

Are Female Executives Over-represented in Precarious Leadership Positions?

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We use a sample of CEO appointments at US corporations over the years 1992–2004 to test the ‘glass cliff’ hypothesis, which posits that females are appointed to leadership positions at firms that are in a precarious financial condition. Our analysis utilizes three measures of stock-price-based financial performance and two distinct control samples of appointments of males to the CEO position. We find that corporate performance preceding CEO appointments tends to favor females, implying that females (males) are appointed to the CEO position largely at times when the firm is in relatively better (worse) financial health. Disaggregating the data by appointments in up versus down markets, at high-risk versus low-risk firms, and by calendar time yield similar conclusions. There appears to be no glass cliff facing female CEOs at US firms. Our findings suggest a need for additional research to identify where and for what types of positions this phenomenon is prevalent.

Introduction

Over the last two decades women have made slow but steady inroads into the ranks of senior corporate executives, confirming the presence of growing cracks in the so-called ‘glass ceiling’ (Adams *et al.*, 2007; Davidson and Cooper, 1992; Dreher, 2003; Goodman, Fields and Blum, 2003; Stroh, Langlands and Simpson, 2004). At firms comprising the S&P 1500, however, the number of female CEOs has only increased from 1 in 1992 to 61 in 2004 (Adams *et al.*, 2007), confirming that women are under-represented and perhaps disadvantaged in leadership positions (Adler, 2000).

Ryan and Haslam (2005a, 2005b, 2007) argue that female leaders are in fact over-represented in precarious leadership positions; suggested reasons for the phenomenon include sexism and in-group bias, group dynamics and implicit leadership expectations. In particular, Ryan and Haslam (2005a) report on an explicit test of the hypothesis that women are appointed to more precarious leadership positions compared to men.

For a sample of 19 appointments of females to boards of directors at FTSE 100 firms in 2003, they document that appointments of women (men) are more likely to follow consistently bad (stable) stock price performance over the preceding five months. They interpret this finding as evidence that female executives are on a ‘glass cliff’, in that they are over-represented in precarious leadership positions.

The possibility of a glass cliff constitutes another barrier to the advancement of women into leadership positions, in addition to gender-based differences in preferences and ability plus possible gender-based discrimination. The literature suggests that workers tend to prefer male supervision (Simon and Landis, 1989), female leaders receive a lot more scrutiny than males (Eagly, Karau and Makhijani, 1995) and women leaders are perceived as being less effective than men (Bowen, Swim and Jacobs, 2000; Eagly and Karau, 2002; Eagly, Makhijani and Klonsky, 1992; Heilman, 2001; Schein, 2001). Such barriers to advancement may make female executives more willing to accept challenging and perhaps more precarious positions. This can lead them to

under-perform or 'fail', perpetuating the notion that women are not suited for leadership. In turn, this increases the reluctance to appoint women to key positions.

Regarding risk tolerance, Caliper Corporation (2005) reports from personality assessments and in-depth interviews with 59 women leaders at major US and British firms; they find that women leaders are more assertive and persuasive, and are more willing to take risks than men. Given the substantial literature documenting that women tend to be more risk-averse and more averse to competition than men (Byrnes, Miller and Schafer, 1999; Eckel and Grossman, 2002; Niederle and Vesterlund, 2007), the findings in Caliper Corporation (2005) suggest that female executives may have significantly different risk-tolerance profiles compared to women as a group.

Female executives may also be disadvantaged in the process of changing employers. Brett and Stroh (1997) and Dreher and Cox (2000) examine the impact of gender differences in compensation for executives who change companies; they find that such an 'external labor market strategy' benefits only white males, and that the largest compensation advantage for white males developed among those who changed employers. In a study on gender differences in compensation for managers in the USA and in Hong Kong, Lam and Dreher (2004) find that, while there were no significant differences in compensation in 1991, large pay differences favoring men emerged among these executives by 1999; the primary beneficiaries were males who followed an external labor market strategy. These findings suggest that female executives may be disadvantaged by being less well connected to formal and informal social networks, and possibly under-represented in the databases of executive search firms.

The present study

Our objective in this paper is to provide an additional test of the Ryan and Haslam hypothesis that female executives are over-represented in precarious leadership positions. We use a sample of CEO appointments at US corporations to examine if female executives are largely appointed to the CEO position at firms that are in poor financial health. Given that people who reach the pinnacle of the corporate hierarchy are

more likely to be homogeneous in terms of motivation, ability and political savvy, using a sample of CEO appointments helps to control for issues such as differences in motivation and ability. In addition, the chief executive is arguably the most powerful and visible member of the corporate leadership team; the CEO position thus seems a reasonable setting to examine if female executives are over-represented in firms in precarious financial condition.

Our paper builds on previous work on the 'glass cliff' in a variety of ways, including a focus on appointments of women to the CEO position, which is arguably the most prominent and powerful position in the corporate hierarchy. We utilize a relatively large sample of CEO appointments and focus on stock returns over an extended time period preceding the appointment of both male and female CEOs. As discussed below, we utilize three different measures of corporate performance and two distinct control samples of firms that appoint males to the CEO position. We also investigate the possibility of a glass cliff among CEO appointments at firms distinguished by risk levels, market conditions and calendar time. Taken together, our analysis represents a comprehensive search for the glass cliff phenomenon for a sample of appointments of females to the primary leadership position at US firms.

Method

We obtain a sample of firms that appointed females to the CEO position from the *Execu-Comp* database maintained by Standard & Poor's Corporation. This database includes a variety of compensation and related information for the five most highly paid executives at over 1500 firms over the years 1992–2004. The set of firms covered includes the S&P 500, the S&P mid-cap 400 and the S&P small-cap 600. The database includes 61 women who served as CEOs of 63 firms over the years 1992–2004. Daily stock returns data are available from the Center for Research in Security Prices (CRSP) at the University of Chicago for 48 of these 63 firms; these 48 firms constitute the sample used in our study.

The time distribution of appointments of female CEOs, given in Table 1, shows that there has been a slow increase in the number of female

Table 1. Time distribution of appointments of female CEOs

Year	# of female CEOs appointed	Year	# of female CEOs appointed
1992	3	1999	6
1993	2	2000	5
1994	4	2001	5
1995	1	2002	6
1996	5	2003	5
1997	3	2004	3
1998	0		

Table 2. Industry distribution of firms appointing female CEOs

SIC	# of female CEOs appointed	Industry description
21	1	Tobacco products
22	1	Textile mill products
23	2	Apparel and other finished products made from fabrics and similar materials
27	2	Printing, publishing and allied industries
28	4	Chemicals and allied products
32	1	Stone, clay, glass and concrete products
34	1	Fabricated metal products, except machinery and transportation equipment
35	3	Industrial and commercial machinery and computer equipment
36	1	Electronic and other electrical equipment and components, except computer equipment
37	2	Transportation equipment
39	3	Miscellaneous manufacturing industries
48	1	Communications
49	2	Electric, gas and sanitary services
53	1	General merchandise stores
56	5	Apparel and accessory stores
57	1	Home furniture, furnishings and equipment stores
59	4	Miscellaneous retail
60	1	Depository institutions
67	1	Holding and other investment offices
73	9	Business services
87	2	Engineering, accounting, research, management and related services

CEOs over the sample period, though the pace has picked up slightly in the new century. The 48 sample firms belong to 21 industry sectors, where the latter are defined using each firm's two-digit SIC code. Information on the industry distribution of the sample firms is given in Table 2. The most frequently represented industries are business services with nine female CEOs, followed by apparel and accessory stores with five female

CEOs; miscellaneous retail and chemicals and allied products have four female CEOs each.

We identify the date on which each female in the sample became the CEO from the *ExecuComp* database, and use the CRSP files to obtain daily returns for each firm for a period including 250 trading days before the appointment date and 100 trading days following the appointment. We also get daily returns for the CRSP equally weighted market index for the days corresponding to the returns data for each firm; in light of the market volatility that followed the attacks of 11 September 2001, we exclude data for the month of September 2001 from the analysis. Our empirical analysis utilizes daily stock returns for each firm over the 120 trading days (approximately 6 months) preceding the appointment of a female CEO. We use stock returns as our proxy for firm financial health because in reasonably efficient securities markets the stock price should incorporate a myriad of performance-related information.

We use three estimates of the cumulative daily return for each firm in the period preceding the appointment of a female CEO; these cumulative return series should display a negative trend if females are in fact appointed to the CEO position at firms that are in poor financial health. The first measure of the cumulative return uses the daily return for each firm. The next two are measures of adjusted performance, where we adjust the firm's daily return for (i) market movements and (ii) the level of systematic risk of each firm. In particular, the second measure adjusts for the reality that most of the sample period spans a bull market, characterized by positive returns for most firms. We allow for this possibility by estimating a market-adjusted cumulative daily return series, where the market-adjusted return is estimated as the daily return for each firm minus the return on the CRSP equally weighted market index on the same day.

Our third measure adjusts for the possibility that different firms in the sample have differing risk profiles (betas) and may react differently to changes in the market at large. We utilize the so-called 'market model' commonly used in the literature in financial economics (see for example Brown and Warner, 1985) to obtain the third measure of firm performance in the period preceding the appointment of a female CEO. This approach assumes that security returns are

linearly related to changes in a market index, and can be specified as $R_{it} = \alpha_i + \beta_i * R_{mt}$ where R_{it} is the return for security i on day t , R_{mt} is the return on a market index on day t , and α_i and β_i are market model coefficients. We estimate α_i and β_i using daily returns for days $t = (-250, -121)$ relative to the CEO appointment date (designated as day $t = 0$). Daily excess returns for the time period of interest, $t = (-120, +100)$, are then estimated as $ER_{it} = R_{it} - (\alpha_i + \beta_i \times R_{mt})$, where ER_{it} is the excess return for security i on day t .

Comparison samples

We use two approaches to compile comparison samples of firms where males were appointed to the CEO position over the years 1992–2004; both samples are derived from the *ExecuComp* database. The first comparison sample includes all firms in the same two-digit SIC codes as firms that appointed females to the CEO position. Given that industry classification codes are designed to group firms according to common characteristics, this approach improves the odds that firms in the comparison sample are comparable to those in the sample of firms appointing female CEOs. Selected descriptive statistics for this sample of comparable firms are presented in Table 3.

As shown in part (a) of Table 3, the comparison sample includes 1303 CEO appointments at 930 firms. Of the 1303 appointments, 791 occurred over 1992–1999 and 512 over 2000–2004. The number of CEO appointments in each two-digit SIC industry ranges from 3 through 194, and has a mean (median) value of 62 (35).

Summary information on the gender composition of workers in industries that appointed females versus males to the CEO position is given in part (b) of the table. We use data from the Current Population Surveys conducted by the Bureau of Labor Statistics (BLS) of the US Government for the years 1992–2004. The BLS uses its own industry classification system, so we match BLS industry codes with the three-digit SIC codes of the firms in our sample to tabulate the data. The proportion of women in industries that appointed a female CEO has a mean (median) value of 45.16 (41.72), compared to 37.47 (34.32) for industries that appointed a male CEO. A difference of means test yields a t statistic of 2.72, which is statistically significant at the 1%

Table 3. Descriptive sample statistics

(a) Descriptive statistics on control sample of male CEO appointments				
Number of CEO appointments and firms				
Number of CEO appointments		1303		
Number of firms		930		
Time distribution of CEO appointments				
1992–1999		791		
2000–2004		512		
Total		1303		
Number of CEO appointments in each two-digit SIC code				
Range		3–194		
Mean		62		
Median		35		

(b) Gender composition of industry (% female)			
CEO gender	Mean	Median	t statistic (p value)
Female	45.16	41.72	2.72
Male	37.47	34.32	(0.00)

(c) Firm characteristics by CEO gender				
Characteristic	Gender	Mean	Median	t statistic (p value)
Market value (\$billion)	Female	3.69	0.59	− 0.60
	Male	5.35	2.73	(0.55)
Total assets (\$billion)	Female	3.14	0.81	− 3.40
	Male	7.51	1.14	(0.00)
Sales (\$billion)	Female	2.88	0.58	− 0.63
	Male	3.54	0.88	(0.53)
Employees (thousands)	Female	13.18	5.01	− 1.05
	Male	16.64	4.23	(0.30)
Earnings per share (\$)	Female	0.55	1.04	− 0.25
	Male	0.64	0.90	(0.80)
Return on assets (%)	Female	− 2.99	4.26	− 0.22
	Male	− 1.97	3.17	(0.83)
Return on equity (%)	Female	− 3.02	9.22	1.24
	Male	− 30.10	10.09	(0.22)

level (p value < 0.01). These findings indicate that females (males) are appointed to the CEO position in industries that have a relatively larger proportion of female (male) workers.

Part (c) of Table 3 contains summary statistics for a variety of financial characteristics of the firms in our sample. Firms that appointed females to the CEO position tend to be smaller than those appointing males, whether firm size is measured as the market value of equity, total assets, sales or number of employees. The difference in total assets has a t statistic of -3.40 which is significant at the 1% level (p value < 0.01); difference of means tests for market value, sales and the

number of employees do not yield significant *t* statistics. Three measures of profitability, earnings per share, return on assets and return on equity, display no consistent pattern and the differences are statistically insignificant. In short, the findings in Table 3 indicate that other than the proportion of the industry workforce that is female and perhaps company size, there are no systematic differences between our sample of firms that appointed female CEOs and the set of control firms.

Our second comparison sample utilizes appointments of male CEOs at the same firms that appointed female CEOs. Of the 48 sample firms appointing female CEOs, we identified 31 firms for which the *ExecuComp* database lists the appointment of a male CEO at the same firm at a different point in time, either before or after the female CEO was appointed. While the resulting comparison sample is smaller, there is little question that these two sets of CEO appointments are at comparable firms. Not surprisingly, differences in firm size at the appointment of females and males to the CEO position are not statistically significant for this sample.

Results

Cumulative daily stock returns for the sample of 48 firms that appointed female CEOs and the control sample of firms in the same two-digit SIC codes that appointed male CEOs are presented in Figure 1, and corresponding test statistics are given in Table 4. Cumulative raw returns are given in Figure 1(a), market-adjusted returns in Figure 1(b) and risk-adjusted returns in Figure 1(c). Our primary interest is in the average stock price performance in the period preceding the CEO appointment, designated as days $t = (-120, 0)$ relative to the appointment day, $t = 0$.

As is evident from Figure 1(a), appointments of female CEOs are on average preceded by a steady *upward* drift in the appointing firm's stock price; this finding is counter to the hypothesis that females are appointed to senior positions largely at firms in precarious financial health. In addition, the pre-appointment cumulative returns for appointments of female CEOs dominate those for male CEOs. This indicates that women are appointed to the CEO position at firms that are

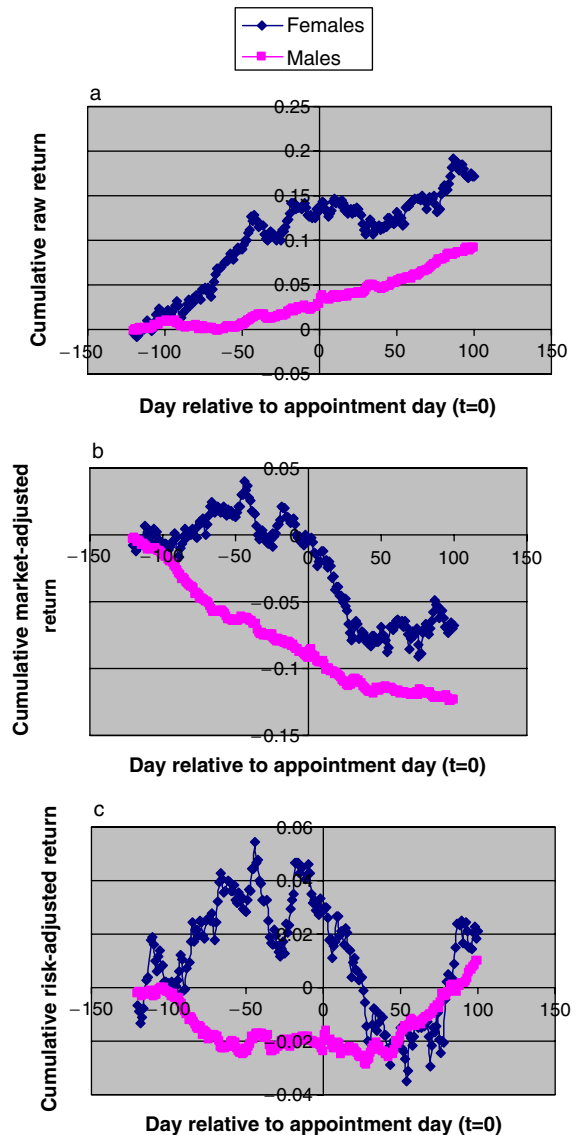


Figure 1. Mean cumulative returns over 120 days preceding and 100 days following the appointment of female CEOs and male CEOs in the same two-digit SIC industries: (a) mean cumulative raw return; (b) mean cumulative market-adjusted return; (c) mean cumulative risk-adjusted return

doing better than firms that appoint male CEOs. In Figures 1(b) and 1(c) we present cumulative market-adjusted and risk-adjusted returns for the two samples of firms. The results, while more volatile, are consistent with those presented in Figure 1(a). In particular, cumulative adjusted returns in the pre-appointment period for firms that appoint female CEOs again dominate those for firms that appoint male CEOs.

Table 4. Tests for differences in mean cumulative returns for 48 appointments of female CEOs against 1303 appointments of male CEOs at firms in the same two-digit SIC codes

CEO gender	Raw returns	Market-adjusted	Market model
(a) Mean cumulative returns (%) over 120 trading days before CEO appointment			
Female	13.72	− 0.40	2.87
Male	2.85	− 9.23	− 2.38
Difference	10.87	8.83	5.25
t statistic	1.91	1.52	0.77
(p value)	(0.06)	(0.13)	(0.45)
(b) Mean cumulative returns (%) over 100 trading days following CEO appointment			
Female	3.37	− 6.39	− 0.77
Male	6.31	− 3.07	3.41
Difference	− 2.94	− 3.32	− 4.18
t statistic	− 0.74	− 0.93	− 0.79
(p value)	(0.46)	(0.36)	(0.43)

Figures 1(a), 1(b) and 1(c) also display cumulative returns for the 100 trading days following the CEO appointment. We present these results for illustrative purposes only, and do not argue that short-term price changes should be used to assess the performance of the new CEO. That said, the post-appointment price behavior of firms that appoint female CEOs dominates that of firms that appoint male CEOs in both Figure 1(a) and Figure 1(b), and the relationship is unclear in Figure 1(c).

Findings from statistical tests for differences in the pre- and post-appointment cumulative returns shown in Figures 1(a), 1(b) and 1(c) are given in Table 4. In the pre-appointment period (see part (a)), mean cumulative raw returns at firms appointing female CEOs are 10.87% larger than at firms appointing male CEOs, and the test statistic for differences in cumulative returns is statistically significant (p value = 0.06). The corresponding differences in mean cumulative market-adjusted and risk-adjusted returns are 8.83% and 5.25% respectively, and these differences are not statistically significant. Statistical tests for differences in cumulative returns in the post-appointment period are given in part (b) of Table 4. Differences in cumulative raw returns, market-adjusted returns and risk-adjusted returns are −2.94%, −3.32% and −4.18% respectively, but none of these estimates is statistically significant. These findings indicate that there is no statistical difference in corporate

performance for firms that appoint male versus female CEOs.

Taken together, the findings reported in Figure 1 and Table 4 permit the conclusion that females are appointed to the CEO position largely at firms that are in better financial health relative to firms that appoint males to the CEO position. In addition, stock price performance in the immediate post-appointment period is comparable for firms appointing either female or male CEOs.

Our second set of tests compares stock returns at 31 firms that appointed female CEOs with stock returns when the same firms appointed male CEOs at a different point in time. Cumulative daily stock returns surrounding these two sets of appointments are presented in Figure 2, and corresponding test statistics are given in Table 5. Cumulative raw returns are given in Figure 2(a), market-adjusted returns in Figure 2(b) and risk-adjusted returns in Figure 2(c).

The pre-appointment cumulative return patterns in Figure 2 are broadly similar to those shown in Figure 1. The cumulative return pattern yields no evidence that appointments of female CEOs at these firms are preceded by declining stock performance. Indeed, mean cumulative stock returns preceding the appointment of female CEOs are larger than those preceding the appointment of male CEOs at these firms, a finding that lends no support to the hypothesis that female CEOs are appointed largely at times when the firm is in precarious financial health.

Findings from statistical tests for differences in the pre- and post-appointment cumulative returns shown in Figure 2 are given in Table 5. In the pre-appointment period (see part (a)), mean cumulative raw returns, market-adjusted returns and risk-adjusted returns for appointments of female CEOs are 15.76%, 18.44% and 4.33% larger than for appointments of male CEOs, but only the difference in cumulative market-adjusted returns is statistically significant (p value = 0.07). Taken together, these findings permit the conclusion that females are appointed to the CEO position largely at times when the firm is in better (or no worse) financial health relative to times when the firm appoints a male to the CEO position.

Statistical tests for differences in cumulative returns in the post-appointment period are given in part (b) of Table 5. Differences in mean cumulative raw returns, market-adjusted returns

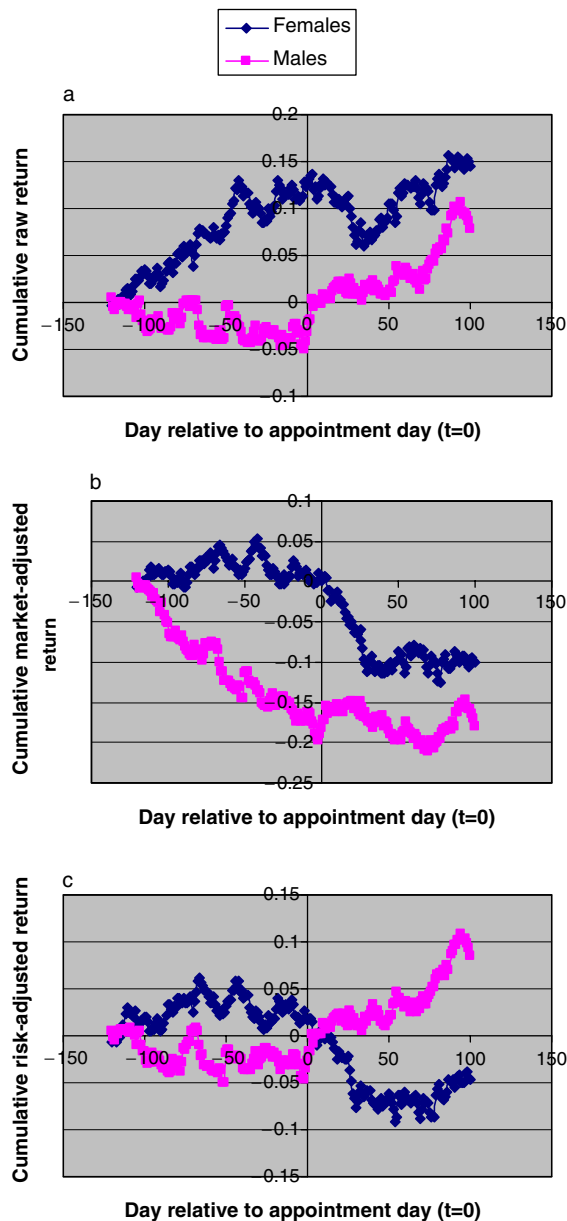


Figure 2. Mean cumulative returns over 120 days preceding and 100 days following the appointment of female CEOs and male CEOs at the same firms at a different point in time: (a) mean cumulative raw return; (b) mean cumulative market-adjusted return; (c) mean cumulative risk-adjusted return

and risk-adjusted returns are -9.18% , -10.54% and -17.61% respectively, and the risk-adjusted measure is statistically significant (p value = 0.05). These findings indicate that while stock price performance is comparable in the time period immediately following the appointment of male or female CEOs, appointments of female

Table 5. Tests for differences in mean cumulative returns for 31 appointments of female CEOs against 31 appointments of male CEOs at the same firms at a different point in time

CEO gender	Raw returns	Market-adjusted	Market model
(a) Mean cumulative returns (%) over 120 trading days before CEO appointment			
Female	12.60	0.17	1.59
Male	-3.16	-18.27	-2.74
Difference	15.76	18.44	4.33
t statistic	1.58	1.87	0.34
(p value)	(0.12)	(0.07)	(0.73)
(b) Mean cumulative returns (%) over 100 trading days following CEO appointment			
Female	1.85	-10.20	-6.32
Male	11.03	0.34	11.29
Difference	-9.18	-10.54	-17.61
t statistic	-1.22	-1.51	-1.99
(p value)	(0.23)	(0.14)	(0.05)

CEOs precede under-performance relative to a benchmark defined using the level of the firm's systematic risk. Stock price increases at firms with female CEOs, in other words, are lower than what could be expected for their level of systematic risk. The latter finding, while intriguing, should be viewed with caution because (i) CEO changes are likely to be volatile times for a firm, and (ii) it appears less than appropriate to use stock price performance over a short time window following a CEO change to form conclusions about differences in corporate performance at firms with female versus male CEOs.

Additional tests

While findings from aggregated samples of CEO appointments yield no evidence of a glass cliff phenomenon, it is still possible that female CEOs may be appointed to precarious positions at some subsample of firms. We use the full sample of 48 firms that appointed females to the CEO position and the control sample of 1303 firms that appointed males to examine three such possibilities. First, following Ryan and Haslam (2005a) we hypothesize that the glass cliff phenomenon may be more likely to occur at firms that are relatively more risky. Second, there may be differences in pre-appointment corporate performance during periods when the stock market is doing well relative to times when the market is down. Third, it is possible that the glass cliff is a

relatively recent phenomenon; we look into this possibility by examining pre-appointment corporate performance for CEO appointments made during each year of our 13 year sample period. Findings from each of these tests are reported next.

CEO appointments at high-risk versus low-risk firms

We use values of beta obtained from the market model regressions as our measure of firm risk. This approach constitutes a commonly used empirical transformation of the capital asset pricing model developed by Sharpe (1964), and provides an estimate of the true level of a firm's systematic risk. We use the median value of beta to sort the sample of firms into low- and high-risk groups, and examine pre-appointment cumulative returns for the two subsamples. The average value of beta is 1.41 for firms that appointed females and 1.37 for the comparable set of firms that appointed males to the CEO position. Average values of beta for the low (high) risk subsamples are 0.73 (2.07) for females and 0.72 (2.03) for males.

Findings from this analysis are given in Figure 3(a) and part (a) of Table 6. For ease of exposition we plot the mean cumulative difference in daily raw returns for firms that appointed females versus males to the CEO position; market-adjusted and market model returns yield comparable conclusions. As is evident from Figure 3(a), the pre-appointment performance of firms that hired female CEOs is better than that of firms that appointed male CEOs; the cumulative difference in raw returns is positive for the entire 120 day pre-appointment period for both high- and low-risk firms. Findings from statistical tests of possible differences in pre-appointment corporate performance at these subsamples of firms, given in part (a) of Table 6, confirm this conclusion. For low-risk firms, pre-appointment returns are significantly larger for female CEOs relative to male CEOs, and at high-risk firms the differences are not statistically significant.

CEO appointments during up versus down markets

There were three years during our sample period when both the S&P 500 and the broader Russell

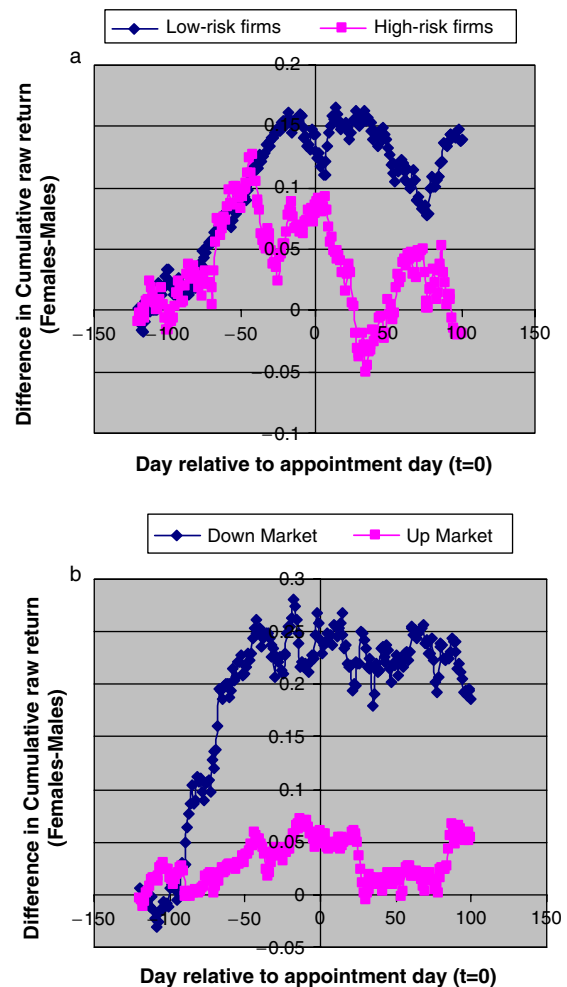


Figure 3. Difference in mean cumulative raw returns for appointments of female CEOs versus male CEOs at firms in the same two-digit SIC industries, sorted by firm risk and market conditions: (a) high-risk versus low-risk firms; (b) up versus down markets

3000 index suffered losses. We define these three years, 2000–2002, as a period when the market was down, and conduct a comparative analysis of pre-appointment corporate performance for CEO appointments during up versus down markets. We estimate the cumulative difference in raw returns for female versus male appointments for subsamples sorted according to market conditions, and the findings are plotted in Figure 3(b). Regardless of market conditions, females appear to be appointed to the CEO position following better corporate performance relative to the appointment of males.

Statistical tests for differences in appointments during up and down markets are given in part (b)

Table 6. Tests for differences in mean cumulative returns preceding CEO appointments for high-risk versus low-risk firms and during up versus down markets

CEO gender	Raw returns	Market-adjusted	Market model	Raw returns	Market-adjusted	Market model
(a) Comparing mean cumulative returns for CEO appointments at low-risk versus high-risk firms						
	Low-risk firms			High-risk firms		
Female	20.97	10.57	10.12	6.46	− 11.4	− 11.4
Male	6.67	− 7.01	0.73	− 1.41	− 16.9	− 8.2
Difference	14.31	17.58	16.39	7.85	5.52	− 3.2
t statistic	2.07	2.82	2.87	0.83	0.56	− 0.26
(p value)	(0.05)	(0.01)	(0.01)	(0.42)	(0.58)	(0.80)
(b) Comparing mean cumulative returns for CEO appointments in up versus down markets						
	Up market			Down market		
Female	8.35	− 9.4	− 3.7	24.45	17.66	16.05
Male	2.26	− 10.6	− 3.5	0.25	− 8.70	2.45
Difference	6.09	1.17	− 0.2	24.20	26.33	13.60
t statistic	0.92	0.18	− 0.02	2.09	2.33	1.11
(p value)	(0.36)	(0.86)	(0.98)	(0.05)	(0.03)	(0.28)

of Table 6. The findings show no evidence of a gender difference during up markets; during down markets two of the three measures of corporate performance display statistically significant differences that favor females. These findings confirm the absence of a glass cliff phenomenon in our sample of CEO appointments.

CEO appointments sorted in calendar time

We use two approaches to examine the possibility of systematic differences in pre-appointment corporate performance for CEO appointments made earlier or later in calendar time. We first examine cumulative returns over the pre-appointment period sorted by the date of the appointment to check for any discernable pattern; findings for the 48 females in our sample are given in Figure 4. We present the graph for

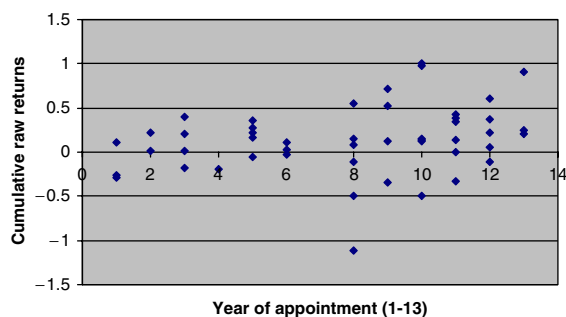


Figure 4. Cumulative raw returns over the pre-appointment period for 48 appointments of females to the CEO position, sorted by year of appointment (year 1 = 1992; year 13 = 2004)

cumulative raw returns; findings for market-adjusted and risk-adjusted returns are qualitatively similar. No particular time pattern is evident from Figure 4, although appointments in later years appear to have relatively more instances of positive cumulative returns. Tabulating the data for the first 24 appointments (made over 1992–1999) and the second set (over 2000–2004) reveals that pre-appointment cumulative returns were negative for 37.50% (20.85%) of the sample firms in the earlier (later) time period. These results indicate that there have been fewer instances of females being appointed at poorly performing firms in recent years compared to appointments made in the earlier years of the sample period. A similar pattern is evident from findings using the market-adjusted and risk-adjusted return series.

Our second approach follows a two-step procedure to check for possible differences in pre-appointment corporate performance for CEOs appointed in earlier versus later years. We first average cumulative returns (over the 120 day pre-appointment period) for CEO appointments in any given year, and then compute the difference in cumulative returns for appointments of females versus males to the CEO position during each of the 13 years, 1992–2004. Findings from this analysis are presented in Figure 5. The presence of a glass cliff phenomenon would imply that the estimated differences are negative (i.e. that women are appointed to the CEO position at firms displaying weaker stock price performance than firms that appointed males). While our three

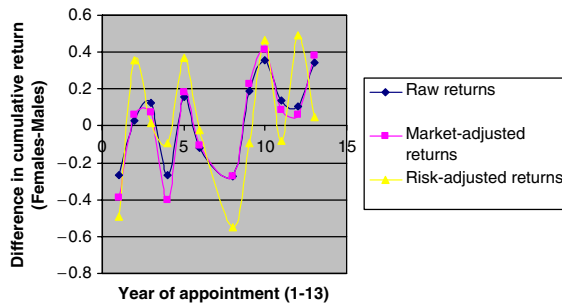


Figure 5. Difference in mean cumulative returns (female-male CEOs) over the pre-appointment period, sorted by year of appointment (year 1 = 1992; year 13 = 2004)

measures of performance display no particular pattern in the early years, it is noteworthy that over the last five years of the sample period the cumulative differences in raw returns and market-adjusted returns is positive in each year, and the market-adjusted measure is positive for three of these five years. These findings provide no support for the presence of a glass cliff in CEO appointments at US firms.

Conclusions and directions for future research

Women continue to be under-represented in the senior ranks of corporate executives, and the literature documents a variety of barriers to women's advancement in the corporate hierarchy. These realities, combined with recent findings suggesting that women leaders are more willing to take risks than men, suggest that women may self-select into leadership positions at firms in precarious financial health. If true, such self-selection would increase the likelihood of 'failure', in that successful leadership outcomes are less likely at firms in precarious financial condition, and provide another possible explanation for the under-representation of women in the senior ranks of corporate executives. In their attempt to find any chance to move up, such less risk-averse women leaders may in fact be hurting themselves.

A somewhat different perspective on barriers facing women in leadership is the 'glass cliff' hypothesis, which posits that females are over-represented in precarious leadership positions (Ryan and Haslam, 2005a, 2005b, 2007). Systematic

over-representation of female executives in such positions would be consistent with structural barriers to advancement making it necessary for women leaders to take bigger risks, leading in turn to higher probabilities of failure. Such structural barriers could include a lack of other opportunities or even a lack of information about other opportunities; the latter could result from female executives not being a part of the social and professional networks to which male executives belong.

An alternative explanation for the presence of a glass cliff is that members of the board of directors systematically bias their hiring choices so that female leaders are only appointed when the firm is in trouble. While this explanation is unlikely since senior executives can be presumed to be well-informed and competent, making it difficult to 'set them up to fail', it does not rule out the possibility of a gender-bias in hiring policies at various levels of the corporate hierarchy. In either case, the existence of a glass cliff would represent a very serious barrier to the success of women in leadership positions, and is an issue worth examining.

We use a sample of CEO appointments at US corporations over the years 1992–2004 to test the glass cliff hypothesis. Our analysis utilizes three measures of stock-price-based financial performance and two distinct control samples of appointments of males to the CEO position. We find that stock price performance preceding CEO appointments either tends to favor females or is no different from males, providing no support for the hypothesis that female leaders are over-represented at firms in precarious financial health. Additional tests designed to control for differences in firm risk, appointments during up versus down markets, and appointments at different points in time do not change our fundamental conclusions. Finally, accounting-based measures of profitability in the year preceding the appointment are comparable for firms that appoint male versus female CEOs.

Our findings indicate that men and women appointed to the CEO position at US firms are on a level playing field, at least in terms of the financial health of the firm they are appointed to lead. In addition, as documented by Adams *et al.* (2007), compensation levels are comparable for female versus male CEOs. Taken together, these realities indicate that female CEOs do not start

out in a disadvantaged situation and should benefit from or be held accountable for corporate performance under their watch; opportunities and responsibilities above the 'glass ceiling' appear to be comparable for women who reach these levels. The absence of a glass cliff also confirms that hiring practices at the board level are not gender-biased in appointing CEOs, and that barriers to advancement faced by female executives do not appear to lead to self-selection into precarious leadership positions. This study does not examine whether women could be advancing to the CEO level through high-risk situations; it remains possible that those who have broken through the glass ceiling to reach the CEO position may have done so by taking on more challenging assignments to be noticed. Additional study is needed to understand the career paths of these women.

Our findings on the pre-appointment price behavior for CEO appointments at US firms are in contrast to those of Ryan and Haslam (2005a), who examine appointments of females to boards of directors of FTSE 100 firms in 2003. While our results in no way reduce the importance of the findings reported by Ryan and Haslam (2005a), they do present one situation where there is no evidence indicating that women are being appointed to precarious leadership positions. Taken together, the contrasting results for director appointments at UK firms and CEO appointments at US firms suggests the need for more detailed analyses of the glass cliff phenomenon. In the corporate world such extensions include analysis of larger samples of director appointments at firms in both the USA and the UK, and appointments of females to the CEO position at firms in the UK. Such large sample analysis covering longer time periods appears necessary to establish areas where, and the extent to which, women may be ending up in precarious leadership positions.

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References

- Adams, S., A. Gupta, D. Haughton and J. Leeth (2007). 'Gender differences in CEO compensation: evidence from the U.S.', *Women in Management Review*, **22**, pp. 208–224.
- Adler, N. (2000). 'An international perspective on the barriers to the advancement of women managers', *Applied Psychology: An International Review*, **42**, pp. 289–300.
- Bowen, C., J. Swim and R. Jacobs (2000). 'Evaluating gender biases on actual job performance or real people: a meta-analysis', *Journal of Applied Social Psychology*, **30**, pp. 2194–2215.
- Brett, J. M. and L. K. Stroh (1997). 'Jumping ship: who benefits from an external labor market career strategy?', *Journal of Applied Psychology*, **82**, pp. 331–341.
- Brown, S. and J. Warner (1985). 'Using daily stock returns: the case of event studies', *Journal of Financial Economics*, **8**, pp. 205–258.
- Byrnes, J., D. Miller and W. Schafer (1999). 'Gender differences in risk taking: a meta-analysis', *Psychological Bulletin*, **125**, pp. 367–383.
- Caliper Corporation (2005). *The Qualities that Distinguish Women Leaders*. Princeton, NJ: Princeton University Press.
- Davidson, M. J. and C. L. Cooper (1992). *Shattering the Glass Ceiling: The Woman Manager*. London: Paul Chapman.
- Dreher, G. F. (2003). 'Breaking the glass ceiling: the effects of sex ratios and work-life programs on female leadership at the top', *Human Relations*, **56**, pp. 541–562.
- Dreher, G. F. and T. H. Cox (2000). 'Labor market mobility and cash compensation: the moderating effects of race and gender', *Academy of Management Journal*, **43**, pp. 890–901.
- Eagly, A. and S. Karau (2002). 'Role congruity theory of prejudice towards female leaders', *Psychological Review*, **109**, pp. 573–598.
- Eagly, A., S. Karau and M. Makhijani (1995). 'Gender and leader effectiveness: a meta-analysis', *Psychological Bulletin*, **117**, pp. 125–145.
- Eagly, A., M. Makhijani and B. Klonsky (1992). 'Gender and evaluation of leaders: a meta-analysis', *Psychological Bulletin*, **111**, pp. 3–22.
- Eckel, C. and P. Grossman (2002). 'Sex differences and statistical stereotyping in attitudes towards financial risk', *Evolution and Human Behavior*, **23**, pp. 281–295.
- Goodman, J. S., D. L. Fields and T. C. Blum (2003). 'Cracks in the glass ceiling: in what kinds of organizations do women make it to the top?', *Group and Organizational Management*, **28**, pp. 475–501.
- Heilman, M. (2001). 'Description and prescription: how gender stereotypes prevent women's ascent up the organizational ladder', *Journal of Social Issues*, **57**, pp. 657–674.
- Lam, S. and G. Dreher (2004). 'Gender, extra-firm mobility, and compensation attainment in the United States and Hong Kong', *Journal of Organizational Behavior*, **25**, pp. 791–805.

- Niederle, M. and L. Vesterlund (2007). 'Do women shy away from competition? Do men compete too much', *Quarterly Journal of Economics*, **122**, forthcoming.
- Ryan, M. and S. Haslam (2005a). 'The glass cliff: evidence that women are over-represented in precarious leadership positions', *British Journal of Management*, **16**, pp. 81–90.
- Ryan, M. and S. Haslam (2005b). 'The glass cliff: implicit theories of leadership and gender and the precariousness of women's leadership positions'. In B. Schyns and J. R. Meindl (eds), *Implicit Leadership Theories: Essays and Explorations*, pp. 137–160. Greenwich, CT: Information Age Publishing.
- Ryan, M. and S. Haslam (2007). 'The glass cliff: exploring the dynamics surrounding women's appointment to precarious leadership positions', *Academy of Management Review*, **32**, forthcoming.
- Schein, V. (2001). 'A global look at psychological barriers to women's progress in management', *Journal of Social Issues*, **57**, pp. 675–688.
- Sharpe, W. F. (1964). 'Capital asset prices – a theory of market equilibrium under conditions of risk', *Journal of Finance*, **19**, pp. 425–442.
- Simon, R. and J. Landis (1989). 'Women's and men's attitudes about a woman's place and role', *Public Opinion Quarterly*, **53**, pp. 265–276.
- Stroh, L. K., C. L. Langlands and P. A. Simpson (2004). 'Shattering the glass ceiling in the new millennium'. In M. S. Stockdale and F. J. Crosby (eds), *The Psychology and Management of Workplace Diversity*, pp. 147–167. Malden, MA: Blackwell.

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