1. Among control variables, SIZE, CAPEXP, Turnover, and ROA are significant at the 0.1% significance level, while LEV is significant at the 10% level of significance.

Model 2 in Table 4-3 reports the results of the moderating effect of franchising on the relationship between NetMAT and NetIMMAT on Tobin’s q. DOF*NetMAT shows an insignificant coefficient. However, as the relationship stated as H1 is not supported, I do not attempt to state that H3a is supported. The coefficient of DOF*NetIMMAT has a positive significant coefficient (0.111 with a p-value of 0.009); therefore, Hypothesis H3b (i.e., as a firm’s degrees of franchising increases, the impact of immaterial investment on Tobin’s q becomes positive) is supported. As for the control variables, SIZE (p-value=0.006), CAPEXP (p-value=0.005), and ROA (p-value=0.000) show a positive and significant effect, while Turnover (p-value=0.004) shows a negative and significant effect, all at the 1% level of significance.

Variance inflation factor (VIF) values for all of variables fall between 1.08 and 1.71, which are well below the acceptable threshold of 10 for multicollinearity (Tabachnick, Fidell, & Osterlind, 2001). All results on both main and moderating effects were found to be qualitatively the same when using a two-way random effects model (see Appendix C for the result).
Chapter 5
Discussion and Conclusion

The main purpose of the current research is to investigate the effect of material and immaterial sustainability investment on firm performance and the moderating role of franchising on the relationship between the two types of investments and firm performance. Adopting a two-way fixed panel regression, this study finds that sustainability investments in material-classified topics do not increase the likelihood of firms achieving better firm performance (Hypothesis 1 is not supported). Hypothesis 3a, which establishes that franchising does not alter the positive impact of material investment on firm performance, is accordingly not supported. Conversely, results provide support for Hypothesis 2: firms with higher scores in sustainability investment in immaterial-classified topics do not achieve significantly different performance from firms with lower scores on those topics. Last, the study finds support for Hypothesis 3b that franchising positively moderates the relationship between immaterial sustainability investments and firm performance.

The support for Hypothesis 3b implies that as a firm increase the level of franchising, the impact of immaterial sustainability investment on firm performance becomes greater. This result is aligned with the expectation that as a firm faces a wider scope of stakeholders resulted from franchising, it will strive to balance the divergent stakeholders’ interests, needs and wants, and thus different views on what is material to a given restaurant firm, when making a sustainability investment decisions. In turn, it is highly likely that more stakeholders put much weight on the sustainability issues that is currently classified as immaterial on SASB’s guide, but still pro-social and sustainability topic.

The previous findings that corporate strategies are influenced by stakeholders (Frooman, 1999) and the firm effect is greater than the industry effect (Short et al., 2007) are also in line
with the result of the current study. Companies with a wide range of stakeholders may make investment decisions by considering factors that are more firm-specific rather than industry-specific effects. In the case of long-established or bigger sized firms with franchising strategy, firm-specific effect, rather than industry effect, will be of more significance due to the organizational learning (Sorenson & Sørensen, 2001). Furthermore, Short, Ketchen, Palmer, and Hult (2007) examined the importance of firm, strategic group and industry effect in forming short- and long-term firm performance. Using sample data of more than 1,000 firms in 12 industries, they found the firm effect to be the strongest, whereas the effect of strategic group was greater than the industry effect. On this account, it is suggested that even when the firms in the same restaurant industry allocate the same amount of resources to sustainability-related factors and release the relevant information to the public accordingly, they still pursue firm-specific strategies by focusing on what is viewed as material by their own stakeholders along with referring to the suggested classification of SASB guide.

A part of result regarding Hypothesis 1 may be due to the little variation of NetMAT data as shown in Table 4-1. Compared to NetIMMAT (ranging from -8 to 19 with the mean value of -0.09), NetMAT data is ranged from -3 to 3 with the mean value of -0.01 and standard deviation of 0.64. More importantly, another possible explanation is that SASB’s classification for the restaurant industry domain is yet to be representative of fair amount of the stakeholder views involved in the restaurant firms; therefore, even if restaurant firms make sustainability investment efforts according to materiality standards, such actions may not lead to a better firm performance if the suggested classification does not represent various stakeholders’ (including investors’ and franchisees’) view, appropriately.

As stated in SASB’s website, the Materiality Map “serves as a snapshot of likely material sustainability issues at the time of their initial analysis and may be subject to change as issues and industries are ever-evolving.” Therefore, this study opens the possibility that as far as
the restaurant industry is concerned, the map needs to be further refined. The current study’s finding that investment in immaterial-classified sustainability item does not place a firm at disadvantage and rather is important for restaurant firms with high degree of franchising will be of evidence and helpful reference in understanding how the industry perceives SASB’s items.

Granting that SASB considers a sustainability topic’s financial impact and engages industry working groups and public comments when determining materiality issues, the result of the current research raises a few lines of inquiry. First, does considering only the financial aspects of a sustainability topic’s impact represent the true risk and opportunities of firms in a given industry? Second, does the restaurant industry, and possibly other industries, accept the SASB’s standards and perceive them as applicable and useful guide on sustainability reporting and materiality classification? Third, how will the standard setting institutions guide business entities if firms and market overall do not agree with the suggested classification and standard? Although the further research on those questions are beyond the focus of the current industry, these are viable areas to explore for sustainability standard-setting institutions like SASB.

Accordingly, it may be suggested that SASB involve the industry stakeholders as well as the hands-on employees in charge in the restaurant industry who can offer the realistic view and opinion of the facts and sustainability practices of the industry to create further evolved and up-to-date materiality classification. With better data, the robustness test for the immaterial-classified sustainability topics can be conducted to further support the suggested classification.

In addition, managers who are committed to sustainability or strategic CSR may consider the current study for allocating firms’ scarce resources to make the most efficient investment and evaluating its effectiveness. Although SASB’s materiality guide is noble, industry-specific and serve as a useful and informative guide on corporate sustainability investment and accounting practice, this study’s results imply that firms, especially those with or proceeding toward a high degree of franchising, are advised to learn their stakeholders’ views.
Companies need to learn how their stakeholders view the material and immaterial sustainability investment to further customize their investment strategies and reporting practices according to their unique circumstances and firm-specific factors. For example, a firm may decide that specific topics in the SASB guide are not necessarily relevant to its business and consider topics that are classified as immaterial or not even included in the guide when making strategic sustainability investment decisions.

Some of the novelty of the current study come from its results and approaches that are different from those of previous literature on the materiality issue; Khan et al. (2016) found that firms with good scores on material sustainability issues outperform firms with poor ratings on the issues. Whereas the overall result with multiple sectors involved does not hold when the restaurant industry is solely investigated as shown in this study that finds the impact of material sustainability investment is insignificant. This may be due to the use of different samples and research scope and method. The study of Khan et al. (2016) used portfolio formation and estimation method to analyze firms at six different sector-level, which are financial, healthcare, nonrenewable resources, services, technology and communications, and transportation with the sample period of 1991-2013. Conversely, this study investigates the restaurant industry with franchising’s moderating role.

**Limitations and Future Directions**

This study is not without limitations. First, sustainability items provided by KLD database do not perfectly match with the likely material sustainability topics included in SASB’s classification. Therefore, the researcher’s subjective decision making on the matching procedures was inevitable, although this measurement method is based on the previous literature. It would be of great information if sustainability standard-setting institutions and ESG data provider can
cooperate and offer more specified guidelines or standardized way of categorizing sustainability issues. In addition, the findings of the study are germane to the restaurant industry, but not necessarily to other industries. Future studies are encouraged to extend the analysis to different industries under the service sector to further investigate the status quo of sustainability investment efficiency in various industries under the service sector. Such examination may explore the applicability of the available materiality guide in the service sector context so the findings of the current study may be employed with an enhanced generalizability.

Another fruitful venue for future research is the heuristics or psychological mechanism that mediates the stakeholders’ (e.g., investors’) evaluations of a firm’s materiality performance of sustainability investing. Moreover, communications between intermediaries and stakeholders in shaping the evaluation and performance of a firm’s sustainability investment will also make an interesting research topic.
Appendix A

SASB Materiality Map

SASB’s Materiality Map identifies likely material sustainability issues on an industry-by-industry basis. This map serves as a snapshot of likely material sustainability issues at the time of our initial analysis and may be subject to change as issues and industries are ever-evolving. When clicking on a highlighted cell at the sector-level and then on any highlighted cell at the industry-level to see suggested accounting metrics and additional information for each issue.

**Figure A-1. Sector Level Map**

Dark grey cell is likely to be material for more than 50% of industries in sector; Light grey cell is likely to be material for less than 50% of industries in sector; White cell is not likely to be material for any of the industries in sector.
White cell is not likely a material issue for companies in the industry while dark grey cell is likely a material issue for companies in the industry.
Appendix B

How the Map is Created

SASB’s Materiality Map™ is based on tests designed to prioritize issues on behalf of the “reasonable investor.” The Map relies heavily on two types of evidence: evidence of investor interest, and evidence of financial impact. A forward-looking adjustment acknowledges emerging issues which are not yet reflected in the evidence-based tests. Provisional standards were then developed based on both the quantitative results from the Map and a qualitative research process informed by SASB’s research team. This map serves as a snapshot of likely material sustainability issues at the time of our initial analysis and may be subject to change as issues and industries are ever-evolving; as such, please consider the map as a guide for identifying likely material sustainability issues on an industry-by-industry basis.

SASB’s work began with a universe of 30 sustainability issues organized under five broad dimensions: Environment, Social Capital, Human Capital, Business Model & Innovation, and Leadership & Governance. SASB analyzes the importance of each issue in the context of the 79 industries in SICSTM.

To determine which sustainability topics were likely to be material to particular industries, SASB ran the following tests:

- **Evidence of Interest:** Evidence of interest was gathered by searching tens of thousands of industry-related documents—Form 10-Ks, shareholder resolutions, CSR reports, media, and SEC comment letters—for keywords related to 30 general sustainability issues. This provided a “heat map” that indicated interest in certain issues by investors and other stakeholders.

- **Evidence of Financial Impact:** Evidence of financial impact was gathered by examining sell-side research, investor call transcripts, third-party research, datasets on sustainability issues and related costs and regulatory actions, and news articles, among other sources of sustainability and financial information. SASB evaluated whether there was current evidence that management (or mismanagement) of the issue would affect traditional corporate valuation parameters: i.e. profits (revenue and/or costs), assets and liabilities, or cost of capital. This evidence screened the results of the evidence of interest test to identify issues with the potential for financial impact.

- **Forward-Looking Impact:** In a small number of cases, SASB made an adjustment to an issue to raise its importance based upon traditional sustainability concepts: management or mismanagement of the issue may create positive or negative externalities that other stakeholders, industries, or generations will deal with; and/or there is the potential for systemic disruption. In any case, the impact of the issue must be reasonably likely to occur and of significant magnitude to be included as a SASB disclosure topic. The adjustments to the map allowed SASB to correct for the imperfect state of sustainability reporting, particularly in Form 10-K and CSR reports. Additionally, the media tend to focus on select issues that capture stakeholder attention.

Source: Excerpt from the SASB’s website (https://www.sasb.org).
Appendix C

Sensitivity Analysis

Table C-1. Main Results of Two-Way Random-Effects Model by Firm and Year

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>z-value</td>
</tr>
<tr>
<td>NetMAT</td>
<td>-0.026</td>
<td>-0.44</td>
</tr>
<tr>
<td>NetIMMAT</td>
<td>-0.010</td>
<td>-0.60</td>
</tr>
<tr>
<td>DOF</td>
<td>2.425***</td>
<td>4.19</td>
</tr>
<tr>
<td>DOF*NetMAT</td>
<td>-0.177</td>
<td>-1.26</td>
</tr>
<tr>
<td>DOF*NetIMMAT</td>
<td>0.111***</td>
<td>2.60</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.806***</td>
<td>2.62</td>
</tr>
<tr>
<td>LEV</td>
<td>0.379*</td>
<td>1.71</td>
</tr>
<tr>
<td>CAPEXP</td>
<td>3.586***</td>
<td>2.89</td>
</tr>
<tr>
<td>TURNOVER</td>
<td>-0.000***</td>
<td>-2.93</td>
</tr>
<tr>
<td>ROA</td>
<td>4.495***</td>
<td>5.99</td>
</tr>
<tr>
<td>ADEXP</td>
<td>-9.528</td>
<td>-1.64</td>
</tr>
<tr>
<td>SGA</td>
<td>-1.696</td>
<td>-1.37</td>
</tr>
<tr>
<td>N</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Wald Chi²</td>
<td>1024.94***</td>
<td></td>
</tr>
</tbody>
</table>

Note: *, **, and *** denote 10%, 5%, and less than 1% significance levels, respectively.

Tobin’s q represents firm performance measured by approximation of Tobin’s q; NetMAT represents mean-centered net materiality score calculated by subtracting material concern from material strength; NetIMMAT represents mean-centered net immateriality score calculated by subtracting immaterial concern from immaterial strength; SIZE represents the natural logarithm of the total sales; DOF represents the mean-centered degree of franchising; LEV represents a firm’s leverage; CAPEXP represents capital expenditures over sales; Turnover represents shares traded over shares outstanding; ROA represents return on asset; ADEXP represents advertising expenditures over sales; SGA represents sales, general and administrative expenditures over sales.
Reference


