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# Insider Data Breach and CEO Apology (or Denial): Does CEO Gender Impact Trust Restoration?

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## ABSTRACT

This study examined the effect of CEO gender and intervention type on post-violation trust restoration in the event of an insider data breach. The results show that the insider breach event causes users' trust to decline significantly. We also found that regardless of gender, CEO apology was more effective than denial in restoring post-violation trust. While there was no significant difference between the genders in the case of an apology, we found that in the case of denial male CEOs experienced significantly higher post-violation trust than female CEOs. The findings were explained using interactional justice. The study is among the first to examine the perceived differences between male and female CEOs and the social account of apology and denial. The study also examines the comparative effect of male and female CEO responses on male and female respondents respectively. Social, managerial and theoretical implications, along with future research directions, are discussed.

## Keywords

Privacy breach, CEO, gender, apology, denial, post-violation trust

## INTRODUCTION

Males have predominantly occupied CEO positions. More recently, females have breached this glass ceiling and are increasingly taking on CEO responsibilities. As the evidence mounts that the presence of women on company boards and in corner offices actually leads to better firm performance, more and more investors are promoting a larger role for women in such positions ([Driebusch 2014](#)). In this research we study the moderating role of type of social account (apology vs. denial) and CEO gender in restoring post-violation trust following an insider data breach incidence in an organization.

Data breaches are becoming increasingly common. There were 619 breaches reported in 2013– a dramatic increase of 30% from 2012 ([Identity Theft Resource Center 2014](#)). A recent data breach at Target ([Ziobro and Yadron 2014](#)) has left even the regulators wondering whether the companies are doing enough to prevent such events ([Kendall 2014](#)). Average loss to corporations for a breach of data security in 2012 was \$5.4 million ([Ponemon Institute 2013](#)). A sizeable proportion of those breaches are caused by insiders ([Hatchimonji 2013](#)). [PriceWaterHouse Coopers LLC \(2013\)](#) reports that insiders are more likely to be the source of cyber-attacks, and can cause more damage to an organization than outsiders. Based on a 9 country sample, [Ponemon Institute \(2013\)](#) reported that negligent employees (or contractors) were responsible for 35% of data breaches, second only to malicious and criminal attacks at 37%. Insider breaches happen not only because of malicious employees but can also occur because of burdened or rushed employees who are under pressure to get something done, or are not trained properly. With the proliferation of new technologies such *errors* will only become more common.

The rest of the paper is structured as follows: the next section develops the hypotheses and the research model. The methodology, results, hypothesis testing, and discussion are then presented. The paper concludes by discussing the implications of this study and by offering suggestions for future research.

## LITERATURE REVIEW AND THEORY

### Online privacy breaches and trust

Privacy breaches lead to diminished trust from current as well as future customers ([Ponemon Institute 2013](#)). In a survey conducted by EIU 38% of consumers who had recently experienced a data breach said “because of the data breach” they no

longer patronize the organization concerned ([Economist Intelligence Unit 2013](#)). The breaches show that the company lacks proper security procedures which reflect poorly on overall company's management as well - intensifying the user's perception of vulnerability.

**Hypothesis 1:** Insider privacy breach incidences cause trust to decline.

### Apology vs. denial in the case of trust violation

Apology has two parts (i) admitting guilt and (ii) showing intent to avoid the reoccurrence in the future ([Kim et al. 2004](#)). [Kim et al. \(2004\)](#) found that apology works better with ability based violations as opposed to integrity based violations. Since data breach is not an integrity based violation (such as intentional sharing of data by the management) users would appreciate that the company is apologetic and hence forthcoming in accepting the mistake, and also that company's apology extends an implicit promise to prevent a reoccurrence. Such positive user evaluations would be missing in cases of CEO denial, which unlike apology, doesn't admit guilt and hence doesn't provide implicit assurance of prevention from future reoccurrences.

**Hypothesis 2:** Apology vs. denial response from the intervening CEO leads to higher trust restoration.

### Gender issues in leadership roles

There are mixed findings related to differences in gender compensation at CEO levels, some claiming no difference ([Adams et al. 2007](#); [Bugeja et al. 2012](#)), whereas others claiming female CEOs earn less ([Blau and Kahn 2000](#); [Skalpe 2007](#)). Moreover research shows that the firms run by female CEOs generally perform better ([Jalbert et al. 2013](#)). However, investor reactions to the announcements of female CEOs are significantly more negative than those for male CEOs ([Lee and James 2007](#)). [Lee and James \(2007\)](#) argue that a historically low representation of women in top management positions has fueled the general perception that men are more qualified for CEO positions ([Lee and James 2007](#)). This perception is probably responsible for the association of women managers with lower social power ([Walfisch et al. 2013](#)). Moreover, women are known to be more communal and also to apologize more. Politeness Theory suggests that the lower perceived social power of women in a business setting would heighten the expectancy of an apology from a female manager more than from a male manager. The heightened expectancy makes apology from a female manager less effective ([Walfisch et al. 2013](#)). Similarly, it could be argued that a denial response by a female CEO will not be viewed as favorably as by the male counterpart either.

**Hypothesis 3:** Post-violation trust is higher following a response from a male CEO as opposed to a female CEO.

## RESEARCH METHODOLOGY

The study design was an online survey based experiment. 280 students were offered and completed responses for the following four scenarios. Out of those 280 students, 78 failed at least one of the several tests. Thus we have a sample size of 202. One student didn't disclose gender. Table 1 provides descriptive statistics of the respondents' ages.

	Vignette Group	Number of respondents	Min	Max	Mean	Std Dev
Male students	Apology (Male CEO / Female CEO)	37	18	44	23.65	5.54
	Denial (Male CEO / Female CEO)	53	18	46	23.75	6.38
Female students	Apology (Male CEO / Female CEO)	54	18	49	22.74	5.96
	Denial (Male CEO / Female CEO)	57	18	51	24.12	8.24

**Table 1. Demographics (Age in years)**

Every person was asked to browse a website, and their initial trust (trust1) in the website was measured. Then we shared with the participants a vignette pertaining to an insider data breach incident which occurred at the website they browsed. We

measured the trust in the website again at this point (trust2). Subsequently one of the following four vignettes (as shown in Table 2) was randomly assigned to the student participants. Trust in the website was measured again at this time (trust3).

**Vignette shown:**

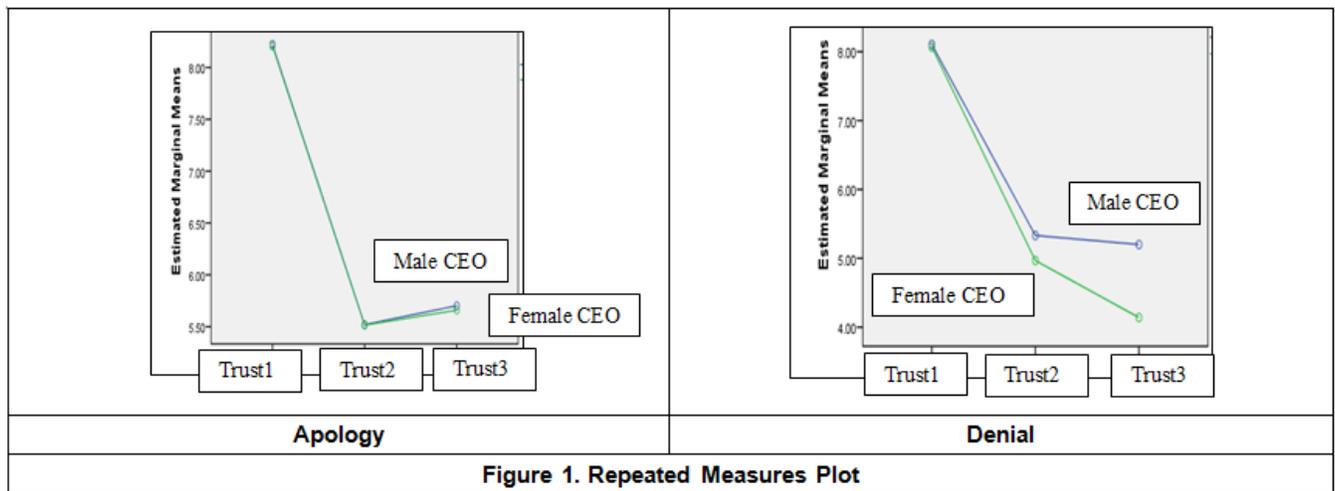
<b>Male Apology:</b>	The website responded apologetically in a letter sent out individually to the concerned customers. The CEO of the website, Michael Smith, has sincerely apologized for this incident.
<b>Female Apology:</b>	The website responded apologetically in a letter sent out individually to the concerned customers. The CEO of the website, Mary Jane, has sincerely apologized for this incident.
<b>Male Denial:</b>	The website's CEO Michael Smith has clearly denied any wrongdoing on the website's part regarding the recent news article.
<b>Female Denial:</b>	The website's CEO Mary Jane has clearly denied any wrongdoing on the website's part regarding the recent news article.

**Table2. Vignettes**

Trust items were adapted from Gefen et al. (2003).

**DATA ANALYSIS**

We carried out pair-wise t-tests to examine the difference in the mean scores across various sub-groups.



**RESULTS**

We discuss the results pertaining to each hypothesis in the following subsections.

**Hypothesis 1:**

Table 3 displays the results from the pair-wise t-test which shows that the mean trust at time (trust2) was significantly lower than the mean initial trust (trust1). The results fully support hypothesis 1.

Time1	Time2	Pair-wise T-test Results
Mean=8.116, Std dev=1.632, n=197	Mean=5.310, Std dev=2.401, n=197	T=16.147, df=196, p=.000

**Table 3. Results for Hypothesis 1**

**Hypothesis 2:**

Table 4 shows that apology was more effective than denial in restoring trust. In the case of denial the users actually lose trust instead of restoring it. The results fully support hypothesis 2.

Social Account	Time 2	Time 3	Pair-wise T-test Results
Denial	Mean=5.117, Std dev=2.335, n=107	Mean=4.654, Std dev=2.441, n=107	<b>T=.2603, df=106, p=.011</b>
Apology	Mean=5.447, Std dev=2.489, n=90	Mean=5.657, Std dev=2.502, n=90	T=-1.198, df=89, p=.234

**Table 4. Results for Hypothesis 2**

**Hypothesis 3:**

Table 5 shows that female CEOs experienced greater post-violation trust drops as compared to male CEOs in cases of denial.

	CEO Gender	Time2	Time3	Pair-wise T-test Results
Denial	Male	Mean=5.337, std dev=2.323, n=52	Mean=5.250, std dev=2.636, n=52	T=.292, df=51, p=.772
	Female	Mean 4.909, std dev=2.348, n=55	Mean=4.091, std dev=2.116, n=55	<b>T=4.238, df=54, p=.000</b>
Apology	Male	Mean=5.457, std dev=2.521, n=46	Mean=5.669, std dev=2.472, n=46	T=-.858, df=45, p=.396
	Female	Mean=5.438, std dev=2.484, n=44	Mean=5.642, std dev=2.562, n=44	T=-.826, df=43, p=.413

**Table 5. Results for Hypothesis 3**

Hypothesis 3 was supported for CEO denial, but not for apology. Female CEOs unlike male CEOs experienced significantly lower subsequent post-violation trust in cases of denial.

To explain the findings we examined the perceived interactional justice ([items adapted from: Colquitt and Rodell 2011](#)) experienced by the respondents. Recently it has been shown that interactional justice could moderate the path between apology and subsequent trust ([Tomlinson 2012](#)). Interactional justice refers to the fairness of the interpersonal treatment individuals receive from a decision maker ([Colquitt et al. 2001](#)). The t-test results (Table 8) show that the users experienced significantly lower interactional justice in cases of female denial than in cases of male denial for all nine items. The results were mixed in cases of apology. The mixed effect for apology in terms of gender probably explains why there was no post-violation trust difference between male and female apology.

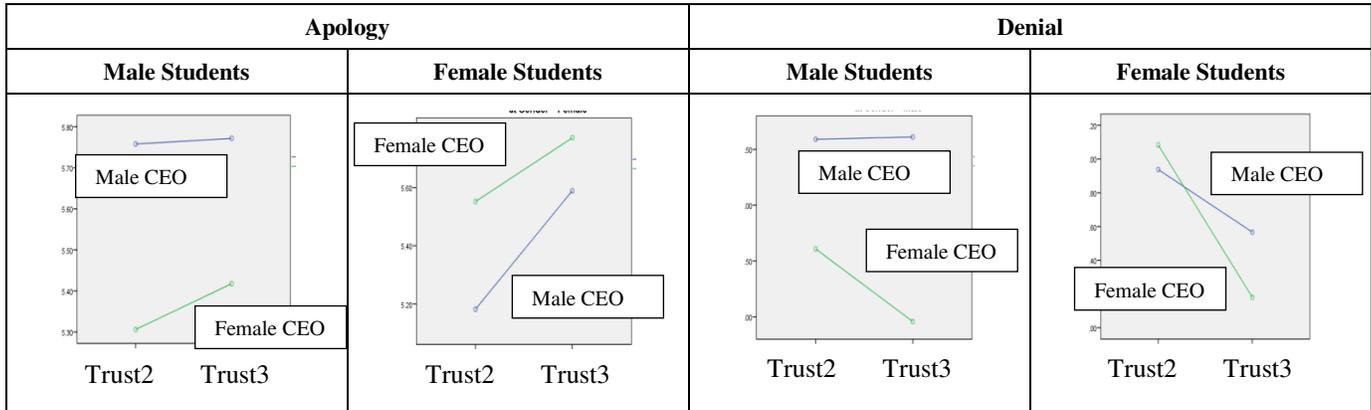
		Apology				Denial					
		Difference	Male CEO		Female CEO		Difference	Male CEO		Female CEO	
		F	Mean	Std Dev	Mean	Std Dev	F	Mean	Std Dev	Mean	Std Dev
IJ1	Polite manner	8.43***	6.85	2.31	7.31	2.23	4.87***	6.20	2.53	5.59	2.23
IJ2	Dignity	9.01***	6.89	2.15	6.96	2.34	5.66***	6.26	2.50	5.38	2.31
IJ3	Respect	8.48***	6.89	2.25	7.11	2.45	6.99***	6.27	2.54	4.95	2.38
IJ4	Proper Remarks	7.12***	7.33	2.33	7.38	2.58	2.96*	5.84	2.67	4.82	2.37
IJ5	Candid	10.22***	6.41	2.52	7.07	2.57	6.19***	5.64	2.78	4.71	2.01
IJ6	Timely	7.54***	6.37	2.51	6.69	2.54	4.71**	5.95	2.69	5.15	1.90
IJ7	Explained the procedures	3.93**	5.11	2.51	5.07	2.74	5.02***	4.95	3.06	3.60	2.21
IJ8	Reasonable explanation	3.17*	5.48	2.83	5.40	2.76	7.00***	4.89	2.81	3.38	2.28
IJ9	Customized explanation	1.26	4.76	2.77	4.56	2.95	5.51***	4.67	2.79	3.04	2.17

Note: .05 or less \*; .01 or less \*\*; .001 or less \*\*\*; dark shaded cells represent items significantly higher for female CEO; light shaded cells represent items significantly higher for male CEO

**Table 8. Post-hoc analysis with Interactional Justice**

There is contradictory evidence regarding the efficacy of apologies given to females and those given to males. Some findings suggest that apologies are less effective when given to men, while some findings suggest that they are less effective when given to women. There is also evidence which suggests that men are willing to accept apology in cases of workplace bullying

(see [Walfisch et al. 2013](#) for more info). Again, well-documented surveys show that women are tougher on women than men are and that women tend to reject work submitted by other women twice as many times as compared to their rejection of the same work submitted by men ([Chanania 2012](#)). We analyzed how apology and denial were handled by male and female students separately.



**Figure 2. Post-violation Trust Analysis based on CEO and Respondent Genders**

In cases of denial from female CEOs – the trust went down significantly among male students (pair-wise t-test: p value = .034) and also among female students (pair-wise t-test p value = .001) Trust did not go down for denial from a male CEO. There were no significant differences in the pair-wise t-tests to be found for other subgroup analysis.

**DISCUSSION & CONCLUSION**

The study provides an interesting and unique perspective on the relative efficacies of denial and apology as offered by male and female CEOs and their subsequent impact on male and female respondents in cases of an insider data breach incident. The study shows that insider privacy breaches do cause trust to drop and that the trust is restored more effectively by a CEO apology than by a CEO denial response. The findings show that male CEOs fared favorably as compared to female CEOs when the response type was denial. The findings also show that male CEOs as opposed to female CEOs are perceived high on interactional justice in cases of a denial.

Our work is among the first to analyze the comparative effects of apology and denial in relation to male and female CEOs. This work is also among the first to examine the role of interactional justice in cases of denial. This study is also amongst the first to examine the comparative effect of male and female CEO responses on male and female respondents.

Our work reflects upon hidden gender norms and values which would help to eventually create a more equitable society. By focusing on a CEO’s gender it has direct implications for managers and female CEOs in particular. The work adds to the trust and MIS literatures as well.

**FUTURE RESEARCH DIRECTIONS**

Future work could examine the relationships in a longitudinal fashion and with different population sets. Future work could also look into the differences in the social power of female managers vs. female CEOs in other settings. It will also be of interest to examine cross cultural effects - since social power of males and females is dependent upon the underlying local culture. Future research should control for severity of offense, as well as the reputation and design of the website. It will also be of interest to examine the individual role of guilt acceptance (and repudiation) and assurance to prevent reoccurrence (and lack thereof) as implied in apology (and denial). More research is still needed to investigate whether the findings are generalizable to trust breaches in general.

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