

CEO Marital Status and Insider Trading

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Abstract

We investigate the association between the chief executive officers' (CEOs') marital status and their tendency to profit from insider trading. We argue that marriage can constrain CEOs' opportunistic behaviour, which could increase litigation risk and show that married CEOs earn lower future abnormal profits compared to unmarried CEOs. We also find that married CEOs are less likely to engage in opportunistic trades and earn lower insider trading profits among firms with weaker corporate governance and those with higher information asymmetry. Our empirical results remain robust after accounting for several endogeneity tests.

JEL Classification Codes: G14, G30

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1. Introduction

There has been growing research attention to the impact of top managers' characteristics on corporate practices. These characteristics include disaster experience in their early childhood (Bernile, Bhagwat, and Rau, 2017), military involvement (Benmelech and Frydman, 2015; Law and Mills, 2017), professional experience (Dittmar and Duchin, 2016), poverty experience (Zhang, Wang, and Jia, 2021), and family life (Cronqvist and Yu, 2017; Roussanov and Savor, 2014). In this paper we focus on CEOs' marital status, which is arguably one of the most important traits of an individual. The business and finance literature has documented the significant effects of CEOs' marital status on various corporate activities such as risk taking (Roussanov and Savor, 2014), corporate social responsibility (CSR) performance (Hegde and Mishra, 2019), financial reporting quality (Hilary, Huang, and Xu, 2017), and portfolio investment (Lu, Ray, and Teo, 2016). However, we are not aware of any existing research that empirically examine the relationship between CEOs' marital status and the trading of their own company's stocks (i.e., insider trading) and the extent to which their insider trades are informed and profitable. Our study fills in this gap.

Insider trading activities has long been a topic of interest for researchers and regulators. Corporate insiders can trade their company's shares for liquidity or diversification reasons; however, it is illegal for them to take advantage of material non-public information about the firm and profit from trading its shares (Section 10b5 of the Securities Exchange Act of 1934). Erickson (2010) finds that about 60% of derivative lawsuits against directors and officers contain allegations of illegal insider trading. Although there is mixed empirical evidence to support or oppose insider trading on the grounds of market efficiency (e.g., Aktas, de Bolt, and Van Oppens, 2008; Fernandes and Ferreira, 2009; Fische and Robe, 2004; Huddard, Hughes, and Levine, 2001), it is

argued that insider trading is neither fair nor economically efficient, since it leads to an unlevel playing field for uninformed outside investors (Werhane, 1990, 1991).

Despite a gradual decrease in managerial stock ownership over time, corporate managers still hold, on average, 12% of the shares in the firms they manage (Fabisik, Fahlenbrach, and Stulz, 2021), and this represents a nontrivial proportion of their personal wealth (Cohen, Malloy, and Pomorski, 2012). This high stake necessitates managers to trade their firm's stocks from time to time and for different motives. Researchers have provided evidence that insiders trade on private information and earn abnormal profits (e.g., Billings and Cedergren, 2015; Chen, Martin, and Wang, 2013; Jeng, Metrick, Richard, 2003). Cohen, Malloy, and Pomorski (2012) show that while insiders do not make profits for routine trades, they earn as much as 0.81% abnormal return a month from trades that are defined as opportunistic. Ahern (2017) find that 622 inside traders made an aggregated \$928 million in trading profits between 2009 and 2013 through sharing inside information. However, it is challenging for regulators and investors to interpret the information content of insiders' trades and assess which trade is illegal. At the same time, the ambiguity and uncertainty in the legal space in determining what constitutes an illegal trade also pose challenges for insiders in their decisions to take litigation risk and trade on private information (Jiang, Wintoki, and Xi, 2021).

In our paper, we focus on CEOs, arguably the most important group of insiders, and their marital status and examine whether the characteristics embedded in this status affect their insider trading behavior. Social and family studies have shown that marriage is associated with an individual's social virtue, well-being, relational responsibility, and tendency to avoid risky behaviours (e.g., Garrison, 2007; Greenberg, 1997; Notare and McCord, 2012; Persson, 2020; Sampson, Laub, and Wimer, 2006). Business and management research argues that individual

attributes such as attitude to risk matter for insider trading performance (Hillier, Korczak, and Korczak, 2015). We argue that a CEO's normative commitment to married life can negatively relate to CEO risk appetite, which is consistent with existing evidence that married CEOs are less likely to implement risky decisions. For example, Roussanov and Savor (2014) and Hilary, Huang, and Xu (2017) show that married CEOs are more risk averse than single CEOs, and this is reflected in more conservative corporate policies and a lower degree of earnings management. In addition, there are evidence that insiders change their trading behaviour due to litigation risk (e.g., Billings and Cedergren, 2015; Chen and Lo, 2006; Chen, Martin, and Wang, 2013). Typically, Seyhun (1992) and Huddart, Ke, and Shi (2007) find that insiders are less likely to trade immediately before major events such as earnings and takeover announcements while Chen, Martin, and Wang (2013) show that managers reduce their insider selling activity if their firms are to receive a going-concern opinion from the auditors. Adhikari, Agrawal, and Sharma (2019) document that shareholders' ability to sue corporate insiders for their allegedly illegal trades has a significant impact on insiders' opportunistic trading. Given that litigation risk may potentially have more damaging effects to married CEOs regarding unemployment, reputation, disruption in their ability to meet family consumption commitment, and erosion in the quality of family and children life (e.g., Bradley and Corwyn, 2002; Ribar, 2015; Roussanov and Savor, 2014), we expect that married CEOs are more likely to abstain from information-driven insider trading than single CEOs.

To test our ideas, we use a large sample of insider trading transactions made by CEOs of U.S. public firms from 1996 to 2019. Following Jagolinzer, Larcker, and Taylor (2011), we capture CEOs' trading profit using the alpha from the four factor Fama and French (1992) and Carhart (1997) model during the 180-day window following their purchase or sale transactions. We obtain marital information for CEOs from Roussanov and Savor (2014) and the *Marquis Who's Who in*

Finance and Industry database. Our analyses show that married CEOs earn lower abnormal future returns compared to unmarried CEOs (which cover primarily single CEOs). Our results are robust to the exclusion of CEOs with divorced or deceased spouses. The results support our main argument that married managers are less likely to conduct informed insider trading for gains relative to single (or unmarried) CEOs.

Our results remain strong after several robustness checks and endogeneity tests. To further, confirm that our inferences are not driven by firm-level unobserved heterogeneity, we employ a difference-in-difference (DiD) methodology by identifying those firms that experience changes from married (single) to single (married) CEOs and by studying the impact of within-firm changes of CEO marital status on insider trading returns. We show that firms switching from single to married (married to single) CEOs, relative to firms switching from single to single (married to married) CEO, display a statistically significant decline (increase) in insider trading profits.

We further explore potential moderating effects on the relationship between CEOs' marital status and informed trading. First, firms with better corporate governance could curb insiders' ability and willingness to profit from insider information (Dai et al., 2016; Dai, Parwada, and Zhang, 2015; Jagolinzer, Larcker, and Taylor, 2011). Second, since managers have motives to manipulate earnings to artificially inflate or deflate stock prices prior to their insider trading activities (Beneish, Press, and Vargus, 2012; Chowdhury, Mollah, and Al Farooque, 2018; Core et al., 2006; Sawicki and Shrestha, 2008; Udpa, 1996), firms with a more transparent information environment could have lower insider trading returns. Consistent with our expectations, we show that the difference in the abnormal profit between single and married CEOs is more pronounced for firms with poor corporate governance and for firms with high information asymmetry.

Finally, we follow Cohen, Malloy, and Pomorski's (2012) approach to identify "opportunistic" traders based on their trading history and show that trades made by opportunistic traders, as opposed to "routine" traders, are more information driven. "opportunistic" traders based on their trading history and show that trades made by opportunistic traders, as opposed to "routine" traders, are more information driven. If married CEOs are less likely to conduct profitable informed insider trading, we expect that they have lower likelihood to participate in opportunistic trades and that the disparity in insider trading profitability between single CEOs and married CEOs arises primarily from opportunistic trades. Indeed, our analyses confirm these conjectures.

We contribute to two specific strands of literature in corporate finance. A growing body of literature pays attention to the role of corporate board, top executives' personal traits in constraining corporate fraud (e.g., Bai and Yu, 2022; Dimungu-Hewage and Poletti-Hughes, 2022; Jia, Lent, and Zeng, 2014). Our paper adds to this strand of literature by investigating whether CEOs' marital status affects their insider trading profits and propensity to trade opportunistically. Among them, Gregory et al. (2013) discover that female managers' trades are more informative about future corporate performance. Jia, Lent, and Zeng (2014) provide evidence that CEOs' facial width-to-height ratio is positively associated with their opportunistic insider trading. Pham (2020), and Jiang, Wintoki, and Xi (2021) find that executives with legal expertise earn significantly lower abnormal returns in their insider trading.

The second strand of literature explores the impact of CEOs' marital status on corporate outcomes. For example, Hilary, Huang, and Xu (2017) find that single CEOs tend to manipulate earnings more than their married counterparts. Hegde and Mishra (2019) find that firms run by married CEOs have better CSR performance. Roussanov and Savor (2014) find that firms with married CEOs tend to pursue less aggressive corporate policies and consequently have lower stock

return volatility. By extending the previous research in CEOs personal attributes and insider trading our study is the first to examine the relationship between CEO marital status and insider trading returns.

In the remainder of the article, we develop our hypotheses in Section 2. In Section 3, we describe our data and methodology. Section 4 presents our main empirical results including the endogeneity tests. Section 5 presents the effects of corporate governance and information quality on CEO marriage-insider trading relationship. Section 6 examines the impact of opportunistic trades. Section 7 presents the concluding remarks.

2. Theoretical Framework and Hypothesis Development

2.1. Theoretical background

Literature in finance, law, and business has answered the call for the examination of the fairness and efficiency perspectives of insider trading. Regarding the effects on market efficiency, the extant literature shows mixed evidence. On the one hand, Aktas, de Boldt, and Van Oppens (2008) and Huddart, Hughes, and Levine (2001) find that insider trading improves price discovery, and this improvement is observed across a number of countries (Fernandes and Ferreira, 2009).¹ On the other hand, Fische and Robe (2004) present evidence that insider trading decreases market liquidity; hence, exhibiting a negative effect on market efficiency. Werhane (1989, 1991) argue that insider trading is unfair to outsider investors since insiders profit themselves using their informational advantage. To restrain insiders from exploiting private information, investors depend on regulatory constraints, the quality of corporate governance, corporate policies on insider

¹ Ataullah et al. (2014) show that insiders could use their trades to express their confidence in the firm's diversification strategy and outside investors react positively to that.

trading restrictions, and even media scrutiny (e.g., Bettis, Coles, and Lemmon, 2000; Dai et al., 2016; Dai, Parwada, and Zhang, 2015; Jagolinzer, Larcker, and Taylor, 2011; Seitzinger, 2016). However, there are evidence that insiders' characteristics exhibit a significant impact on their insider trading activity and profitability (e.g., Hillier, Korczak, and Korczak, 2015; Jiang, Wintoki, and Xi, 2021). In our study, we aim to explore the role of marital status of CEOs on their insider trades.

Business and management research has reported ample evidence on the link between top executives' characteristics, including values, dispositions, and prior experiences, and their corporate behaviour and organisation outcomes (Chatterjee and Hambrick, 2007; Kamiya, Kim, and Park, 2019; Meier and Schier, 2020; Westphal and Fredrickson, 2001). This strand of literature is built on upper echelons theory inspired by the work of Hambrick and Mason (1984). The upper echelons perspectives have emphasised the behaviour and psychology aspects of executives' decision-making process and how it may bring changes to their organisation's strategic results. Among the studied characteristics of top executives, CEOs' prior experiences occupy a prominent position. Previous research, based on evidence from publicly listed firms in the U.S., has shown that CEOs' early-life disaster experiences (Bernile, Bhagwat, and Rau, 2017), military participation (Benmelech and Frydman, 2015; Law and Mills, 2017), professional experiences (Dittmar and Duchin, 2016), and whether CEOs have undergone the great economic depression (Malmendier and Nagel, 2011) or poverty (Zhang, Wang, and Jia, 2021) have close ties to corporate outcomes. As for CEOs' family life experiences, Roussanov and Savor (2014) discover that married CEOs have a relatively low propensity to pursue risk-taking firm strategies, and Cronqvist and Yu (2017) document that firms run by CEOs with a daughter possess higher CSR performance.

Marriage is a normative construct representing an individual's family life that can generate variations in his/her social virtues and psychological well-being, and generate positive economic outcomes (Burnham et al., 2003; Garrison, 2007; Hegde and Mishra, 2019; Lerman et al., 2018; Notare and McCord, 2012; Persson, 2020; Stack and Eshleman, 1998). There is also debate on the impact of marriage on individuals' risk preferences (Agnew, Balduzzi, and Sunden, 2003; Bertocchi, Brunetti, and Torricelli, 2011; Grable, 2000; Lupton and Smith, 1999). For instance, Roussanov and Savor (2014) find marriage has a negative impact on CEOs' risk appetite. In the field of household finance literature, Christiansen, Joensen, and Rangvid (2015) show that single men take on more financial risk than married men, while Bertocchi, Brunetti, and Torricelli (2011) show that marriage represents a safe asset for married women that make them more likely to invest in risky financial assets. Despite the recognition that CEOs' marital status is a relevant factor in explaining firm outcomes and their asset management, little work exists on how marital status of CEOs influences the way they trade their company's shares.

2.2. Hypothesis development

A burgeoning literature in business and finance connects marital status with an individual's risk appetites (Roussanov and Savor, 2014). In our study, we aim to test whether the marital status affects the way CEOs trade and profit from their insider transactions. We argue that a normative commitment to married life can negatively relate to the degree to which a CEO is willing to take risk. This is in line with Roussanov and Savor (2014) who show that married CEOs are more risk averse, and it is reflected in their more conservative and less risky corporate policies. Hilary, Huang, and Xu (2017) show that firms managed by a married CEO are less prone to earnings management, which is highly correlated with shareholder litigation risk. Insider trading is subject

to litigation, and managers may pass up profitable insider trading opportunities to avoid litigation risk (Huddart, Ke, and Shi, 2007). Johnson, Nelson, and Pritchard (2007) show a strong correlation between litigation and abnormal insider selling. Cheng and Lo (2006) note that insider sales lead to litigation if there is a subsequent significant price decrease, as investors may accuse insiders of trading on material nonpublic information leading to price declines. Chen, Martin, and Wang (2013) find that insider selling followed by negative news increases the likelihood of receiving regulator's scrutiny and auditor going-concern opinions. On average, married CEOs can be more conservative and have lower risk tolerance; we therefore hypothesize that married CEOs are less likely to conduct insider trading that could increase litigation risk.

Moreover, Roussanov and Savor (2014) argue that, compared to single CEOs, married CEOs have a higher level of family consumption commitment. Potential unemployment caused by litigation hinders married individuals' ability to meet family consumption and other legally binding commitments. This line of reasoning also indicates that married CEOs may have a lower inclination to take risk and get involved in insider trading. Since married CEOs, with greater household financial responsibility, suffer more from job loss, they are more concerned about potential dismissals brought by lawsuits. Therefore, we expect that married CEOs are less likely to profit from insider trading compared to single CEOs.

On the other hand, married CEOs might be more likely to engage in informed trading. Yao et al. (2021) argue that leadership couples can increase centralized control of corporate resources and thus lead to higher opportunistic motivation to manipulate financial reporting. Similarly, Roussanov and Savor (2014) show that married CEOs compared to their single counterparts may care more about their social image as they need to compete for mates in the marriage market.²

² In a similar vein, Bai and Yu (2022) argue that rookie directors may care more about their reputation than seasoned directors.

Gao, Lisic, and Zhang (2014) argue that firms that are more CSR-conscious refrain from informed trading via lower insider trading profits. Similarly, one can argue that single CEOs are more likely to refrain from informed insider trading so as to maintain a good image and high social status. Furthermore, a high-conflict marriage or poor marital quality might have adverse effects on CEOs' emotional quality, which potentially leads to unhealthy and risky behavior (Horwitz, McLaughlin, and White, 1998; Robles, 2014). In a related study, Lu, Ray, and Teo (2016) show that hedge fund managers who are distracted by marital events have lower ability to perform their investment tasks due to limited attention resulting in lower risk-adjusted performance of such funds. These evidence implies that married executives performing poorly in their corporate activities might experience a loss in their performance-based compensation, thus are motivated to increase their secondary compensation via insider trading activities (Demsetz, 1986). In addition, financial pressures related to family consumption could be one of the driving factors for illegal behaviour (Dorminey et al., 2012; Rustiarini et al., 2019). Thus, the above contrasting evidence suggest that the effect of marital status on insider trading profits is debatable and remains an empirical question.

3. Data and Methodology

3.1. Sample and data description

Data for our analyses in this study come from five main sources. First, we obtain insider trading information from the Thomson Financial Insider Filing Data (TFN) over the period of 1996 to 2019, which contains insider trading reported on SEC Forms 3, 4, and 5. We focus on trades of common shares by CEOs. Following the prior literature (e.g., Frankel and Li, 2004), we include only open market transactions. Second, we obtain CEO marital status from Roussanov and Savor

(hereafter RS, 2014)³ and *Marquis Who's Who in Finance and Industry* database. We follow RS and construct *Married*, a dummy variable that takes a value of 1 if the CEO marital status is denoted as legally married (and in some cases, married but separated) and 0 if unmarried, which covers primarily single (never married) CEOs.

We obtain data for firm-level control variables from CRSP and Compustat databases. CEO characteristics such as CEO income, gender, age, and tenure are obtained from the ExecuComp database. Finally, we merge the insider trading data with RS data. We require CEOs to have at least one insider purchase or sale during our sample period to be included in our analyses. These criteria yield 15,137 insider transactions made by 1,142 (902 married and 240 single) CEOs from 1,140 unique publicly traded U.S. firms covering the sample period of 1996 through 2019. In Table 1, we present the total number of married and single CEOs as well as their total number of transactions for every 5-year period.⁴ In general, married CEOs have more transactions (both purchases and sales) than single CEOs.

[Insert Table 1 about here]

3.2. *Measuring transaction-level trading profit*

Following previous literature (e.g., Gao, Lisic, and Zhang, 2014; Frankel and Li, 2004; Huddart and Ke, 2007; Jagolinzer, Larcker, and Taylor, 2011), we estimate trading profits for each

³ RS (2014) manually collect marital status of CEOs from 1996 to 2008 and the dataset is used by previous studies in accounting and corporate finance (e.g., Hegde and Mishra, 2019; Hilary, Huang, and Xu, 2017). As noted in RS (2014), since data on exact dates of marriage are largely unavailable, CEOs ever mentioned as being married are considered as married throughout their tenure, and other CEOs are considered as unmarried throughout their tenure. This is a reasonable assumption in our setting, and the rationale is as follows. According to U.S. census data, the median age of men for their first marriage is 27 in 2000. Although unmarried CEOs might get married later in their tenure during our sample period, our median (minimum) of CEO age for the married sample is 56 (36), which is significantly higher than the median age of men for their first marriage.

⁴ Female CEOs account for 4.2% (3.4%) in the married (single) CEO group.

transaction, by employing the following the Fama and French (1992) and Carhart (1997) four-factor model over the 180-day window following each transaction:⁵

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + m_i(UMD_t) + \varepsilon_{it} \quad (1)$$

where R_i is firm i 's daily stock return; R_f and R_m are the daily risk-free interest rate and CRSP value-weighted market return, respectively. SMB , HML , and UMD are the size, book-to-market, and momentum factors obtained from Kenneth French's website.⁶ Our measure of insider trading profit is the potential gains (losses avoided) following insider purchases (sales), and it is equal to α ($-\alpha$) from Eq. (1) for purchases (sales).

3.3. Control variables

The choice of control variables in our analyses is motivated by recent literature in corporate finance that examines the relationship between firm profitability and director characteristics (Cohen, Malloy, and Pomorski, 2012; Gao, Lisic, and Zhang, 2014; RS, 2014). We control for research and development expenditure, $R\&D_{t-1}$, because previous studies (Coles, Daniel, and Naveen, 2006; RS, 2014) argue that R&D is a strong proxy for CEO risk taking. We also control for analyst coverage, $Analyst_{t-1}$, and an indicator for negative earnings, $Loss_{t-1}$. Ravina and Sapienza (2010) show that volatility is a strong predictor for insider trading profits. We hence also

⁵ We present and discuss results mainly on the 180-day trading profits. We also repeat all our tests by estimating the 120-day and 90-day trading profits. We find that that our results (regression coefficient signs and significance) are consistent with those with 180-day trading profit (the results for 120-day and 90-day trading profits are available upon request). In the paper, we focus on insider trading profits measured using 180-day windows since: 1) six months is the shortest plausible trading horizon for an insider because Section 16(b) of the Securities and Exchange Act of 1934 states that officers and directors who purchase and sell the company's securities within a six-month period must disgorge all profits of the company (see limitations on "short-swing" transactions, i.e., a sale and purchase of company stock if both transactions occur within a six-month period). 2) several studies find that, when abnormal returns extend to six or more months following insiders' trades, the price drift is greatest immediately after the trade and becomes negligible in months 9 through 12 (Seyhun, 2000). This suggests that computing returns over a horizon longer than 180 days may introduce noise into the trading profits.

⁶ Available at <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html>.

add $Volatility_{t-1}$. $Turnover_{t-1}$ is defined as aggregate trading volume over the (-380, -20) day interval before each trade scaled by total number of shares outstanding. We also control for firm sales growth, $SaleGrow_{t-1}$. $Restrict_{t-1}$ is the percentage of trades that occur in a 30-day window following an earnings announcement in the previous fiscal year and zero otherwise. By including $Restrict_{t-1}$ as a control variable, we account for the impact of corporate insider trading rules in regulating insider trading and reducing trading profits (Bettis, Coles, and Lemmon, 2000). We also add market-to-book ratio, BTM_{t-1} , and annual returns before the trade, RET_{t-1} , to capture the momentum for insiders' potential contrarian behaviour. In addition, following RS (2014), we control for CEO characteristics such as CEO gender ($Gender$), age (Age), resulting shares the insider held at the time of the transaction ($Holdings$), total compensation ($Compensation$), a dummy variable classifying whether a CEO is overconfident ($Overconfidence$), educational background (MBA), and tenure ($Tenure$).⁷ Appendix Table A1 presents the detailed descriptions of all variables used in this research.

4. Empirical results

4.1. Summary statistics and univariate results

In Table 2, we present the descriptive statistics (mean, median and standard deviation) for our trading profit measure, the indicator variable for CEO marital status, and control variables. We find that on average 79% of the CEOs in our sample are married, relatively comparable to the 86% married CEOs reported by Hegde and Mishra (2019) for their sample between 1993 and 2008. We also report correlation coefficients among the variables. Consistent with our hypothesis, we find that the $Trading_Profit$ is negatively correlated with $Married$. The negative correlation provides

⁷ Note that we use the subscripts for lagged variables, and those variables without any subscripts are at year t .

initial evidence that married CEOs earn lower returns on insider transactions relative to single CEOs.

[Insert Table 2 about here]

In Table 3, we present our overall *Trading_Profit* for married and single CEOs. We also separately report the profits for opportunistic and routine trades inspired by the classification in Cohen, Malloy, and Pomorski (2012).⁸ We find that on average married CEOs earn a statistically significant negative profit relative to single CEOs. Moreover, the difference is greater for opportunistic trades (= -0.020) than for routine trades (= -0.0160).

[Insert Table 3 about here]

4.2. *Multivariate results*

Since our insider trading data are at the transaction level, we use an unbalanced pooled data to estimate transaction-level regressions to determine the relationship between *Trading_Profit* and *Married* with a set of control variables (X) based on the extant literature (e.g., Dai et al., 2016; Gao, Lisic, and Zhang, 2014; Hegde and Mishra, 2019). Specifically, we estimate the following transaction-level regression model with firm and year fixed effects to account for unobserved heterogeneity:

$$Trading_Profit_t = c + \beta Married + \delta X + \eta_y + \varepsilon_t \quad (2)$$

where $Trading_Profit_t$ is risk-adjusted buy-and-hold abnormal return for an insider transaction on day t . This trading profit is estimated as per Eq. (1) in Section 3.2. The control variables are discussed in Section 3.3 and defined in Appendix Table A1. η_y denotes firm and year dummies.

⁸ Specifically, at the beginning of each calendar year (i.e., assessment year), we define a routine trader as one who places a trade in the same calendar month during the previous three consecutive years. We define opportunistic traders as the rest of the CEOs for whom we cannot detect an obvious discernible pattern in the same period. Then, we classify all trades by a routine (opportunistic) trader in the assessment year as routine (opportunistic) trades.

Our coefficient of interest is β , which is expected to be negative for the constraining effect of CEO marriage on trading profits.

Table 4 reports the pooled OLS regression results of Eq. (2). Model 1 estimates the effect of *Married* on *Trading_Profit* after controlling for firm-level characteristics. Model 2 re-estimates Model 1 with firm and year fixed effects. Models 3 and 4 include additional CEO characteristics as controls. In all the models, we find that the coefficient estimates for *Married* are negative and statistically significant. In Model 1, the coefficient on *Married* is -0.014 (p -value < 0.0001) and is statistically significant at the 1% level. Similarly, the *Married* dummy variable in Models 2 – 4 shows a strongly negative relationship with *Trading_Profit* with its coefficient value being -0.015, -0.007, and -0.009, respectively. Economically, the magnitude of this effect is also sizeable. For example, the coefficient of -0.009 in Model 4 suggests that for a given transaction, married CEOs exhibit 0.9% lower insider trading profits than their single counterparts, that translates to a 5.62% ($= 0.9\%/16\%$) decrease from the unconditional standard deviation for insider trading profits of 16% reported in Table 2. Model 5 shows the results from a random effects model.⁹

Further, to ensure that our results are not significantly affected by CEOs who are divorced or whose spouses are deceased, we hand-collect information on CEOs' divorce or deceased-spouse status through internet searches and *Marquis Who's Who* and identify a total of 21 cases resulting in 250 CEO transactions during our sample, representing 1.7% of the insider transaction sample. Next, we exclude these transactions and re-estimate Eq. (2) in Model 6 of Table 4. In Model 6, we find that the coefficient for *Married* is qualitatively similar (i.e., estimate = -0.009, p -value < 0.0001). To account for the possibility that differences across firms might have some influence on

⁹ We conduct Hausman test to decide whether fixed effects or random effects model is more appropriate in our setting. The assumption of random effects model is that the individual error term is uncorrelated with the predictors (i.e., $\text{corr}(u_i, X) = 0$), which becomes the null hypothesis of our Hausman test. The Chi-squared test shows that our null hypothesis is rejected (Chi-squared statistics = 326.95); therefore, fixed effects model is preferred.

insider trading profits, we also re-examine the relationship using random effects model in Model 6. In sum, the baseline results in Table 4 support our hypothesis that married CEOs earn lower abnormal profits from the insider trades compared to their single counterparts, which could be because married CEOs are more conservative relative to single CEOs about information-driven insider trading due to their concern about potential litigation risk and family commitments in marriage.¹⁰

[Insert Table 4 about here]

4.3. Addressing endogeneity concerns – Evidence from CEO turnovers

One potential issue that might plague our results is that some unobservable firm characteristics could be correlated with CEOs' marital status, which in turn might drive the marriage–insider trading relationship.¹¹ In other words, these unobserved characteristics could simultaneously affect the firm's decision to hire a married or single CEO and its insider trading environment. For instance, one could argue that married CEOs could be associated with firms having good corporate governance practices and higher information quality. Therefore, the negative relationship can be driven by the selection of CEOs to the firms. To address the potential endogeneity issues, we adopt a difference-in-difference (DiD) analysis using CEO turnover events and investigate the impact of CEO turnover on insider trading profits.

¹⁰ We also acknowledge that some executives may have long-term partners without formal marriage, which could alter our results (we thank an anonymous reviewer for pointing it out). Although we cannot provide evidence on the relationship between CEO long-term partnership and insider trading, we can infer that if indeed a subgroup of single CEOs in our sample has long-term partners and they engage in less information-based profitable insider trades than their single counterparts, then our estimate (single CEOs earning higher trading alpha than married CEOs) is an underestimation of the actual impact of marriage.

¹¹ We also acknowledge that one source of potential endogeneity can arise through CEO-specific characteristics. To deal with this issue, we follow Gormley and Matsa (2014) and employ instrumental variables (IV) approach within the fixed effects estimation framework to recover the coefficients on variables that are constant within (CEO) groups. Specifically, we first estimate the effects of all group-varying control variables (except *Gender*, *Married* and *Overconfidence*) on trading profits within the CEO fixed effects framework, and obtain the residual insider trading profits. In the second step, we regress group-average residual insider trading profits on *Married*, *Gender* and *Overconfidence* with the controls used in the first step (variables that vary within groups) as the instruments. We find that the coefficient on *Married* is -0.006 (p -value = 0.037), consistent with our main finding.

To do so, we identify CEO turnovers in our sample and observe that there are a total of 167 CEO turnover events. Next, we classify the cases where a single CEO is replaced with a married CEO as treated (identified as *Treated*). We use turnovers involving a change from a single to another single CEO as control events. We also identify another group of treated turnovers, which includes cases where a married CEO is replaced with a single CEO and use turnovers where a married CEO is replaced with another married CEO as the control group. We then estimate a DiD regression with year and firm fixed effects and present our results in Table 5. *CEO turnover* is a dummy variable that is equal to one for three years following CEO turnover events. To ensure that the results do not arise because of firm-specific or transaction-specific changes following CEO turnovers, we also control for the interactions between CEO turnover and our baseline controls.

In column 1 of Table 5, we find that the coefficient on our DiD term for the treated sample (representing married CEOs replacing single CEOs) is negative and statistically significant at the 1% significance level.¹² In column 2, we find that the coefficient on our DiD term for the treated sample (representing single CEOs replacing married CEOs) is significantly positive at the 1% significance level. Collectively, the estimates in columns 1 and 2 indicate that insider trading profits significantly increase (decrease) following a within-firm change in CEO marital status from married (single) to single (married) relative to their counterparts that do not face changes in CEO marital status. The results in this section provide confidence in our estimations in Table 4 and suggest that the CEO marital status and trading profits relationship is causal and not driven by endogenous factors.¹³

¹² Note that the *Treated* dummy in column 1 is subsumed by firm fixed effects. However, it is not subsumed in column 2 since some firms in this subsample experience more than one CEO turnover.

¹³ To further validate that the negative relationship between trading profit and CEO marital status is not an artifact of other CEO traits such as CEO education, compensation, or overconfidence (because CEO marital status can be endogenously determined by other observable CEO characteristics, which could potentially affect insider trading outcomes), we also conduct a matched sample analysis by estimating a propensity-score matching (PSM) approach.

[Insert Table 5 about here]

5. Moderating effects of corporate governance and information quality

So far, our results suggest a negative relationship between CEO marital status and their insider trading profits. Nonetheless, this negative relationship could be driven by the informational advantage of single CEOs relative to married CEOs or lack of personal reputation concern for single CEOs.¹⁴ Therefore, in this section we employ additional tests to isolate the constraining effect of marriage on CEO's tendency to participate in informed trading. We focus on two moderating variables, corporate governance and information quality, and conduct cross-sectional analyses.

We argue that single CEOs, in comparison to married CEOs, are more inclined to pursue abnormal insider trading profits. Since insiders' profitable trading opportunities decrease with good corporate governance systems (Dai et al., 2016) and transparent information environment (Chowdhury, Mollah, and Al Farooque, 2018; Dai, Parwada, and Zhang, 2015), we expect that single (relative to married) CEOs would capture a greater amount of insider trading profits when they work for firms with poorer corporate governance mechanism or those with poorer information quality, and vice versa. In this section, we formally test this proposition using *G-index* from Gompers, Ishii, and Metrick (2013) and *F-score* from Dechow et al. (2011). We define *Governance* as an indicator of better governance that is equal to one when a firm's *G-index* is

We first match the married CEOs with single CEOs on observable CEO characteristics. Next, we compare the insider trading profits between married CEOs in the treatment group with those of single CEOs in the PSM-matched control group, the mean *Trading_Profit* for married CEOs is significantly lower than that for single CEOs (-0.91% versus 0.02%) for the matched sample with a statistically significant negative difference of -0.89%.

¹⁴ For example, Dai, Parwada, and Zhang (2015) show that the disciplinary effect of media in reducing insiders' future trading profits operates by reducing information advantage of insiders. Moreover, insiders of firms in the media spotlight avoid opportunistic trading strategies since the dissemination of insider trading news can adversely affect executives' personal reputation.

below the sample median and zero otherwise. We define *Information_Quality* through *F-score*, a scaled probability based on a misstatement prediction, that serves as an indicator of good information environment. *Information_Quality* is a dummy variable equal to one when a firm's *F-score* is below the sample median and zero otherwise. Note that, a lower (higher) than median *F-score* indicates high (low) information quality.

The results in Table 6 show that the coefficients of *Married* \times *Governance* in Model 1 and *Married* \times *Information_Quality* in Model 2 are both positive and statistically significant at the 1% level. These results show that the insider trading profit of single CEOs earned over their married counterparts is smaller in firms with better information quality or corporate governance. For other variables, the negative coefficient on *Married* are consistent with our main argument that married CEOs earn less profits (or single CEOs earn more) in poorly governed firms. The negative coefficient on *Governance* are consistent with Jagolinzer, Larcker, and Taylor (2011) that corporate governance can curb informed insider trading. Also, the negative coefficient on *Information_Quality* is in line with the positive association of earnings management (lower levels of information quality) and insider trading profits.

[Insert Table 6 about here]

6. Opportunistic versus routine trades

In this section, we test whether married CEOs are related to lower levels of information-based trading. We follow Cohen, Malloy, and Pomorski (2012) and define a routine trader as one who places a trade in the same calendar month for at least three consecutive years. All other traders are deemed as opportunistic traders. We apply this classification to our CEO transactions at the beginning of each calendar year. Then, all the subsequent transactions made by routine

(opportunistic) CEOs in that year are classified as routine (opportunistic) transactions. This classification yields 54% and 46% of all CEO transactions in our sample to be routine and opportunistic, respectively. Our estimates are quite close to the corresponding 58-42 percentage split reported in Cohen, Malloy, and Pomorski (2012) for their 1989–2007 period.

Panel A of Table 7 estimates a logistic regression with *Opportunistic*, which is a dummy variable equal to one for opportunistic trades and zero otherwise, as the dependent variable. We find that the coefficient estimate for *Married* is negative and statistically significant with an estimate of -0.232 (p -value < 0.000), suggesting that married CEOs are 15.4 % less likely to engage in opportunistic trades relative to single CEOs.¹⁵ To further examine the economic significance of the coefficient for *Married*, we compare the marginal effects of *Married* on *Opportunistic* with the unconditional probability of *Married* in a similar vein of Callen and Fang (2015) and Li and Zeng (2019). Specifically, we examine the proportion of opportunistic trades by married CEOs with the coefficient for *Married*. We find that 46% of the transactions of married CEOs are opportunistic trades. Therefore, the economic significance appears to be 33.5% (= 0.154/0.46).¹⁶ Thus, the effect of *Married* is both economically and statistically significant. Overall, the results from Panel A show that married CEOs are less prone to engage in opportunistic trades. In Panel B of Table 7, we present the pooled OLS regression results to determine whether married (single) CEOs earn lower (higher) trading profits through opportunistic trades. We find that the interaction coefficient of *Married* \times *Opportunistic* is negative and statistically significant, suggesting that

¹⁵ We calculate the average marginal effects of the coefficient for *Married* on *Opportunistic* to determine the probability of married CEOs engaging in opportunistic trades. We find that the average marginal effect for *Married* is 0.154. The marginal effect is computed using Stata command “*margins, dydx()*”.

¹⁶ We also estimate a Chi-square test for equal proportions to determine whether the proportion of opportunistic (routine) trades are significantly lower (higher) for married CEOs. We find that the Chi-square statistics to be 226 (p -value < 0.000) suggesting that married CEOs have significantly lower proportion of opportunistic trades. On the other hand, we find that single CEOs have a higher proportion (59%) of routine trades compared to opportunistic trades (41%). We also find the proportion of opportunistic trades for single CEOs to be statistically significant.

married CEOs earn significantly lower trading profits relative to single CEOs for opportunistic trades.¹⁷

[Insert Table 7 about here]

7. Conclusion

A growing body of literature pays attention to the role of top executives' personal traits and experiences in corporate outcomes (e.g., Bernile, Bhagwat, and Rau, 2017; Law and Mills, 2017; Bai and Yu, 2022; Dimungu-Hewage and Poletti-Hughes, 2022). Our paper adds to this strand of literature by investigating whether CEOs' marital status affects their insider trading profits and propensity to trade opportunistically.

We show that married CEOs earn significantly lower insider trading profits than their single counterparts. Our results stay robust when we handle endogeneity biases using CEO turnover events. Moreover, the negative relationship between marital status and insider trading profits is attenuated when firms have strong corporate governance or possess a high level of information quality. We also examine CEOs' past transaction history and provide evidence that married CEOs are less likely to trade opportunistically and make less profits on opportunistic trades than single CEOs.

Our study makes important contributions to both insider trading and leadership literature. We expand the research on insider trading by directing the focus to CEOs' marital status, which is

¹⁷ There may be a concern that married CEOs' lower profits from opportunistic trading might be because they could extract private benefits from other sources, e.g., overinvestment. However, RS (2014) show that married CEOs have lower firm investment, suggesting that married CEOs are less likely to benefit themselves by conducting overinvestment or building empires. In addition, prior studies find married CEOs have lower tendency to manipulate earnings (Hilary, Huang, and Xu, 2017), are less likely to hide bad information which leads to subsequent crash risk (Kim, Liao, and Li, 2021), and are less subject to agency problems due to low cash holding (Elnahas, Hossain, and Javadi, 2022). The evidence suggest that married CEOs are less likely to seek private benefits than single CEOs. We thank an anonymous referee for raising this point.

a common social construct that causes variations in individuals' risk attitudes and litigation concerns. We demonstrate that CEOs' marital status, aside from influencing corporate risk-taking policies (RS, 2014), CSR activities (Hegde and Mishra, 2019) and firms' accrual management practices (Hilary, Huang, and Xu, 2017), also exerts a significant impact on their insider trading behaviour.

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Table 1: CEO transactions

This table reports the sample distribution of CEO trades over each of the 5-year periods during the sample period. The sample consists of all open-market transactions made by CEOs of U.S. firms during 1996 through 2019. Columns 2 and 3 report the number of distinct married and single CEOs. Columns 4 through 6 report the average number of shares purchased per CEO each year. Similarly, Columns 7 through 9 report the number of shares sold per CEO each year. The last row reports the average value for each column.

Year	Married	Single	Average Purchases per CEO			Average Sales per CEO		
	# CEOs	# CEOs	Married	Single	Difference (Married - Single)	Married	Single	Difference (Married - Single)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1996–2000	356	79	25,404	12,936	12,468	89,883	34,197	55,687
2001–2005	545	132	15,635	9,596	6,039	84,918	35,111	49,807
2006–2010	563	141	52,594	35,945	16,649	62,025	32,174	29,851
2011–2015	366	106	155,743	27,408	128,335	81,167	43,399	37,768
2016–2019	167	44	42,019	89,142	-47,123	85,227	34,197	51,030
Average	399	100	58,279	35,006	23274	80,644	35,815	44,829

Table 2: Descriptive statistics

This table reports descriptive statistics and the correlation matrix of firm and CEO characteristic variables. The first three rows of the table provide summary statistics of the variables followed by the correlation matrix. The bold values are statistically significant at the 5% level or lower. Variable definitions are presented in Appendix Table A1. *Trading_Profit*, α as per Eq. (1), is calculated through the transaction-specific regression of daily returns on four common risk factors *SMB*, *HML*, $R_m - R_f$ and *UMD*, using a 180-day trading window. α for sales are multiplied by (-1).

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + m_i(UMD_t) + \varepsilon_t \quad (1)$$

Var. #	Variable name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Mean	-0.01	0.79	0.51	0.14	0.03	7.65	3.97	0.65	0.51	0.00	0.18	55.62	9.47	7,300	0.92	0.77	0.23	85	
	Median	0.00	1.00	1.00	0.00	0.03	6.00	3.11	0.74	0.45	0.00	0.12	56.00	8.00	3,441	1.00	1.00	0.00	0	
	SD	0.16	0.41	0.50	0.35	0.02	5.67	3.49	0.34	0.41	0.03	0.95	8.36	7.05	18,080	0.28	0.42	0.42	738	
1	<i>Trading_Profit</i> (%)	1.00																		
2	<i>Married</i> (%)	-0.04	1.00																	
3	<i>R&D</i> _{t-1}	-0.06	-0.07	1.00																
4	<i>Loss</i> _{t-1}	0.04	-0.07	0.12	1.00															
5	<i>Volatility</i> _{t-1}	-0.05	-0.12	0.15	0.42	1.00														
6	<i>Analyst</i> _{t-1}	-0.07	0.18	0.03	-0.12	-0.10	1.00													
7	<i>Turnover</i> _{t-1}	0.01	-0.03	0.13	0.14	0.31	0.34	1.00												
8	<i>Restrict</i> _{t-1}	0.01	-0.03	0.05	-0.01	0.05	-0.08	-0.01	1.00											
9	<i>BTM</i> _{t-1}	0.07	0.05	-0.25	0.05	-0.07	-0.11	-0.18	-0.03	1.00										
10	<i>RET</i> _{t-1} (%)	0.00	-0.01	0.02	-0.01	0.01	0.01	0.00	0.00	-0.02	1.00									
11	<i>SalesGrowth</i> _{t-1} (%)	-0.05	0.01	0.01	0.02	0.03	0.01	0.00	0.02	0.03	-0.01	1.00								
12	<i>Age</i> (years)	0.05	0.16	-0.09	-0.10	-0.37	0.05	-0.19	-0.10	0.18	-0.01	-0.14	1.00							
13	<i>Tenure</i> (years)	0.03	-0.02	-0.09	-0.03	-0.18	0.03	0.00	-0.06	-0.01	-0.01	-0.15	0.37	1.00						
14	<i>Compensation</i> (100s)	-0.15	0.10	0.05	-0.04	0.08	0.27	0.04	0.04	-0.09	-0.01	0.18	-0.04	-0.02	1.00					
15	<i>Gender</i>	0.02	0.00	-0.02	-0.13	-0.03	0.00	-0.11	0.02	0.12	0.02	-0.05	0.07	0.02	0.00	1.00				
16	<i>Overconfidence</i>	-0.05	0.01	0.05	-0.01	0.07	0.16	0.12	0.02	-0.16	0.01	0.08	-0.06	0.12	0.09	-0.05	1.00			
17	<i>MBA</i>	-0.02	0.07	0.01	-0.08	-0.08	0.07	-0.04	0.01	-0.02	0.01	0.04	-0.03	-0.01	0.12	0.00	0.14	1.00		
18	<i>Holdings</i> (1000s)	-0.01	0.04	0.01	0.00	0.01	0.07	0.00	0.02	-0.02	0.00	0.00	-0.01	0.07	0.04	0.00	0.01	-0.03	1.00	

Table 3: Univariate analysis

This table reports the average daily alphas for a 180-day trading window for married and single CEOs, further classified into opportunistic and routine trades. Alphas for sales are multiplied by (-1). Insider trades are classified into routine and opportunistic trades as in Section 6. *Trading_Profit*, i.e., alpha, is calculated through the transaction-specific regression of daily returns on four common risk factors using a 180-day trading window. Two-tail *p*-values are reported. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

<i>Trading_Profit</i>		Married		Single		Difference (Married-Single)	
		Value	<i>p</i> -value	Value	<i>p</i> -value	Value	<i>p</i> -value
Overall	Mean	-0.013***	<.0001	0.001	0.525	-0.015***	<.0001
	Median	0.000***	<.0001	0.000***	<.0001	0.000***	<.0001
Opportunistic	Mean	0.030***	<.0001	0.049***	<.0001	-0.020**	0.050
	Median	0.001***	<.0001	0.002***	0.002	-0.001*	0.052
Routine	Mean	-0.020***	<.0001	-0.004**	0.049	-0.016***	<.0001
	Median	0.000***	<.0001	0.000	0.145	0.000***	<.0001

Table 4: CEO marital status and trading profit

This table reports the transaction-level pooled OLS regression results. The dependent variable is *Trading_Profit*, calculated through the transaction-specific regression of daily excess returns on four common risk factors using a 180-day trading window. *Married* is a dummy equal to one if the CEO of a given firm is married and zero otherwise. Other variables are described in Appendix Table A1. Model 5 employs a random effects model. Model 6 excludes divorced CEOs and CEOs with deceased spouses. Intercept is unreported. Two-tail *p*-values in parentheses are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Married</i>	-0.014*** (<.0001)	-0.015*** (<.0001)	-0.007*** (0.006)	-0.009*** (0.001)	-0.025*** (0.005)	-0.009*** (0.001)
<i>R&D_{t-1}</i>	-0.008*** (0.000)	-0.008*** (<.0001)	-0.008*** (0.000)	-0.008*** (0.000)	-0.018*** (0.006)	-0.008*** (0.001)
<i>Loss_{t-1}</i>	0.024*** (<.0001)	0.028*** (<.0001)	0.026*** (<.0001)	0.029*** (<.0001)	0.025*** (<.0001)	0.028*** (<.0001)
<i>Volatility_{t-1}</i>	-0.266** (0.048)	-0.351*** (0.000)	-0.583*** (0.000)	-0.692*** (<.0001)	-0.926*** (<.0001)	-0.677*** (<.0001)
<i>Log Analyst_{t-1}</i>	-0.004*** (0.003)	-0.004*** (0.001)	-0.001 (0.632)	0.000 (0.854)	0.033*** (<.0001)	-0.001 (0.656)
<i>Turnover_{t-1}</i>	0.001*** (0.006)	0.002*** (<.0001)	0.002*** (0.006)	0.002*** (<.0001)	0.006*** (<.0001)	0.002*** (<.0001)
<i>Restrict_{t-1}</i>	0.009*** (0.008)	0.005 (0.128)	0.013*** (0.000)	0.010*** (0.002)	0.011*** (0.002)	0.013*** (0.000)
<i>BTM_{t-1}</i>	0.013*** (<.0001)	0.012*** (<.0001)	0.010*** (0.002)	0.007** (0.035)	-0.021*** (<.0001)	0.006* (0.064)
<i>RET_{t-1}</i>	-0.043 (0.475)	-0.050 (0.123)	-0.047 (0.479)	-0.050 (0.159)	-0.058* (0.066)	-0.043 (0.229)
<i>SaleGrow_{t-1}</i>	-0.003 (0.101)	-0.003*** (0.001)	-0.056*** (<.0001)	-0.056*** (<.0001)	-0.009 (0.168)	-0.064*** (<.0001)
<i>Log Age</i>			-0.034*** (0.002)	-0.019** (0.029)	-0.046** (0.031)	-0.022** (0.015)
<i>Log Tenure</i>			-0.002 (0.321)	0.003 (0.141)	0.007** (0.031)	0.003 (0.150)
<i>Gender</i>			0.042*** (<.0001)	0.045*** (<.0001)	0.031 (0.166)	0.045*** (<.0001)
<i>Log Holdings</i>			0.000 (0.482)	0.000* (0.051)	0.000 (0.337)	0.000 (0.200)
<i>Log Compensation</i>			-0.005*** (<.0001)	-0.005*** (<.0001)	-0.005*** (0.007)	-0.005*** (<.0001)
<i>Overconfidence</i>			-0.006** (0.023)	-0.009*** (0.002)	-0.037*** (<.0001)	-0.008*** (0.003)
<i>MBA</i>			-0.002 (0.543)	-0.002 (0.377)	0.017** (0.039)	-0.002 (0.406)
Firm FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	No	Yes
Adjusted R ²	0.024	0.014	0.042	0.034	0.051	0.037

Observations	15,137	15,137	13,611	13,611	13,611	13,361
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Table 5: Difference-in-difference (DiD) analysis of CEO turnover events

This table reports DiD regression results using transaction-level data. The dependent variable is *Trading_Profit*, calculated through the regression of daily returns on four common risk factors using a 180-day trading window. *Treated* is a dummy variable equal to one for treated sample and zero for control sample. In column 1 (column 2), the treated sample includes CEO transactions in firms where a single (married) CEO is replaced with a married (single) CEO, and non-treated sample is for firms where a single (married) CEO is replaced with another single (married) CEO. Other control variables are described in Appendix Table A1. *Treated* in column 1 is absorbed by firm fixed effects since there is no multiple CEO turnovers within the same company. Two-tail *p*-values in parentheses are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) Treated=Single to Married CEO	(2) Treated=Married to Single CEO
<i>CEO turnover</i> × <i>Treated</i>	-5.705*** (0.002)	0.468*** (0.001)
<i>CEO turnover</i>	-0.529*** (<.0001)	-0.173*** (0.010)
<i>Treated</i>		3.679 (0.678)
Controls	Yes	Yes
Controls× <i>Treated</i>	Yes	Yes
Firm and Year FE	Yes	Yes
Adjusted R ²	0.718	0.583
Observations	187	1,503

Table 6: Moderating effects of corporate governance and information quality

This table reports the pooled OLS regression results. The dependent variable is *Trading_Profit*, calculated through the transaction-specific regression of daily returns on four common risk factors using a 180-day trading window. *Married* is a dummy variable equal to one if the CEO of a given firm is married and zero otherwise. Other control variables are described in Appendix Table A1. *Governance* dummy variable equals to one when the G-index compiled by Gompers, Ishii, and Metrick (2003) is below the sample median and zero otherwise. A lower (higher) G-index represents a high (low) level of corporate governance. *Information_Quality* dummy variable is equal to one when the *fscore*, a scaled probability based on a misstatement prediction documented in Dechow et al. (2011), is below the sample median and zero otherwise. A lower (higher) *fscore* represents a high (low) level of information quality. Two-tail *p*-values are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Parameter	Model 1: <i>Governance</i>		Model 2: <i>Information_Quality</i>	
	Estimate	<i>p</i> -Value	Estimate	<i>p</i> -Value
Intercept	0.159***	0.001	0.053	0.147
<i>Married</i>	-0.022***	<.0001	-0.003	0.429
<i>Married</i> × <i>Governance</i>	0.030***	<.0001		
<i>Governance</i>	-0.018***	0.004		
<i>Married</i> × <i>Information_Quality</i>			0.014***	0.008
<i>Information_Quality</i>			-0.031***	<.0001
<i>R&D</i> _{<i>t</i>-1}	-0.015***	<.0001	-0.009***	<.0001
<i>Loss</i> _{<i>t</i>-1}	0.029***	<.0001	0.030***	<.0001
<i>Volatility</i> _{<i>t</i>-1}	-0.600***	0.000	-0.685***	<.0001
<i>Log Analyst</i> _{<i>t</i>-1}	0.006***	0.003	0.001	0.413
<i>Turnover</i> _{<i>t</i>-1}	0.003***	<.0001	0.002***	<.0001
<i>Restrict</i> _{<i>t</i>-1}	0.013***	0.001	0.010***	0.002
<i>BTM</i> _{<i>t</i>-1}	0.027***	<.0001	0.007**	0.032
<i>RET</i> _{<i>t</i>-1}	-0.148***	0.001	-0.052	0.148
<i>SaleGrow</i> _{<i>t</i>-1}	-0.069***	<.0001	-0.061***	<.0001
<i>Log Age</i>	-0.045***	0.000	-0.013	0.147
<i>Log Tenure</i>	-0.008***	0.001	0.002	0.281
<i>Gender</i>	0.076***	<.0001	0.043***	<.0001
<i>Log Holdings</i>	0.000*	0.083	0.000**	0.032
<i>Log Compensation</i>	-0.005***	0.001	-0.006***	<.0001
<i>Overconfidence</i>	-0.005	0.151	-0.009***	0.001
<i>MBA</i>	0.002	0.642	-0.001	0.554
Firm FE		Yes		Yes
Year FE		Yes		Yes
Adjusted R ²		0.046		0.040
Observations		10,115		13,580

Table 7: Opportunistic vs. routine trades

Panel A of this table reports logistic regression to model the likelihood of opportunistic trades as a function of CEO marital status. *Opportunistic* dummy, as the dependent variable in Panel A, takes the value of one for opportunistic trades and one otherwise. Panel B reports the pooled OLS regression results for trading profit on CEO marital status interacted with *Opportunistic* dummy. *Trading_Profit*, as the dependent variable in Panel B, is calculated through the transaction-specific regression of daily returns on four common risk factors using a 180-day trading window. *Married* dummy is defined as one if the CEO of a given firm is married and zero otherwise. Other variables are described in Appendix Table A1. Two-tail *p*-values are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Parameter	Panel A: Logistic regression		Panel B: OLS regression	
	Estimate	<i>p</i> -Value	Estimate	<i>p</i> -Value
Intercept	0.613	0.437	0.048	0.188
<i>Married</i>	-0.232***	<.0001	-0.002	0.517
<i>Opportunistic</i>			0.043***	<.0001
<i>Married</i> × <i>Opportunistic</i>			-0.023***	<.0001
<i>R&D</i> _{<i>t</i>-1}	-0.209***	<.0001	-0.008***	0.001
<i>Loss</i> _{<i>t</i>-1}	0.037	0.594	0.028***	<.0001
<i>Volatility</i> _{<i>t</i>-1}	2.309	0.375	-0.699***	<.0001
<i>Log Analyst</i> _{<i>t</i>-1}	-0.104***	0.000	0.000	0.877
<i>Turnover</i> _{<i>t</i>-1}	-0.044***	<.0001	0.002***	<.0001
<i>Restrict</i> _{<i>t</i>-1}	0.388***	<.0001	0.007**	0.025
<i>BTM</i> _{<i>t</i>-1}	0.685***	<.0001	0.003	0.390
<i>RET</i> _{<i>t</i>-1}	0.390	0.544	-0.055	0.121
<i>SaleGrow</i> _{<i>t</i>-1}	-0.839***	<.0001	-0.056***	<.0001
<i>Log Age</i>	-0.706***	<.0001	-0.015	0.101
<i>Log Tenure</i>	-0.177***	<.0001	0.005***	0.004
<i>Gender</i>	0.218	0.109	0.044***	<.0001
<i>Log Holdings</i>	0.015***	<.0001	0.000*	0.093
<i>Log Compensation</i>	0.056***	0.002	-0.005***	<.0001
<i>Overconfidence</i>	-0.057	0.276	-0.009***	0.001
<i>MBA</i>	-0.232***	<.0001	-0.001	0.835
Firm FE		Yes		Yes
Year FE		No		Yes
Observations		13,611		13,611
Adjusted R ²		0.043		0.043

Appendix

Table A1: Variable definitions

<i>Married</i>	A dummy variable equal to one if a CEO who is legally married, and zero otherwise. Source: Roussanov and Savor (2014), Marquis Who's Who
<i>Trading_Profit</i>	Estimated alpha over the 180 days following the trade, multiplied by (-1) for sale transactions. Source: CRSP and Fame French Data Library
<i>R&D_{t-1}</i>	A dummy variable equal to one if a firm reports positive R&D expenditures in the previous fiscal year. Source: Compustat
<i>Loss_{t-1}</i>	A dummy variable equal to one if a firm reports negative earnings before extraordinary items in the previous fiscal year. Source: Compustat
<i>Volatility_{t-1}</i>	Standard deviation of the daily stock returns over the (-380, -20) interval before the trade. Source: CRSP
<i>Log Analyst_{t-1}</i>	Natural logarithm of one plus the number of analysts following the firm in the previous fiscal year. Source: I/B/E/S
<i>Turnover_{t-1}</i>	Aggregate trading volume over the (-380, -20) interval before the trade scaled by total number of shares outstanding. Source: CRSP
<i>SaleGrow_{t-1}</i>	One-year sales growth. Source: Compustat
<i>Restrict_{t-1}</i>	Percentage of trades that occur in a 30-day window following an earnings announcement and zero otherwise in the previous fiscal year. Source: Compustat
<i>BTM_{t-1}</i>	Book values of equity divided by market value of equity in year $t - 1$. Source: Compustat
<i>RET_{t-1}</i>	Market-adjusted returns over the (-380, -20) interval before the trade. Source: CRSP
<i>Governance</i>	A dummy variable equal to one when G-index compiled by Gompers et al. 2003 is below the sample median, and zero otherwise. Source: Gompers et al. (2003)
<i>Information_Quality</i>	<p><i>fscore</i>, which is a scaled probability based on a misstatement prediction documented in Dechow et al (2011). Specifically,</p> $\text{logit} = 7.893 + 0.790 * \text{RSST_accr} + 2.518 * \Delta \text{AR} + 1.191 * \Delta \text{INV} + 1.979 * \% \text{SFT} + 0.171 * \Delta \text{CashSales} - 0.932 * \Delta \text{ROA} + 1.029 * \text{Issue}$ <p><i>RSST_accr</i> is change in working capital accruals plus the change in net non-current operating assets plus change in net financial assets, scaled by average total assets. $\Delta \text{AR} / \Delta \text{INV} / \Delta \text{ROA}$ is the change in accounts receivables/inventory/return on assets, scaled by average total assets. $\% \text{SFT}$ is the percentage of soft assets (total assets – net PP&E – Cash). $\Delta \text{CashSales}$ is the change of cash sales (sales minus accounts receivables), scaled by average total assets. <i>Issue</i> indicates issuance of long-term debt or common stock.</p> <p>The probability that a company is fraudulently reporting is $\text{Prob} = \text{logit} / (1 + \text{logit})$, and the <i>fscore</i> is the probability of misstatement divided by the unconditional probability of misstatement, which is $fscore = \text{Prob} / 0.0037$.</p> <p>Source: Compustat and Dechow et al. (2011)</p>
<i>Log Age</i>	Logarithm of age of a CEO. Source: ExecuComp
<i>Log Compensation</i>	Logarithm of CEO's total compensation. Source: ExecuComp

<i>Log Holdings</i>	It indicates the insider's ownership position. It is computed as the logarithm of resulting shares the insider held at the time of the transaction. Source: TFN
<i>Log Tenure</i>	Logarithm of tenure of a CEO. Source: ExecuComp
<i>Gender</i>	Dummy variable that takes the value of 1 if a CEO is female and 0 otherwise. Source: ExecuComp
<i>Overconfidence</i>	Indicator variable equal to one if the CEO is identified as overconfident. We first compute a <i>Holder</i> variable which is the average value per vested option scaled by the average strike price of those options. A CEO is identified as overconfident if <i>Holder</i> is larger than 0.67 for two or more years in our sample period. Source:
<i>MBA</i>	Dummy variable that takes the value of 0 if a CEO held an MBA degree. Source: <i>Marquis Who's Who</i>
<i>Opportunistic</i>	Dummy variable that takes the value of 0 if a CEO placed a trade in the same calendar month for at least three consecutive years and one otherwise. Source: TFN