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Firms' Peer Disassociation Choices and Economic Consequences of the Disassociations

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ABSTRACT

Firms' Peer Disassociation Choices and Economic Consequences of the Disassociations

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The Securities and Exchange Commission's 2006 executive compensation disclosure rule requires firms to disclose their peer compositions for relative performance evaluation. While there has been much research exploring firms' peer selection choices, firms' peer disassociation choices have yet to be explored. In this study, I examine the economic incentives of firms to disassociate themselves from their peer firms, following the revelations of peer firms' misconducts. Leveraging a dataset of performance peer groups, I find that the revelations of peer firms' misconducts proxied by federal violations, Accounting and Auditing Enforcement Releases (AAERs), or restatements increase the likelihood of the peer firms' disassociation by focal firms. To explore firms' motivation to disassociate themselves from the bad peers, whose misconducts are revealed, I test that revelations of peer firms' misconduct cause investors to reassess the content of financial statements issued by firms that have the misconducting firms as

peers and to impose penalties on firms' earnings response coefficients.

Keywords : peer selection, peer disassociation, spillover effects, ERC
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1. INTRODUCTION

This study investigates the economic incentives of firms' choices to disassociate themselves from peers following the revelation of peers' misconduct proxied by federal violations, Accounting and Auditing Enforcement Releases (AAERs), or restatements. Univariate and multivariate regression analyses suggest that the revelation of a peer firm's misconduct increases the likelihood of the peer's disassociation from peer compositions by focal firms. Furthermore, I find that firms that have bad peers, whose misconducts are revealed, experience declines in earnings response coefficients (ERC) while firms that promptly disassociate themselves from bad peers are less likely to experience such declines. Also, I find that firms that have major economic links with their peer firms are less likely to disassociate themselves from the peers even after a revelation of misconduct.

In 2006, the Securities and Exchange Commission (SEC) mandated the disclosure of peer composition in the Compensation Discussion and Analysis (CD&A) section. In accordance with the rule, firms have to disclose the names of compensation peer groups and performance peer groups. After the mandate, academics have conducted much research on firms' peer selection choices. Gong,

Li, and Shin (2011) find empirical evidence that firms with poor expected performance are likely to be selected as peers, increasing performance-based payments of focal firms' executives, suggestive of a rent-seeking perspective. Dierynck and Verriest 2020 document that economic similarities between focal firms and peer firms are the first-order criterion for focal firms when selecting peers[①].

Within the growing literature on peer selection choices, this study helps to fill the void in the literature on firms' choices to disassociate themselves from peer firms. Studying the motivations of peer disassociation is important since disassociation choices may have different motivations from selection choices. Using a sample of peer lists used for performance targets from 1998 to 2020, I calculate the annual ratios of the number of peer additions to the number of peer disassociations to find an average ratio of 1.77. Clearly, there is an asymmetry between peer addition and peer disassociation. The disassociation choice is not just a reversal of a peer addition choice. If it was just a reversal, the average annual ratio of addition to disassociation should be around one.

Gleason, Jenkins, and Johnson (2008) document that

① In theory, information disclosed in financial reports can be used to seize the economic characteristics of firms (Pae, 2002).

accounting misstatements discovered at one firm cause investors to reassess the content and credibility of financial statements issued by peer firms in the same industry even though the peer firms are not engaged in those misstatements and that investors impose penalties on those peers' stock prices. Furthermore, including a firm in the peer group establishes a relationship with that firm, making the selecting firm and its board of directors potentially vulnerable to spillover from the peer firm's negative reputation (Dierynck and Verriest, 2020). Firms self-select peer firms in the performance group that share similarities to filter out exogenous shocks. Because of the high similarities between focal firms and peer firms, investors will reassess the content of financial statements issued by firms that have bad peers and impose penalties on firms' ERCs. Therefore, I hypothesize that firms are likely to disassociate themselves from relationships they have with bad peers to shun negative spillover effects following the revelation of peers' misconducts.

However, the expectation that firms are more likely to disassociate themselves from bad peers is not straightforward. As including a firm in the peer group establishes a relationship with that firm (Dierynck and Verriest, 2020), disassociating from a firm in the peer group may hamper the existing relationship with that

firm. Therefore, firms that value the relationship with peers will be less likely to disassociate themselves from the bad peers in their peer composition, especially when maintaining relationships with the peers is beneficial for focal firms (e.g., when peers are major customers of firms).

Using the intersection of performance peer groups data from 1998 to 2020, data on federal violations and resulting penalties issued by 44 agencies, stock prices, and firm characteristics, univariate and multivariate regression tests suggest that the revelations of peers' federal violations are associated with disassociations in focal firms' peer lists. These results are robust to alternative proxies of peer firms' misconducts proxied by AAERs and financial statements restatements. In addition, I find that focal firms' and peer firms' accounting similarities such as size, revenue, market value of equity, and leverage, which are considered the major criterion in the peer selection decision model (Gong et al. 2011; Cadman and Carter, 2014; Dierynck and Verriest, 2020), are not significantly associated with focal firms' disassociation choices. This result suggests that the motivations underlying firms' disassociation choices differ from what has been documented in prior literature on firms' peer selection choices. I interpret the result as the board of directors at focal firms becoming

less sensitive to peers' financial information once the peers are included in the peer composition, while they are sensitive about peers' reputations because they are aware of the risks in negative spillover effects from the peer groups.

Next, I investigate an underlying mechanism of why focal firms disassociate themselves from bad peers. I posit the credibility channel, which states that firms disassociate themselves from bad peers because they will be subject to spillover effects from the peer firms' negative reputations unless they disassociate themselves from the bad peers. If there are negative spillover effects from bad peers, then I expect that there will be a negative relationship between firms' having bad peers and firms' ERCs. Furthermore, if firms promptly disassociate themselves from bad peers, they will not suffer from the negative spillover effects. Multivariate analyses show that there is a statistically significant negative relationship between focal firms' having bad peers and firms' ERCs, which provides support for the credibility channel. In a subsample analysis of firms that disassociate themselves from bad peers in the same year when there is a revelation of a peer firms' misconducts, I find a statistically insignificant association confirming my expectations.

Then I investigate why focal firms do not disassociate

themselves from bad peers. The relationship channel states that focal firms are reluctant to disassociate themselves from bad peers when they want to maintain the relationship with the peers. One relationship that firms seek to maintain is a major economic link such as a supplier and customer relationship (Kalwani and Narayandas, 1995; Patatoukas, 2012). Since including a firm in the peer group establishes a relationship with that firm (Dierynck and Verriest, 2020), disassociating from a firm in the peer group may hamper the existing relationship with that firm. Therefore, I expect that focal firms will be less likely to disassociate themselves from bad peers if the peers are firms' major customers due to a desire to maintain the economic link. A subsample analysis of peer firms that are focal firms' major customers shows that the statistically significant relationship that I find in the main regression test between the revelation of peers' misconducts and their being disassociated from peer lists by focal firms becomes insignificant, consistent with my expectations.

My paper contributes to the literature on peer selection. Although the literature on peer selection choice is proliferating, there is a void in the underlying motivations of firms' peer disassociation choices. I explore the economic incentives of firms' choices to disassociate themselves from peers and provide

evidence showing that the motivations of peer disassociation choices are not mere reversals of those of selection choices. More importantly, I explore the real effect of focal firms' choices to disassociate themselves from peer firms; focal firms that disassociate themselves from bad peers in the same year of the revelations of misconducts are not likely to suffer declines in ERCs, while focal firms that do not disassociate themselves from such peer firms are likely to suffer declines in ERCs.

The remainder of this paper is organized as follows. Section 2 reviews the extant literature on peer selection and spillover effect. Section 3 develops the hypothesis. Section 4 describes the research methodology. Section 5 presents the empirical findings. Section 6 discusses the results of sensitivity checks. Section 7 concludes the paper.

2. Institutional Background and Related Literature

The peer selection literature is largely silent on peer disassociation choices. I contribute to the peer selection literature by examining peer disassociation choices. Studying the motivations of peer disassociation is important since disassociation choices may

have different motivations from peer selection choices. I document the real effects of peer composition disclosures and economic consequences of peer disassociation choices in this study.

Prior to 2006, the disclosure of peer firms in benchmarking executive compensation was voluntary. To improve transparency, the SEC mandated the disclosure of peers for total executive compensation and performance targeting to be included in the CD&A section as of December 2006. In accordance with the rule, firms must disclose the names of compensation peer groups and performance peer groups. After the mandate, the number of firms disclosing their peers has increased from around 15% to more than 30% regarding performance benchmarking (Gong et al. 2011) and around 90% of S&P 500 firms disclose the use of compensation benchmarking (Faulkender and Yang, 2010).

There are two streams of literature related to my study. First, studies on peer composition for compensation benchmarking and performance benchmarking have shed light on firms' peer selection choices. Under the efficient contracting perspective, Cadman and Carter (2014) provide that peer selection is typically based on firm characteristics, including industry membership, firm size, accounting performance, growth, use of a compensation consultant, and interlock (i.e., whether the peer also selects the focal firm as

its peer). Similarities between focal firms and peers with respect to economic characteristics are the first-order criterion for focal firms to select peers (Dierynck and Verriest, 2020). Under the rent-seeking perspective, firms with poor expected performance are likely to be selected to peers, increasing performance-based payments of focal firms' executives (Gong et al. 2011). Faulkender and Yang (2010) document that firms select highly-paid peers to extract excessive compensation. Recently Dierynck and Verriest (2020) document that peer firms' reputations affect the possibility of being selected as peers because including a firm in the peer group establishes a relationship with that firm, making the focal firms vulnerable to the spillover effect from the peer firms' negative reputation. Second, studies on spillover effects from peers suggest a link between firms and peer firms. Gleason et al. (2008) document that accounting misstatements discovered at one firm cause investors to reassess the content and credibility of financial statements issued by peer firms in the same three-digit SIC industry codes. Durnev and Mangen (2009) document that peers significantly lower their investment growth in the year after a competitor's restatement. Beatty et al. (2013) find that peers react to the fraudulent reports by increasing investment during fraud periods.

3. Hypothesis Development

I develop two channels through which the revelation of peers' misconduct can affect focal firms' peer disassociation choices, the credibility channel and the relationship channel, to explore why focal firms disassociate or retain the bad peer firms respectively.

The credibility channel, expected to confer the motivation for focal firms to disassociate themselves from bad peers, is grounded in the idea that concerned about the spillover effect from peers' negative reputations, focal firms are likely to disassociate themselves from bad peers to shun the negative spillover effect. Gleason et al. (2008) document that accounting misstatements discovered at one firm causes investors to reassess the content and credibility of financial statements issued by peer firms in the same industry even though the peer firms are not engaged in those misstatements and that investors impose penalties on those peers' stock prices. Dierynck and Verriest (2020) document that including a firm in the peer group establishes a relationship with that firm, making the selecting firm and its board of directors potentially vulnerable to spillover from the peer firm's negative reputation. In the peer group compositions for benchmarking performance, focal firms self-include peer firms that share enough similarities to filter

out exogenous shocks. After the revelations of the peers' misconducts, because of the high similarities between focal firms and peers, investors will reassess the content and the credibility of not only the misconducting firms but also the peer firms of the misconducting firms. Therefore, I predict that peer firms' misconduct cause investors to impose penalties on firms' ERCs. To shun such potential negative spillover effects from peers' negative reputations, focal firms may disassociate themselves from the bad peers.

The relationship channel, expected to confer de-motivation for focal firms to disassociate themselves from the bad peers, is based on the idea that when focal firms value the relationship with bad peers, focal firms are less likely to disassociate from the bad peers. As including a firm in the peer group establishes a relationship with that firm (Dierynck and Verriest, 2020), disassociating itself from a firm in the peer group may hamper the existing relationship with that firm. I expect that this channel is particularly pronounced when peer firms are focal firms' major customers. Firms have economic incentives to maintain their relationship with major customers. Prior works show that firms with a concentrated base of customers tend to be more profitable because they realize operational efficiencies (Kalwani and Narayandas, 1995, Patatoukas, 2012). Therefore, I

expect that firms are less likely to disassociate themselves from the bad peers because they seek to maintain the functional relationship, particularly when the peers are focal firms' major customers. The conflicting motivation and de-motivation for focal firms to disassociate themselves from bad peers make the expectation that firms are likely to disassociate themselves from bad peers after the revelation of peer firms' misconducts an open empirical question[②]. Therefore, I state my hypothesis in a null form.

H1: Revelation of peer firms' misconducts does not affect focal firms' peer disassociation choices.

4. Methodology

4.1. Data and Sample

I obtain the data of peer lists for performance benchmarks from Incentive Lab. I also obtain customer segment information and financial accounting information from Compustat, and monthly

② Gong et al. 2011 document that under the rent-seeking perspective, firms with poor expected performance are likely to be selected to be as peers, increasing performance-based payments of focal firms' executives. Considering that firms engaging in violation of federal laws, AAER, or Restatement are more likely to suffer in performance, focal firms may strategically maintain the bad peers in their peer composition to lower down target benchmarking, boosting firms' executives' compensations, which will confer another tension to my hypothesis.

return information from CRSP. I begin by constructing focal firm−peer firm−years defined as when a firm selects a peer in its peer composition in a given year. Each focal firm−peer firm stretches consecutively from the first year of the peer selection to the last year the peer appears in the peer composition throughout the sample period of 1998 to 2020. As shown in Table 1, the initial sample consists of 59,765 focal firm−peer firm−years from 1998 to 2020. The sample is restricted to data availability of financial accounting information and identifiers, my final sample contains 26,492 focal firm−peer firm−years. In this final sample, peers with severe federal violations account for 14.4%, and peer firms that are major customers of focal firms account for 12%.

[Table 1]

Table 2 reports the annual number of total peer firms added to peer composition, the annual number of total peer firms disassociated from peer composition, and the ratio of the addition to the disassociation. The number of observations show that more firms began to disclose their peers in the CD&A section in 2006, the year that the SEC mandated peer disclosures. Both additions and disassociations have increased since 2006. The range and the

average of the annual ratios are 7.5 and 1.77 respectively[③]. Being significantly larger than one, the average of the ratios clearly show that there is an asymmetry between focal firms' peer selection choices and peer disassociation choices. The asymmetry suggests that disassociation choices are not just reversals of peer selection choices because if they were just reversals, the average annual ratios of addition to disassociation should be around one.

[Table 2]

4.2. Bad Peers

In order to measure the peer firms' misconducts, I obtain the firms' federal violations from Violation Tracker, provided by the Corporate Research Project of Good Jobs First. The data are collected from 44 federal regulatory agencies and contain over 60,000 civil and criminal cases against firms from 2000 to 2020 with each case containing information about the amount of penalties in US dollars. I sum the amounts of penalties of civil and criminal cases by firm and by year so that the unit of the data becomes a firm-year. Then I make an indicator variable *Severe Penalty* that takes a value of one if the amount of penalties of the firm-year is in

[③] After excluding the year of 2006, when the SEC mandated peer disclosures, the range and the average are 4.87 and 1.47 respectively.

the 75th percentile and zero otherwise. In the final sample of 26,492 focal firm-peer firm-years, 3,815 are indicated as *Severe Penalty.*

As alternative measures of firms' misconducts, I use the restatement database from the US General Accounting Office (GAO) and the AAER database from the USC Leventhal School of Accounting at the Marshall School of Business. The GAO restatement consists of 2,309 restatements from 1997 to 2005 and the AAER database consists of 1,029 AAERs with accounting fraud, specifying AAER numbers, firm names, and fiscal years when there are problems in the financial statements. Because I explore the effects of the public revelation of such negative reputational events, I merge the original data of the AAER database with the releasement dates of each AAER available on the SEC website. I exclude AAERs issued before 1999 because releases dates are unavailable prior to 1999. I make indicator variables *Restatement* that takes a value of one for peer firms engaged in restatement and zero otherwise and *AAER* that takes a value of one for peer firms involved in AAER reports and zero otherwise. I restrict the sample to have firm identifiers and peer disclosure data. The final sample of peers with restatements is 127 focal firm-peer firm-years of 2,334 focal firm-peer firm-years and the final sample of peers

with AAERs is 58 focal firm−peer firm−years of 17,603 focal firm−peer firm−years.

4.3. Model Design

To examine whether focal firms are likely to disassociate themselves from peer firms following the revelation of peer firms' misconducts. I test the following probit regression model:

$$\begin{aligned} Disassociation_{ijt} = {} & \beta_1 \text{Revelation of Peers' Misconducts}_{ijt} + \\ & \beta_2 Disassociated_{ijt} + \beta_2 \text{Change in the Firm's Industry}_{ijt} + \beta_3 \text{Change in the Peer's Industry}_{ijt} + \beta_5 \text{Abs(Change in size ratio)}_{ijt} + \beta_6 \text{Abs(Change in revenue ratio)}_{ijt} + \beta_7 \\ & \text{Abs(Change in mve)}_{ijt} + \beta_8 \text{Abs(Change in leverage ratio)}_{ijt} + \\ & \varepsilon_{ijt} \end{aligned} \quad (1)$$

In Eq.(1) subscripts i and j represent the focal firm i and its peer firm j respectively. The dependent variable $Disassociation_{ijt}$ takes the value of one if a peer firm j that was included in the peer composition of a focal firm i in year t−1 is not included in the focal firm i's peer composition in year t and zero otherwise. The main independent variable of interest is *Revelation of Peers' Misconducts*$_{ijt}$ proxied by *Severe Penalty*$_{ijt}$, *Restatement*$_{ijt}$s, and *AAER*$_{ijt}$. I predict that the coefficients of *Revelation of Peers' Misconducts*$_{ijt}$ shall be positive, which imply that firms are more

likely to disassociate themselves from peers following the revelation of peers' misconducts.

I compose the control variables following prior literature of peer selection choices but modify them to measure changes between year t−1 and year t because I focus on firms' peer disassociation choices which are based on the focal firms' and peer firms' differences from the prior year. Following Cadman and Carter (2014), I control the change in industry membership of both focal firms and peer firms. I create an indicator variable $Disassociated_{ijt}$ that takes a value of one if peer firm j disassociates themselves from focal firm i first and zero otherwise. This case requires focal firms and peer firms to be mutual peers. I added $Disassociated_{ijt}$ as a control variable because Cadman and Carter (2014) document that interlock (i.e., whether the peer also selects the focal firm as its peer) can affect peer selection choices. Following Dierynck and Verriest (2020) and Gong et al. (2011), I control for the changes in accounting similarities such as size, revenue, market value of equity, and leverage between focal firms and peer firms by taking absolute values of changes in the ratios of financial accounting information. In all regressions, standard errors are clustered by firm and year.

4.4. Descriptive Statistics

Panel A and B of Table 3 provide descriptive statistics for the 4,824 focal firm-peer firm-years when disassociation occurs and the 21,688 focal firm-peer firm-years when disassociation does not occur from 2000 to 2020. During the sample period, no single focal firm or peer firm has changed its industry (i.e., SIC code). While there are no significant differences in the mean values of changes in accounting similarities (the ratio of focal firm size to peer firm size, the ratio of focal firm revenue to peer firm revenue, the ratio of focal firm market value of equity to peer firm market value of equity, and the ratio of focal firm leverage to peer firm leverage), the probability that peer firms engage in federal violations when focal firms disassociate themselves from peer firms (23.9%) is significantly higher than the probability that peer firms do not engage in such violations when focal firms disassociate themselves from peer firms (12.3%) implying that peer firms' federal violations may lead to focal firms' disassociation choices. Panel C of Table 3 reports the probability of focal firms to choose peers in the same industry. Out of the sample, 69.52% (60.77%) of peers are selected from the same two-digit SIC industry code (three-digit) consistent with prior literature.

[Table 3]

5. Results

5.1. Univariate Analysis

Table 4 presents the results of univariate analysis of focal firms' peer disassociation on the revelation of peer firms' misconducts, proxied by three different measures of federal violations, restatements, and AAERs. I find a strong relationship between the revelation of peer firms' misconducts and subsequent disassociation from peer compositions by focal firms, implying that the main results are consistent with my hypothesis.

[Table 4]

5.2 Main Results

Table 5 presents the main results of main regressions of peers being disassociated by focal firms on the revelation of the peers' misconducts after controlling for potentially confounding variables. Consistent with my hypothesis that focal firms are more likely to disassociate themselves from bad peers following the revelation of peers' misconducts, I find statistically significant coefficients on the revelation of peers' misconducts in all three different measures. That is, the revelation of the peer firms' misconducts is positively associated with the likelihood that the

peer firms are disassociated from peer compositions by focal firms.

[Table 5]

Among control variables known to affect focal firms' peer selection choices, only *Disassociated* is statistically significantly, which is consistent with Cadman and Carter (2014)'s interlock (i.e., when the focal firm and peer mutually selects one another as peers). The result represents that when two firms are interlocked, one firm's disassociation is likely to induce the other's disassociation. Contrary to the peer selection setting, accounting similarities between focal firms and peer firms, which are well known to affect focal firms' peer selection choices (Dierynck and Verriest, 2020 and Gong et al. 2011), overall do not significantly affect focal firms' peer disassociation choices. The possible explanation for these weak associations of the accounting similarities with peer disassociation choices is that once peer firms are included in focal firms' peer compositions, the board of directors become less sensitive to peer firms' financial information and become more concerned about peer firms' reputations because they are aware of the risks of potential negative reputation spillover effects from bad peer firms to their firms, the credibility channel to be addressed in Section 5.3.1. Furthermore, the results suggest that the effect of the credibility channel dominates the effect of the relationship

channel (to be addressed in Section 5.3.2) in general so that focal firms are more likely to disassociate themselves from bad peers following the revelation of the peer firms' misconducts.

5.3. Results for Channel Tests

5.3.1. Credibility Channel

To test the credibility channel, I explore the effects of having bad peers whose misconducts are revealed, on focal firms' ERCs. Merging Compustat financial information data, CRSP monthly return data, and peer disclosure data with information about peer firms' misconducts, I secure 51,695 firm-years consisting of size-adjusted returns, financial accounting information, and whether firms have bad peers whose misconducts have been revealed. I test the following ordinary least squares (OLS) regression model:

$$\begin{aligned} Sizeajr_{it} = {} & \alpha + \beta_1 \text{Change in EPS}_{it} + \beta_2 \text{Having Bad Peers}_{it} + \\ & \beta_2 \text{Change in EPS*Having Bad Peers}_{it} + \beta_3 \text{BTM}_{it} + \\ & \beta_5 \text{Size}_{it} + \beta_6 \text{Leverage}_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

In Eq.(2) the subscript i represents the focal firm i. The dependent variable $Sizeajr_{it}$ is size-adjusted returns defined as the difference between firms' raw returns and the returns on their corresponding size-matched decile portfolios. The main

independent variable of interest is the interaction term between *Having Bad Peers*$_{it}$ and *Change in EPS*$_{it}$, the coefficient of which is expected to be negative, following credibility channel that having bad peers adversely affects firms' ERCs via reputational spillovers. *Having Bad Peers*$_{it}$ is an indicator variable that takes a value of one if firms have peer firms whose misconducts are revealed and zero otherwise, BTM_{it} is the book value of equity divided by the market value of equity, $Size_{it}$ is the natural logarithm of total assets, and $Leverage_{it}$ is the sum of short-term and long-term debt divided by total assets.

Panel A, Table 6 presents the results of the regression of size-adjusted returns on independent variables, *Having Bad Peers* using three different measures of misconducts: federal violations, restatements, and AAERs. Consistent with the credibility channel, I find statistically significant coefficients on the interaction terms between *Having Bad Peers* and *Change in EPS* across all three measures. That is, having peers whose misconducts have been revealed adversely affects firms' ERCs because once misconducts of firms are revealed, then investors question the content and credibility in financial statements of peers of bad firms because peers are supposed to have high similarities. The results explain the firms' motivation to disassociate themselves from the bad

peers, following the revelation of a peer's misconduct. While the coefficients of the main variables of interest, the interaction terms between *Having Bad Peers* and *Change in EPS,* are statistically significant, the economic significance is weak, which is comparable to the finding of Gleason et al. (2008) that peer firms of restating firms exhibit a statistically significant but small percent decline in share prices.

[Table 6]

Panel B, Table 6 represents the results of using the same regression model on a subsample where firms disassociate themselves from peers in the same year when the facts about peer's engaging in federal violations are revealed to the public. The purpose of the test is to explore whether the disassociation behaviors are helpful in preventing the reputational negative spillovers resulting in discounting of firms' ERCs. Consistent with my credibility channel, the statistical significance of the coefficient on the interaction term between *Having Bad Peers* and *Change in EPS* is dismissed. The finding represents that the focal firms' quick disassociation behaviors prevent the ERCs of the firms from being damaged, which suggests that focal firms' disassociation from bad peers have an real effect, specifically being insulated from negative reputational spillovers.

[Table 6]

Panel B, Table 6 represents the results of using the same regression model on a subsample where firms disassociate themselves from peers in the same year when the facts about peer's engaging in federal violations are revealed to the public. The purpose of the test is to explore whether the disassociation behaviors are helpful in preventing the reputational negative spillovers resulting in discounting of firms' ERCs. Consistent with my credibility channel, the statistical significance of the coefficient on the interaction term between Having Bad Peers and Change in EPS is dismissed. The finding represents that the focal firms' quick disassociation behaviors prevent the ERCs of the firms from being damaged, which suggests that focal firms' disassociation from bad peers have a real effect, specifically being insulated from negative reputational spillovers.

5.3.2. Relationship Channel

To test the relationship channel, I explore whether focal firms are less likely to disassociate themselves from misconducting peers when they are in important relationships. I use Equation (1)

in a subsample of peers who are focal firms' major customers[④]. Merging Compustat's customer segment data identifying major customers with the main dataset, the final sample contains 2,730 focal firm−peer firm−years where peers are focal firms' major customers out of 26,492 focal firm−peer firm−years. I predict that the statistically significant relationship that I find in Table 5 between the revelation of peers' misconduct and focal firms' disassociating behaviors will disappear in the subsample analysis.

Table 7 presents the results of the subsample analysis. Consistent with my relationship channel, the statistical significance of the *Revelation of Peers' Misconducts*, measured by federal violations, is dismissed in the subsample where the peers are focal firms' major customers. As including a firm in the peer group establishes a relationship with that firm (Dierynck and Verriest, 2020), disassociating a firm from the peer group hampers the existing relationship with that firm. One relationship that firms prefer to maintain are major customer−supplier relationships because of the economic benefits (Kalwani and Narayandas, 1995, Patatoukas, 2012). Concerned about possibly hampering the relationship with their major customers, which may be valuable

④ ASC 280-10-50-42 mandates the disclosure of the names of major customers, sales of which account for more than 10% of firms' sales.

enough for focal firms to endure the spillover effects from the peer firms' negative reputation on their ERCs, focal firms are reluctant to disassociate themselves from the bad peer even when the peer's misconducts are revealed.

[Table 7]

6. Sensitivity Check

6.1. Long-Term Benefit of Disassociations and Placebo Effect

To examine whether the investors' penalties imposed on focal firms persist, I run the regression for Equation (2) on focal firms' ERCs in the following year of focal firms that had bad peers in the current period. Table 8 presents the results and I find no statistical significance on the coefficient of the interaction term between change in EPS and focal firms having bad peers in the current period, which suggests that the penalties do not persist beyond one year.

[Table 8]

Although untabulated, I carry out additional placebo tests using individual years other than the years when the misconducts of peer firms are revealed. Specifically, I run a regression test for

Equation (2) with the fiscal years, financial statements that are subject to AAER reports data, not with years when the AAER reports are released, and I find no statistically significant relationship between focal firms' having peers conducting accounting fraud and focal firms' ERCs in the fiscal years.

6.2. Probability of Reinstatement

Though untabulated, I find a statistically significant difference between the probability that those disassociated peer firms will be reinstated into the focal firms' peer composition when they are disassociated because they engage in misconducts, the mean of which is around 7%, and the probability that those disassociated peer firms will be reinstated into the focal firms' peer composition when they are disassociated for any reasons other than misconducts, the mean of which is around 17%. The result implies that firms hold the issue of peer firm' negative reputation events in great account so that those disassociated peer firms for misconducting behaviors are less likely to be reinstated in the focal firms' peer composition.

7. Conclusion

In the study, I examine the economic incentives of firms in their selection to disassociate their peers, following the revelation of peers' misconducts. Concerned about the spillover effects from peers' negative reputation, focal firms, are more likely to disassociate those peers engaging in misconducts. Among the control variables of the multivariate regression tests, I find that changes in accounting similarities, which are considered the major criterion in the peer selection decision model along with industry membership, are not significantly associated with peer disassociation choices, suggesting that peer disassociation choices are not just reversals of peer selection choices. As a channel test to explore the firms' motivation to disassociate the bad peers, I find that firms including the bad peers in their peer composition experience declines in ERCs and that firms promptly disassociate the bad peers are less likely to experience those declines. As another channel test to explore the firms' demotivation to disassociate the bad peers, I find that in the case that firms presumed to seek to maintain their relationship, proxied by when peer firms are focal firms' major customers, focal firms are less likely to disassociate the bad peers.

My paper contributes to the literature on peer selection. Although the literature on peer selection choice is proliferating, there is a void in the underlying motivations of firms' peer disassociation choices. I explore the economic incentives of firms' choices to disassociate themselves from peers and provide evidence showing that the motivations of peer disassociation choices are not mere reversals of those of selection choices. More importantly, I explore the real effect of focal firms' choices to disassociate themselves from peer firms; focal firms that disassociate themselves from bad peers in the same year of the revelations of misconducts are not likely to suffer declines in ERCs, while focal firms that do not disassociate themselves from such peer firms are likely to suffer declines in ERCs.

APPENDIX I
Variable Definitions

Variable	Definition
Disassociation	An indicator variable takes the value of one if a peer firm that was included in the peer composition of a focal firm in the last year is not included in the focal firm's the peer composition in the current year and zero otherwise
Severe Penalty	An indicator variable that takes a value of one if peers are penalized for federal violations and the amount of the penalties is in the 75th percentile and zero otherwise
Restatement	An indicator variable that takes a value of one if peers are engaged in accounting restatements and zero otherwise
AAER	An indicator variable that takes a value of one if peers are engaged in accounting fraud-related AAER reports and zero otherwise
Disassociated	An indicator variable that takes a value of one if peer firms disassociate themselves from focal firms first in the mutual-peer relationship and zero otherwise
Abs(Change in revenue ratio)	$\left\lvert \dfrac{\dfrac{\text{Revenue of focal firm in the current year}}{\text{Revenue of peer firm in the current year}} - \dfrac{\text{Revenue of focal firm in the past year}}{\text{Revenue of peer firm in the past year}}}{\dfrac{\text{Revenue of focal firm in the past year}}{\text{Revenue of peer firm in the past year}}} \right\rvert$
Abs(Change in mve)	$\left\lvert \dfrac{\dfrac{\text{Market value of equity of focal firm in the current year}}{\text{Market value of equity of peer firm in the current year}} - \dfrac{\text{Market value of equity of focal firm in the past year}}{\text{Market value of equity of peer firm in the past year}}}{\dfrac{\text{Market value of equity of focal firm in the past year}}{\text{Market value of equity of peer firm in the past year}}} \right\rvert$
Abs(Change in leverage ratio)	$\left\lvert \dfrac{\dfrac{\text{Leverage of focal firm in the current year}}{\text{Leverage of peer firm in the current year}} - \dfrac{\text{Leverage of focal firm in the past year}}{\text{Leverage of peer firm in the past year}}}{\dfrac{\text{Leverage of focal firm in the past year}}{\text{Leverage of peer firm in the past year}}} \right\rvert$
Sizeajr	(Firms' raw returns - the returns on their corresponding size-matched decile portfolios)
Having Bad Peers	An indicator variable that takes a value of one if firms have bad peers, misconducts of which are revealed, zero otherwise
BTM	Book value of equity / Market value of equity
Size	Natural logarithm of total assets
Leverage	(Short-term debt + Long-term debt)/ Total assets

References

Beatty, *A*., S. Liao, and J. Yu. 2013. The spillover effect of fraudulent financial reporting on peer firms' investment efficiency. Journal of Accounting and Economics 55: 183–205.

Cadman, B., M.E. Carter. 2014. Compensation peer groups and their relation with CEO pay. Journal of Management Accounting Research 26 (1): 57–82.

Dierynck, B., and A. Verriest. 2020. Financial reporting quality and peer group selection. Management Accounting Research 47: 100675.

Durnev, A., and C. Mangen. 2009. Corporate investments: learning from restatements. Journal of Accounting Research 47 (3): 679–720.

Faulkender, M., J. Yang. 2010. Inside the black box: the role and composition of compensation peer groups. Journal of Financial Economics 96 (2): 257–270.

Gleason, C. A., N. T. Jenkins, and W. B. Johnson. 2008. The

contagion effects of accounting restatements. The Accounting Review 83 (1): 83-110.

Gong, G., L.Y. Li, and J.Y. Shin. 2011. Relative performance evaluation and related peer groups in executive compensation contracts. The Accounting Review 86 (3): 1007-1043.

Pae, S. 2002. Optimal disclosure policy in oligopoly markets. Journal of Accounting Research. 40 (3): 901-932.

Patatoukas, P.N. 2012. Customer-base concentration: implications for firm performance and capital markets. The Accounting Review 87 (2012): 363-392.

Kalwani, M. U., and N. Narayandas. 1995. Long-term manufacturer-supplier relationships: Do they pay off for supplier firms? Journal of Marketing 59 (1): 1-16.

Table 1
Sample Selection

	Number of focal firm-peer firm-years
Initial sample: focal firm-peer firm-years during 1998~2020	59,765
Exclude:	
Missing financial accounting information and identifiers	33,273
Final Sample	26,492
Peers with severe federal violations	3,815
Peers with no such severe federal violations	22,677
Peers that are major customers of focal firms	2,730
Peers that are not major customers of focal firms	23,762

This table reports the selection process of sample firms for the main analyses.

Table 2
Annual Number of Peer Addition and Disassociation

Fiscal year	Addition	Disasso-ciation	Ratio of Addition to dissociation	Fiscal year	Addition	Disasso-ciation	Ratio of Addition to dissociation
1998	370	-		2010	1,093	631	1.73
1999	143	192	0.74	2011	1,219	702	1.74
2000	128	172	0.74	2012	1,416	1,113	1.27
2001	77	67	1.15	2013	1,120	867	1.29
2002	116	156	0.74	2014	1,398	1,303	1.07
2003	191	34	5.62	2015	1,245	1,406	0.89
2004	323	115	2.81	2016	1,521	1,939	0.78
2005	201	251	0.80	2017	1,921	919	2.09
2006	1,418	172	8.24	2018	1,339	1,445	0.93
2007	1,388	612	2.27	2019	1,202	1,238	0.97
2008	956	822	1.16	2020	1,216	1,375	0.88
2009	946	872	1.08	Average			1.77

This table reports the number of peer firms added to peer composition, the number of peer firms disassociated from peer composition, and the ratio of the addition to the disassociation. Any focal firms or peer firms without CIK identifiers are not included in the calculation.

Table 3
Descriptive Statistics

Variable	Obs	Mean	25th Percentile	Median	75th Percentile	Standard Deviation
Panel A: When peer disassociations occur (*Disassociation*$_{itj}$ =1)						
Severe Penalty	4,824	0.239				
Disassociated	4,824	0.040				
Abs(Change in size ratio)	4,824	0.147	0.036	0.088	0.177	0.193
Abs(Change in revenue ratio)	4,824	0.148	0.040	0.093	0.188	0.171
Abs(Change in mve ratio)	4,824	0.229	0.030	0.085	0.231	0.404
Abs(Change in leverage ratio)	4,824	0.297	0.050	0.129	0.297	0.648
Panel B: When peer disassociations do not occur (*Disassociation*$_{itj}$ =0)						
Severe Penalty	21,668	0.123				
Disassociated	21,668	0.015				
Abs(Change in size ratio)	21,668	0.139	0.033	0.078	0.160	0.196
Abs(Change in revenue ratio)	21,668	0.132	0.036	0.082	0.166	0.155
Abs(Change in mve ratio)	21,668	0.197	0.030	0.080	0.198	0.353
Abs(Change in leverage ratio)	21,668	0.292	0.049	0.121	0.275	0.670

Panel C: Probability to select peers in the same industry (SIC two digit and three digit)

Same Industry	Probability
Two digit SIC code	69.52
Three digit SIC code	60.77

This table reports descriptive statistics of the main variables. Panel A presents descriptive statistics for focal firm-peer firm-years where focal firm i disassociate itself from peer firm j in year t. Panel B presents descriptive statistics for focal firm-peer firm-years where focal firm i do not disassociate itself from peer firm j in year t. Panel C presents focal firms' probability to select peers in the same industry. *Severe Penalty* is an indicator variable that takes a value of one if peers are penalized for federal violations and the amount of the penalties for peer-years is in the 75th percentile; *Disassociated* is an indicator variable that takes a value of one if peer firms disassociate themselves from focal firms first in the mutual-peer relationship; *Abs(Change in size ratio)* is the absolute value of change in the ratio of firm size to peer size. *Abs(Change in revenue ratio)* is the absolute value of change in the ratio of firm revenue to peer revenue. *Abs(Change in mve)* is the absolute value of change in the ratio of the firm market value of equity to peer market value of equity. *Abs(Change in leverage ratio)* is the absolute value of change in the ratio of firm leverage to peer leverage. Continuous variables are winsorized at the 1st and the 99th percentiles.

Table 4
Univariate Analysis

Variable	t=0	t=1	Difference
Severe Penalty	0.197	0.273	0.076***
			(17.66)
Restatement	0.205	0.292	0.087***
			(3.22)
AAER	0.205	0.361	0.156***
			(5.53)

The table reports the results of the univariate analysis of focal firms' peer disassociations and the revelations of peer firms' misconducts, proxied by three different measures of federal violations, restatements, and AAERs. *, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 5
Regressions to Test the Influence of the Revelation of Peer Firms' Misconducts and Control Variables on Focal Firms' Peer Disassociation Behaviors

Variable	Federal Violation	Restatement	AAER
Severe Penalty	0.437***		
	(5.84)		
Restatement		0.780***	
		(3.49)	
AAER			0.625***
			(2.84)
Disassociated	0.577***	0.815**	0.646***
	(8.27)	(2.01)	(7.73)
Abs(Change in size ratio)	-0.183	0.679	-0.284
	(-0.88)	(0.72)	(-1.20)
Abs(Change in revenue	-0.100	-1.141*	0.061
ratio)	(-0.29)	(-1.97)	(1.05)
Abs(Change in mve ratio)	0.084	0.017	-0.005
	(1.22)	(0.05)	(-1.28)
Abs(Change in leverage	-0.079	-0.362	-0.001
ratio)	(-0.98)	(-0.88)	(-0.40)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
R^2	0.372	0.389	0.366
Observation	26,492	2,334	17,603

This table reports the results of multivariate regression of focal firms' peer disassociation behaviors on the revelations of peers' misconducts and control variables. I used three different independent variables to measure peers' misconducts. The dependent variable *Disassociation* takes the value of one if the peer firm that was included in the peer composition of a focal firm in last year is not included in the focal firm's the peer composition in current year and zero otherwise. *Severe Penalty* is an indicator variable that takes a value of one if peers are penalized for federal violations and the amount of the penalties is in the 75th percentile; *Restatement* is an indicator variable that takes a value of one if peers are engaged in accounting restatements. *AAER* is an indicator variable that takes a value of one if peers are engaged in accounting fraud-related AAER reports. *Disassociated* is an indicator variable that takes a value of one if peer firms disassociate themselves from focal firms first in the mutual-peer relationship. *Abs(Change in size ratio)* is the absolute value of change in the ratio of firm size to peer size. *Abs(Change in revenue ratio)* is the absolute value of change in the ratio of firm revenue to peer revenue. *Abs(Change in mve)* is the absolute value of change in the ratio of the firm market value of equity to peer market value of equity. *Abs(Change in leverage ratio)* is the absolute value of change in the ratio of firm leverage to peer leverage. Continuous variables are winsorized at the 1st and the 99th percentiles. Continuous variables are winsorized at the 1st and the 99th percentiles. *, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 6
Regressions to Test the Influence of Having Bad Peers, Misconducts of Which are Revealed, and Control Variables on Firms' ERC

Panel A: Results of the regression of size-adjusted returns on independent variables, the variable of *Having Bad Peers* measured using three different measures of misconducts: federal violations, restatements, and AAERs

Variable	Federal Violation	Restatement	AAER
Intercept	-0.23234***	-0.19926***	-0.23108***
	(-5.93)	(-4.56)	(-5.89)
Change in EPS	0.00226***	0.00241**	0.00233***
	(3.15)	(2.17)	(3.26)
Having Bad Peers	-0.09317***	-0.13160***	-0.00780
	(-10.02)	(-3.62)	(-0.2)
Change in EPS * Having Bad Peers	-0.00003***	-0.06748***	-0.11596***
	(-3.86)	(-3.07)	(-2.71)
BTM	0.02991***	0.03941***	0.02977***
	(9.2)	(6.71)	(9.19)
Size	0.02807***	0.03568***	0.02595***
	(21.31)	(16.15)	(20.4)
Leverage	-0.12535***	-0.35450***	-0.12452***
	(-8.43)	(-14.62)	(-8.38)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
R^2	0.030	0.036	0.029
Observation	51,695	32,160	51,695

Panel B: Results of the subsample analysis, a result of the same regression model with Panel A on a subsample where firms disassociate themselves from the bad peers in the same year when peers' federal violations are revealed to the public

Variable	Firms that Disassociate Themselves from Bad Peers	Firms that Do not Disassociate Themselves from Bad Peers
Intercept	0.616	-0.31819***
	(1.07)	(3.06)
Change in EPS	-0.028	0.00665**
	(-0.48)	(1.97)
Change in EPS	0.015	-0.00003***
* Having Bad Peers	(0.44)	(-4.79)
Control variables	Yes	Yes
Industry fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
R^2	0.54	0.11
Observation	86	1,718

This table reports the results of multivariate regression of firms' ERC on having bad peers, misconducts of which are revealed, and control variables. Panel A, Table 6 represents the results of the regression of size-adjusted returns on independent variables, the variable *of Having Bad Peers* measured using three different measures of misconducts: federal violations, restatements, and AAERs. Panel B represents the results of the subsample analysis, a result of the same regression model on a subsample where firms disassociate themselves from the bad peers in the same year when peers' federal violations are revealed to the public. The dependent variable is size-adjusted returns defined as the difference between firms' raw returns and the returns on their corresponding size-matched decile portfolios. *Having Bad Peers* is an indicator variable that takes a value of one if firms have peer firms, misconducts of which are revealed zero otherwise, *BTM* is book value of equity divided by the market value of equity, *Size* is natural logarithm of total assets, and *Leverage* is a sum of short-term and long-term debt divided by total assets. Continuous variables are winsorized at the 1st and the 99th percentiles. *, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 7
Subsample Analysis of Regression to Test the Influence of the Revelation of Peer Firms' Misconducts and Control Variables on Focal Firms' Peer Disassociation Behaviors, the Subsample Where Peers are Focal Firms' Major Customers

Variable	When peer firms are focal firms' major customers	When peer firms are not focal firms' major customers
Severe Penalty	-0.070	0.600***
	(-0.79)	(4.87)
Disassociated	0.351	0.708***
	(1.6)	(8.78)
Abs(Change in size ratio)	0.247	-0.024
	(0.74)	(-0.07)
Abs(Change in revenue ratio)	1.026*	-0.320
	(1.92)	(-0.52)
Abs(Change in mve ratio)	-0.174	0.041
	(-0.88)	(0.48)
Abs(Change in leverage ratio)	-0.078	-0.121
	(-0.68)	(-0.72)
Industry fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
R^2	0.184	0.474
Observation	2,730	23,762

This table reports the results of the subsample analysis, a result of the same regression model with Table5 on a subsample where peers are focal firms' major customers. The dependent variable *Disassociation* takes the value of one if a peer firm that was included in the peer composition of a focal firm last year is not included in the focal firm's peer composition in the current year and zero otherwise. *Severe Penalty* is an indicator variable that takes a value of one if peers are penalized for federal violations and the amount of the penalties is in the 75th percentile. *Disassociated* is an indicator variable that takes a value of one if peer firms disassociate themselves from focal firms first in the mutual-peer relationship. *Abs(Change in size ratio)* is the absolute value of change in the ratio of firm size to peer size. *Abs(Change in revenue ratio)* is the absolute value of change in the ratio of firm revenue to peer revenue. *Abs(Change in mve)* is the absolute value of change in the ratio of the firm market value of equity to peer market value of equity. and *Abs(Change in leverage ratio)* is the absolute value of change in the ratio of firm leverage to peer leverage. Continuous variables are winsorized at the 1st and the 99th percentiles. Continuous variables are winsorized at the 1st and the 99th percentiles. *, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 8

Regression to Test the Influence of Having Bad Peers in Current Period, Misconducts of Which are Revealed, and Control Variables on Firms' ERC in the Next Period

Variable	Federal Violations
Intercept	-0.2310***
	(-5.9)
Change in EPS	0.0023***
	(3.16)
Having Bad Peers	-0.0890***
	(-8.84)
Change in EPS * Having Bad Peers	-0.0002
	(-0.25)
BTM	0.0299***
	(9.2)
Size	0.0277***
	(21.17)
Leverage	-0.1249***
	(-8.4)
Industry fixed effect	Yes
Year fixed effect	Yes
R^2	0.030
Observation	51,695

This table reports the result of the regression of focal firms' ERC in the next year on focal firms' having the bad peers in the current period. The dependent variable is size-adjusted returns defined as the difference between firms' raw returns and the returns on their corresponding size-matched decile portfolios. *Having Bad Peers* is an indicator variable that takes a value of one if firms have the bad peers, misconducts of which are revealed zero otherwise, *BTM* is book value of equity divided by the market value of equity, *Size* is natural logarithm of total assets, and *Leverage* is a sum of short-term and long-term debt divided by total assets. Continuous variables are winsorized at the 1st and the 99th percentiles. *, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

국문초록

기업의 동료기업 절연 선택과 그 절연으로 인한 경제적 결과

Securities and Exchange Commission는 2006년에 기업들로 하여금 relative performance evaluation을 위한 동료 기업의 목록을 공시하도록 규정하였다. 동료기업의 선택에 관한 연구가 주되게 이루어졌지만, 동료기업의 절연에 대한 연구는 활발하게 이루어지지 않았다. 본 연구는 동료기업의 부적절한 행위가 밝혀진 이후에 기업들이 동료기업을 절연하는 경제적인 동기를 살펴본다. 연구결과 동료기업들의 부적절한 행위는 기업들의 동료기업 절연의 가능성을 증가시켰다. 기업들이 해당 동료기업을 절연할 동기를 살펴보기 위하여, 부적절한 행위를 한 동료기업을 동료로 포함하고 있는 기업의 이익반응계수를 살펴본 결과, 해당 기업들의 ERC가 감소하였다. 또한 해당 ERC의 감소는 1년 내에 부적절한 행위를 저지른 동료기업을 절연하지 않은 기업에 집중되었다.

주요어 : 동료 선택, 동료 절연, 스필오버효과, 리얼이펙트, ERC
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