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Ex-military CEOs and income smoothing

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Abstract

Purpose – This study aims to examine whether CEOs with prior military service engage in greater accrual-based income smoothing than their nonmilitary counterparts, and whether such smoothing enhances or diminishes the informativeness of current earnings and stock prices in predicting future firm performance.

Design/methodology/approach – Using a sample of 34,357 US firm-year observations spanning 1993–2022, the authors identify military CEO status through multiple biographical sources including BoardEx, Capital IQ and Marquis Who's Who, and measure income smoothing as a composite factor score derived from three established proxies. The results are robust across multiple identification strategies addressing endogeneity concerns, including firm fixed effects, propensity score matching, entropy balancing and instrumental variable analyses.

Findings – Firms led by ex-military CEOs engage in significantly greater income smoothing. Importantly, this smoothing enhances the informativeness of both current earnings and current stock prices with respect to future performance, suggesting that military-trained CEOs use smoothing strategically as a signaling mechanism rather than opportunistically.

Originality/value – This study identifies military experience as a novel, psychologically grounded determinant of income smoothing, demonstrating that formative imprinting experiences outside the corporate domain leave enduring marks on executives' financial reporting practices. The findings contribute to the earnings quality literature by showing that the intent and consequences of smoothing vary systematically with managerial background.

Keywords Ex-military CEOs, Income smoothing, Earnings informativeness, Imprinting, Accrual-based earnings management, Signaling theory, Upper echelons theory, Corporate governance

Paper type Research paper

1. Introduction

Income smoothing, managers' practice of dampening earnings fluctuations, remains debated in accounting and finance. Critics portray it as opportunistic, masking true performance

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(Leuz *et al.*, 2003; Lang *et al.*, 2012); proponents argue it conveys forward-looking insight (Subramanyam, 1996; Tucker and Zarowin, 2006). Recent research ties smoothing's usefulness to managerial traits, including ability and intent (Demerjian *et al.*, 2020; Baik *et al.*, 2020), yet little research asks whether imprinting life experiences also shape it.

We examine whether income smoothing differs for CEOs with prior military service, given evidence that military training has lasting effects on decision-making (Franke, 2001; Benmelech and Frydman, 2015). This evidence yields contrasting predictions: ex-military CEOs are less likely to commit fraud (Benmelech and Frydman, 2015), produce readable disclosures (Jha *et al.*, 2024) and pursue conservative tax strategies (Law and Mills, 2017), suggesting military ethics discourage accrual discretion; yet military training also instills discipline and forward-looking judgment (Bamber *et al.*, 2010; Benmelech and Frydman, 2015), traits enabling smoothing as a credible signal (Spence, 1973). Our first research question asks whether ex-military CEOs are more or less likely to smooth income than civilian CEOs.

Our second research question asks whether smoothing by ex-military CEOs enhances or diminishes information environment quality: under the signaling view, it may embed forward-looking information into earnings, improving earnings' and prices' ability to predict future performance, whereas military-linked overconfidence and risk-taking (Elder *et al.*, 1991) may instead produce smoothing that conceals rather than clarifies performance. Addressing both questions clarifies how formative experiences shape not just whether managers manage earnings, but the quality of that choice.

We identify military CEOs using multiple sources, including BoardEx, Capital IQ, Marquis Who's Who and proxy-statement verification, following prior research (Benmelech and Frydman, 2015; Law and Mills, 2017; Jha *et al.*, 2024), and measure income smoothing as a composite factor score from three established proxies (Baik *et al.*, 2020).

Our findings address both questions. First, firms led by ex-military CEOs engage in significantly greater income smoothing than civilian-led firms, resolving the theoretical ambiguity in favor of signaling. Second, this smoothing is informative rather than opportunistic, positively associated with earnings' and stock prices' ability to predict future performance.

Empirical governance research faces well-known endogeneity challenges, including unobserved firm characteristics, reverse causality and selection effects, which we address through complementary identification strategies: firm fixed effects, propensity score matching (PSM) and an instrumental variables (IV) approach exploiting variation in military service likelihood across birth cohorts (Benmelech and Frydman, 2015). Results remain robust across all approaches.

Our study makes two key contributions. First, we extend the smoothing literature by identifying military experience as a novel, psychologically grounded determinant of smoothing, distinct from the formal business education (Nurakhmet and Park, 2024) or compensation incentives (Grant *et al.*, 2009) emphasized in prior work: formative experiences outside the corporate domain leave lasting imprints on executives' reporting practices. Our work relates closely to Baik *et al.* (2020), who document a similar, ability-based smoothing channel. Rather than managerial ability, which aggregates innate talent, education and career experience, we focus on stable, early-life imprinting; our data reveal no meaningful correlation between military CEO status and Demerjian's ability score, confirming the two constructs are empirically distinct.

Second, this paper enriches the literature on ex-military CEOs by documenting a distinct, strategic channel through which military imprinting shapes corporate reporting. Prior work emphasizes avoidance: military training deters CEOs from fraud (Benmelech and Frydman,

2015; Koch-Bayram and Wernicke, 2018), aggressive tax strategies (Law and Mills, 2017) and earnings management generally (Lai *et al.*, 2023; Li *et al.*, 2024). We instead document a strategic channel: ex-military CEOs use discretionary accruals to improve earnings' and stock prices' informativeness about future performance, evidence that intent, not just magnitude, shapes earnings management's consequences.

Our findings also carry practical relevance for stakeholders inside and outside the firm. For boards, evidence that military-imprinted CEOs smooth income informatively rather than opportunistically suggests that observable, pre-career characteristics can complement internal monitoring and ability-based signals such as those in Baik *et al.* (2020). For standard setters, our results challenge the view that all smoothing misrepresents performance, because informative smoothing arises through independent channels, and blanket restrictions risk destroying value-relevant information. Auditors, similarly, may condition accrual-based risk indicators on CEO characteristics rather than apply them uniformly, because the same pattern can reflect signaling or a precursor to misstatement. Finally, analysts and investors can interpret smoothed earnings in light of CEO background and information asymmetry.

The remainder proceeds as follows: Section 2 reviews the literature and develops hypotheses; Section 3 describes the methodology; Section 4 presents the data; Section 5 reports results; Section 6 addresses identification and robustness; and Section 7 concludes.

2. Theory and hypothesis development

2.1 Income smoothing: opportunistic distortion vs informational enhancement

Income smoothing entails managers' discretionary actions to attenuate period-to-period fluctuations in reported earnings (Beidleman, 1973; Healy and Wahlen, 1999). The implications of intentional smoothing remain theoretically and empirically contested.

Anchored in agency theory (Jensen and Meckling, 1976), one stream of research conceptualizes smoothing as an opportunistic practice through which managers manipulate earnings to obscure performance and protect private interests such as job security or bonus compensation. Consistent with this view, Graham *et al.* (2005) documented that 78% of surveyed executives would sacrifice economic value to achieve smoother earnings, and cross-country evidence shows smoothing is more prevalent where investor protection is weak, linking smoothing to opportunism (Leuz *et al.*, 2003). Critics further argue that smoothing diminishes earnings' ability to capture true volatility, obscuring signals about underlying risk (Lang *et al.*, 2012).

Conversely, drawing on signaling theory, income smoothing may serve an informational role by enabling managers to leverage private knowledge of future prospects to convey a clearer view of long-term earnings potential (Spence, 1973; Tucker and Zarowin, 2006). Analytical models suggest that smoothing can align reported earnings more closely with permanent earnings (Sankar and Subramanyam, 2001), and empirical evidence shows that smoother earnings enhance analysts' forecast accuracy and lower firms' cost of capital (Francis *et al.*, 2004). More recently, smoothing has been found to improve the informativeness of banks' loan loss provisions, underscoring its potential as an informational enhancement (Narayanamoorthy and Wheeler, 2025).

Taken together, these competing views suggest that income smoothing can either mislead investors or clarify economic fundamentals, depending on managerial context and intent. Examining managers' personal characteristics and professional backgrounds therefore offers important insight into the motivations underlying smoothing practices.

2.2 Managerial characteristics: innate or imprinting experiences

Upper echelons theory (Hambrick and Mason, 1984) posits that organizational outcomes reflect top executives' experiences, values and cognitive styles, contrasting with neoclassical views that treat managers as interchangeable: decision-making is filtered through individual biases that affect strategic choices. Consistent with this, Bamber *et al.* (2010) found manager fixed effects explain significant variation in disclosure attributes, including forecast frequency, specificity and bias, even after controlling for firm-level determinants.

One notable extension of this framework to income smoothing is Baik *et al.* (2020), who find that CEOs with higher managerial ability are more likely to engage in smoothing that enhances earnings informativeness, interpreting this as evidence that able CEOs deploy smoothing strategically to signal firm fundamentals. However, the ability measure used by Baik *et al.* (2020), based on Demerjian *et al.* (2012), aggregates diverse sources including innate talent, formal education and professional experience, and does not isolate the specific channels through which managerial characteristics influence reporting behavior.

Importantly, managerial ability differs conceptually from imprinting experiences, defined as formative life events that leave enduring marks on an individual's preferences and decision-making style [1]. While ability may evolve with context and experience, imprinting emphasizes stable traits shaped early in life. To our knowledge, no study has examined whether noncorporate imprinting experiences affect income smoothing [2]. We address this gap by investigating whether prior military service shapes CEOs' propensity to engage in accrual-based income smoothing.

2.3 Hypothesis development: income smoothing and CEOs with military backgrounds

We focus on military experience as a salient imprinting trait, motivated by extensive evidence of its enduring influence on executive behavior and corporate outcomes (Marquis and Tilcsik, 2013). Benmelech and Frydman (2015) argued that military service instills discipline, integrity and risk aversion, fostering a conservative leadership style that persists long after active service, while also equipping executives to make sound judgments under stress and uncertainty, a capacity reflected in ex-military CEOs leading firms that outperform during industry downturns.

This capacity for sound judgment motivates our first hypothesis. Income smoothing can serve as a credible signal of firm quality when used by capable managers (Spence, 1973), as the ability-based smoothing discussed above (Baik *et al.*, 2020) illustrates. If ex-military CEOs possess comparable decision-making acumen, they may use smoothing strategically to signal the firm's underlying resilience rather than to obscure it. These considerations lead to our first hypothesis:

H1. Firms led by CEOs with prior military experience are associated with higher levels of income smoothing.

This hypothesis, however, may confront tension from the ethical, rule-following dimension of the same military imprint. As noted above, ex-military CEOs adopt more conservative investment and tax policies, produce more readable disclosures and exhibit lower earnings management overall (Benmelech and Frydman, 2015; Law and Mills, 2017; Jha *et al.*, 2024; Li *et al.*, 2024), evidence rooted in the honesty and accountability norms of military culture (Franke, 2001; Soeters, 1997). Military-trained CEOs may therefore be reluctant to exercise accrual discretion at all, rendering the relationship between military background and smoothing an open empirical question.

2.4 The impact of smoothing by ex-military CEOs on the informativeness of earnings and stock price about future performance

While we expect a positive association between military experience and income smoothing, the underlying motivation remains an empirical question. If ex-military CEOs possess superior judgment in forecasting future performance (Bamber *et al.*, 2010) and managing firms through uncertainty (Benmelech and Frydman, 2015), their smoothing may embed private information about future cash flows into current earnings, serving a signaling function (Sankar and Subramanyam, 2001). This reasoning motivates our second hypothesis:

H2. Income smoothing by military-experienced CEOs enhances the informativeness of current earnings about future performance to a greater extent than smoothing by non-ex-military CEOs.

Smoothing may also amplify stock price informativeness by conveying managerial foresight (Tucker and Zarowin, 2006). Military experience is associated with discipline, accountability and the ability to make sound decisions under pressure (Franke, 2001; Benmelech and Frydman, 2015), qualities that may improve a CEO's ability to assess future performance and convey it credibly through accruals. This leads to our third hypothesis:

H3. Income smoothing by military-experienced CEOs enhances the informativeness of current stock prices about future performance to a greater extent than smoothing by non-ex-military CEOs.

Both hypotheses remain open empirical questions, however, given the competing possibility, raised earlier, that military-linked overconfidence and risk-taking (Elder *et al.*, 1991) could instead produce smoothing that masks rather than clarifies performance.

3. Research design

3.1 Identifying ex-military CEOs

We obtain firm identifiers and executive names from Execucomp to identify CEOs with military backgrounds, drawing primarily on BoardEx, which contains educational, career and network information for more than 1.4 million global directors and executives, supplemented by S&P Capital IQ and Marquis Who's Who. Where military service cannot be validated through at least two of these three databases, we conduct supplementary searches using resources including Gale in Context and company annual reports. We exclude CEOs whose involvement is limited to reserve duty without active service. Our ex-military CEO variable equals one if the CEO has prior military experience and zero otherwise, consistent with established literature (Benmelech and Frydman, 2015; Law and Mills, 2017).

3.2 Income smoothing measures

We construct a composite measure of income smoothing (SMTH) by integrating three widely adopted proxies to reduce measurement error, following Baik *et al.* (2020); SMTH is the common latent factor extracted via factor analysis from three individual measures, SMTH1, SMTH2 and SMTH3. SMTH1 is the ratio of the standard deviation of operating earnings to that of operating cash flows, both scaled by lagged total assets. SMTH2 is the Spearman correlation between changes in total accruals and changes in operating cash flows, scaled by lagged assets, capturing the extent to which managers use accruals to offset cash flow fluctuations. SMTH3 is the Spearman correlation between changes in discretionary accruals and changes in premanaged income (net income less discretionary accruals), assessing whether managers use discretionary accruals to stabilize earnings. Higher values,

after multiplying by negative one, indicate greater smoothing; calculations require data for at least three of the prior five years.

3.3 Empirical models

To examine our *H1* concerning the association between CEOs with military backgrounds and income smoothing, we estimate the following regression model adapted from prior literature (Lang *et al.*, 2012; Baik *et al.*, 2020) [3]:

$$\begin{aligned} SMTH_{t,t+4} = {} & \beta_0 + \beta_1 \text{MILITARY\_CEO}_t + \beta_2 \text{FIRM\_SIZE}_t + \beta_3 \text{LEV}_t + \beta_4 \text{BM}_t \\ & + \beta_5 \text{SALE\_VOL}_t + \beta_6 \text{LOSS\_PCT}_t + \beta_7 \text{OP\_CYCLE}_t \\ & + \beta_8 \text{SALES\_GROWTH}_t + \beta_9 \text{OP\_LEV}_t + \beta_{10} \text{AVG\_CFO}_t \\ & + \beta_{11} \text{MA\_SCORE}_t + FirmandYearFixedEffects + \varepsilon_t \end{aligned} \quad (1)$$

$SMTH_{t,\ t+4}$ represents the aggregate measure of income smoothing over years t to $t+4$. $MILITARY\_CEO_t$ is an indicator variable equal to one if the CEO has military experience, and zero otherwise.

The coefficient β_1 captures the effect of military service on income smoothing, controlling for firm-level characteristics known to influence smoothing behaviors. These controls include firm size, leverage, book-to-market ratio, sales volatility, the frequency of losses, operating cycle, sales growth, operating leverage and average cash flows, following Lang *et al.* (2012) [4]. In addition, we examine the relation between military experience at time t and subsequent income smoothing to mitigate concerns about reverse causality. We estimate this OLS model with firm and year fixed effects specifically to isolate the imprinting effect of military service from time-invariant unobserved firm heterogeneity and macroeconomic shocks. The use of fixed effects also helps alleviate the omitted variable concern, improving the efficiency of our estimations. Standard errors are clustered at the firm level throughout to account for serial correlation within firms across our panel. Consistent with our hypothesis, we predict the coefficient of MILITARY_CEO (β_1) to be significantly positive, indicating that CEOs with military backgrounds are more likely to engage in income smoothing.

4. Data

4.1 Sample selection

We obtained accounting variables from COMPUSTAT and stock return data from CRSP. To identify ex-military CEOs, we relied on multiple sources, including BoardEx, ExecuComp, S&P Capital IQ and Marquis Who's Who, as detailed in Section 3. Managerial ability measures were drawn from Professor Demerjian's website. Our sample period spans from 1993 to 2022.

Table 1 summarizes our sample selection process. We began with 298,666 firm-year observations from COMPUSTAT and excluded 194,104 observations not covered by ExecuComp. We further removed 58,119 observations with missing financial data. We exclude firms in the financial and utilities sectors (12,086 observations), due to their unique regulatory requirements. Our final full sample consists of 34,357 firm-year observations from 3,440 unique US firms. To mitigate the effect of outliers, we winsorize all the continuous variables at the 1st and 99th percentiles.

Table 1. Sample selection

Sample selection	firm-years
COMPUSTAT Sample (1993–2022)	298,666
Removes observations that are not covered by Execucomp	(194,104)
Removes observations with missing key financial data	(58,119)
Removes financial and utility firms	(12,086)
Final sample	34,357

4.2 Summary statistics

Table 2 presents the summary statistics for the dependent variables in Panel A and the independent variables in Panel B. The mean of MILITARY_CEO is 0.099, indicating that 9.9% of firm-year observations in our sample are led by CEOs with military backgrounds. Overall, the distribution of variables in our sample is consistent with prior literature on military CEOs (Law and Mills, 2017; Jha *et al.*, 2024) and income smoothing (Baik *et al.*, 2020).

The correlation table in Panel C of Table 2 shows that there is no significant correlation between managerial ability score and CEO's military experience. In other words, Demerjian's managerial ability does not capture the effect of military experience that shapes CEOs' styles over corporate policies.

5. Results

5.1 Baseline model results

Table 3 presents baseline OLS results testing *H1*, that firms led by ex-military CEOs exhibit higher income smoothing. Columns (1) and (2) exclude and include Demerjian's MA_SCORE, respectively, to assess whether the military effect is distinct from managerial ability. In both specifications, the coefficient on MILITARY_CEO is positive and significant at the 1% level: firms led by ex-military CEOs engage in significantly greater income smoothing than civilian-led firms. Benchmarked against SMTH's standard deviation of 0.602 (Table 2), these coefficients imply income smoothing is approximately 1.21 and 0.97 standard deviations higher for military-CEO firms in columns (1) and (2), respectively [5]. Military experience thus captures a dimension of managerial influence on income smoothing distinct from conventional, efficiency-based measures of ability.

5.2 The consequences of income smoothing by ex-military CEOs for the firm information environment

5.2.1 Smoothing by ex-military CEOs on the informativeness of current earnings about future cash flows. To test *H2*, which predicts that income smoothing by military-experienced CEOs strategically enhances the informativeness of current earnings about future performance, we estimate the following OLS regression to capture the interaction between smoothing, military leadership and current earnings:

$$\begin{aligned}\mathrm{CFO}_{t+1} = {} & \gamma_0 + \gamma_1 E_t + \gamma_2 \mathrm{CFO}_{t-1} + \gamma_3 SMTH_{t-4,t} + \gamma_4 SMTH_{t-4,t} \times E_t + \gamma_5 SMTH_{t-4,t} \times \mathrm{CFO}_{t-1} \\ & + \gamma_6 \mathrm{MILITARY\_CEO}_t + \gamma_7 \mathrm{MILITARY\_CEO}_t \times E_t + \gamma_8 \mathrm{MILITARY\_CEO}_t \times \mathrm{CFO}_{t-1} \\ & + \gamma_9 \mathrm{MILITARY\_CEO}_t \times SMTH_{t-4,t} + \gamma_{10} \mathrm{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times E_t \\ & + \gamma_{11} \mathrm{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times \mathrm{CFO}_{t-1} \\ & + \text{Control Variable sandinteractions} + \textit{Firmand Year Fixed Effects} + \varepsilon_t \end{aligned} \quad (2)$$

Table 2. Summary statistics and correlation tables

Variables	Observations	Mean	SD	p25	Median	p75
Panel A: Dependent variables						
$SMTH_{t,t+4}$	34,357	0.009	0.602	−0.495	0.298	0.630
R_t	33,456	0.126	0.508	−0.160	0.053	0.302
CFO_{t+1}	34,340	0.072	0.178	0.035	0.090	0.144
Panel B: Independent variables						
Variable(s) of interest						
MILITARY_CEO	34,357	0.099	0.298	0.000	0.000	0.000
Control variables						
MA_SCORE	34,357	0.526	0.288	0.300	0.500	0.800
FIRM_SIZE	34,357	6.633	2.113	5.221	6.694	8.074
LEV	34,357	0.208	0.176	0.038	0.191	0.324
BM	34,357	0.589	0.545	0.270	0.456	0.735
SALE_VOL	34,357	0.123	0.135	0.044	0.083	0.154
LOSS_PCT	34,357	0.270	0.335	0.000	0.200	0.400
OP_CYCLE	34,357	3.184	0.750	2.938	3.362	3.658
SALES_GROWTH	34,357	0.074	0.283	−0.024	0.069	0.175
OP_LEV	34,357	0.250	0.206	0.097	0.188	0.344
AVG_CFO	34,357	0.064	0.164	0.046	0.088	0.130
$SMTH_{t-4,t}$	33,083	0.004	0.677	−0.517	0.187	0.626
X_{t3}	31,644	−0.064	1.291	−0.048	0.111	0.216
R_{t3}	33,482	0.352	0.992	−0.270	0.171	0.695
CFO_{t-1}	34,349	0.071	0.213	0.039	0.093	0.148
X_t	34,322	−0.029	0.447	−0.009	0.039	0.067
E_t	34,354	0.009	0.277	−0.009	0.047	0.094

Variables	MILITARY_CEO	MA_SCORE	SMTHt,*t* + 4
Panel C: Correlation matrix			
MILITARY_CEO	1.000		
MA_SCORE	0.004	1.000	
$SMTH_{t,t+4}$	0.076***	0.012**	1.000

Note(s): Panel A of this table reports the summary statistics for dependent variables used in our analysis for the full sample. All variables are defined in Appendix 1. Panel B of this table reports the summary statistics for independent variables used in our analysis for the full sample. All variables are defined in Appendix 1. Panel C of this table reports the pairwise Pearson correlations among MILITARY_CEO, MA_SCORE and Income Smoothing ($SMTH_{t,t+4}$). All variables are defined in Appendix 1

where CFO_{t+1} is cash flow from operations in year $t+1$ scaled by lagged total assets, E_t is earnings before extraordinary items in year t scaled by lagged total assets, CFO_{t-1} controls for expectations at the start of year t, and $SMTH_{t-4,t}$ represents income smoothing over the preceding five-year period. A significantly positive coefficient on γ_{10} would indicate that income smoothing by military CEOs further enhances the ability of current earnings to predict future cash flows.

Table 4 reports the results of our tests for *H2*. In Columns (1) and (2), we estimate a baseline model excluding CEOs' military background. In Column (1) the coefficients on current earnings (E_t) and lagged cash flows (CFO_{t-1}) are both positive and significant, confirming that both contribute to predicting future cash flows. Column (2) shows that income smoothing generally enhances the informativeness of current earnings, as evidenced by the significantly positive coefficient on $SMTH_{t-4,t} \times E_t$. More importantly, Column (3) introduces the three-way interaction MILITARY_CEO × $SMTH_{t-4,t} \times E_t$, whose

Table 3. The effect of ex-military CEOs on income smoothing

Variables	(1) SMTHt,t + 4	(2) SMTHt,t + 4
MILITARY_CEO	0.729*** (4.154)	0.586*** (4.657)
MA_SCORE		0.051*** (2.723)
FIRM_SIZE	−0.034*** (−3.935)	−0.030*** (−3.411)
LEV	−0.024 (−0.630)	−0.011 (−0.278)
BM	−0.047*** (−4.823)	−0.048*** (−4.797)
SALE_VOL	−0.135*** (−3.677)	−0.146*** (−3.922)
LOSS_PCT	−0.212*** (−9.187)	−0.218*** (−9.388)
OP_CYCLE	−0.012 (−0.787)	−0.017 (−1.114)
SALES_GROWTH	−0.028* (−1.917)	−0.043*** (−2.712)
OP_LEV	0.014 (0.238)	0.005 (0.088)
AVG_CFO	0.354*** (6.086)	0.293*** (4.827)
Constant	0.276*** (3.665)	0.219*** (2.782)
Observations	34,357	34,357
Firm FEs and year FEs	YES	YES
Type	OLS	OLS
Adj. *R*-squared	0.420	0.424

Note(s): This table reports the results from the model that examines the relationship between CEO's military experience and income smoothing. Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. All variables are defined in Appendix 1

significantly positive coefficient supports *H2*, suggesting that income smoothing by ex-military CEOs further enhances the informativeness of current earnings about future cash flows. Notably, the three-way interaction MILITARY_CEO × $SMTH_{t-4,t}$ × $CFO_{t\times 1}$ is not significant, indicating the military effect operates through earnings informativeness specifically, not through cash-flow persistence.

5.2.2 Smoothing by ex-military CEOs on the informativeness of the current stock price about future performance. To test *H3*, which posits that income smoothing by military-trained executives improves the market's ability to incorporate future performance into current valuations, we extend the CKSS FERC framework (Collins *et al.*, 1994) as adapted by Tucker and Zarowin (2006):

$$
\begin{aligned}
R_t = {} & \beta_0 + \beta_1 X_{t-1} + \beta_2 X_t + \beta_3 X_{t3} + \beta_4 R_{t3} + \beta_5 SMTH_{t-4,t} + \beta_6 SMTH_{t-4,t} \times X_{t-1} \\
& + \beta_7 SMTH_{t-4,t} \times X_t + \beta_8 SMTH_{t-4,t} \times X_{t3} + \beta_9 SMTH_{t-4,t} \times R_{t3} \\
& + \beta_{10} \text{MILITARY\_CEO}_t + \beta_{11} \text{MILITARY\_CEO}_t \times X_{t-1} \\
& + \beta_{12} \text{MILITARY\_CEO}_t \times X_t + \beta_{13} \text{MILITARY\_CEO}_t \times X_{t3} \\
& + \beta_{14} \text{MILITARY\_CEO}_t \times R_{t3} + \beta_{15} \text{MILITARY\_CEO}_t \times SMTH_{t-4,t} \\
& + \beta_{16} \text{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times X_{t-1} + \beta_{17} \text{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times X_t \\
& + \beta_{18} \text{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times X_{t3} + \beta_{19} \text{MILITARY\_CEO}_t \times SMTH_{t-4,t} \times R_{t3} \\
& + \text{Control Variables and interactions} + Firm and Year\ Fixed\ Effects + \varepsilon_t
\end{aligned} \tag{3}
$$

Table 4. The effect of smoothing by ex-military CEOs on current earnings informativeness about future cash flows

Variables	CFO_{t+1}	CFO_{t+1}	CFO_{t+1}
E_t	0.090*** (27.737)	0.184*** (35.854)	0.167*** (29.691)
CFO_{t-1}	0.074*** (11.879)	0.031*** (4.324)	0.028*** (3.734)
$SMTH_{t-4,t}$		0.005*** (4.119)	0.006*** (4.287)
$SMTH_{t-4,t} \times E_t$		0.059*** (23.547)	0.051*** (19.251)
$SMTH_{t-4,t} \times CFO_{t-1}$		−0.032*** (−7.717)	−0.035*** (−8.154)
MILITARY_CEO			−0.002 (−0.481)
MILITARY_CEO × E_t			0.085*** (6.036)
MILITARY_CEO × CFO_{t-1}			−0.000 (−0.019)
MILITARY_CEO × $SMTH_{t-4,t}$			−0.009** (−2.049)
MILITARY_CEO × $SMTH_{t-4,t} \times E_t$			0.091*** (7.521)
MILITARY_CEO × $SMTH_{t-4,t} \times CFO_{t-1}$			0.015 (0.708)
Constant	−0.112*** (−7.108)	−0.119*** (−7.605)	−0.115*** (−7.372)
Observations	33,083	33,083	33,083
Controls	YES	YES	YES
Firm FEs and year FEs	YES	YES	YES
Type	OLS	OLS	OLS
Adj. *R*-squared	0.656	0.661	0.663

Note(s): This table reports the regression results of future cash flows on current earnings, incorporating the three-way interaction among current earnings, income smoothing and CEOs' ex-military experience, along with other control variables. The dependent variable, CFO_{t+1}, is one-year-ahead cash flows, measured as cash flows from operations scaled by lagged total assets. MILITARY_CEO is an indicator variable that equals one if the CEO of the firm in a given year has prior military experience, and zero otherwise. Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

The dependent variable R_t is the annual ex-dividend stock return for year t, and R_{t3} is the annually compounded stock return from year $t+1$ to $t+3$. X_{t-1} and X_t represent EPS for years $t-1$ and t, while X_{t3} is the cumulative EPS from years $t+1$ through $t+3$, all excluding extraordinary items, adjusted for stock splits and dividends following Christie (1987), and deflated by beginning-of-year stock price. We predict β_2 (ERC) and β_3 (FERC) to be positive. If smoothing by military CEOs strengthens the relation between current stock prices and future earnings, β_{18}, the coefficient on $\text{MILITARY\_CEO}_t \times \text{SMTH}_{t-4,t} \times X_{t3}$, should be significantly positive.

Table 5 reports the results. Consistent with Collins *et al.* (1994), β_3, the coefficient on future earnings (X_{t3}), is positive across all specifications. Consistent with Tucker and Zarowin (2006), the coefficient of $\text{SMTH}_{t-4,t} \times X_{t3}$ is positive and significant in Columns (2) and (3), suggesting that income smoothing generally improves the market's ability to incorporate future earnings into current valuations. More importantly, the coefficient on $\text{MILITARY\_CEO}_t \times \text{SMTH}_{t-4,t} \times X_{t3}$ is significantly positive, consistent with *H3*, implying that income smoothing by ex-military CEOs further enhances stock price informativeness through strategic signaling [6].

Taken together, our results support a signaling interpretation of income smoothing by ex-military CEOs: consistent with Spence's (1973) signaling theory, the incremental informativeness of both current earnings and stock prices for future performance indicates that these CEOs use accrual discretion to convey credible information rather than obscure it. Because smoothing requires acting on private knowledge of future cash flows, it is a costly signal that less-informed managers cannot easily replicate, making it credible specifically when exercised by CEOs with military-imprinted judgment and foresight. These findings extend the ability-based signaling channel documented by Baik *et al.* (2020) to a distinct, noncorporate source of managerial credibility.

5.3 Discussion: economic, political and sociodynamic implications

While the empirical analyses in the previous section establish a robust statistical association between military-experienced CEOs and informative income smoothing, this association must extend beyond statistical artifacts to consider what it means in practice for boards, market participants and regulators.

For boards and nominating committees, our findings identify a further channel through which CEO imprinting experience, specifically prior military service, can enhance firm value: ex-military CEOs strategically use accrual discretion to communicate credible information about the firm's future rather than avoid it altogether.

For market participants, CEO characteristics offer a practical basis for interpreting earnings signals. Because smoothed earnings can reflect either informative signaling or opportunistic concealment, investors and analysts may weigh them more heavily as an indicator of future performance when CEOs are ex-military or score highly on managerial ability (Baik *et al.*, 2020), and with more skepticism otherwise. Auditors may similarly condition accrual-based risk assessments on these characteristics rather than apply uniform thresholds, because the same pattern can signal credible communication or a precursor to misstatement depending on who exercises the discretion.

For standard setters, our findings speak to the debate over the appropriate level of accounting flexibility (Healy and Wahlen, 1999). Evidence that an observable manager characteristic predicts informative rather than opportunistic discretion challenges blanket restrictions: treating all smoothing alike risks discarding a valuable signal, alongside the ability-based channel documented by Baik *et al.* (2020).

Table 5. The effect of smoothing by ex-military CEOs on current stock price informativeness about future earnings (FERC)

Variables	R_t	R_t	R_t
X_{t-1}	−0.076*** (−12.969)	−0.074*** (−10.356)	−0.073*** (−9.902)
X_t	0.015*** (2.645)	0.019*** (2.896)	0.014** (2.039)
X_{t3}	0.015*** (5.749)	0.020*** (6.720)	0.019*** (6.168)
R_{t3}	−0.074*** (−25.766)	−0.073*** (−24.616)	−0.075*** (−24.324)
$SMTH_{t-4,t}$		0.001 (0.176)	0.002 (0.525)
$SMTH_{t-4,t} \times X_{t-1}$		0.003 (0.611)	0.004 (0.744)
$SMTH_{t-4,t} \times X_t$		0.005 (0.953)	0.004 (0.706)
$SMTH_{t-4,t} \times X_{t3}$		0.008*** (3.372)	0.006*** (2.763)
$SMTH_{t-4,t} \times R_{t3}$		0.009*** (3.011)	0.006** (2.065)
$MILITARY\_CEO_t$			−0.017 (−1.226)
$MILITARY\_CEO_t \times X_{t-1}$			−0.020 (−0.699)
$MILITARY\_CEO_t \times X_t$			0.074*** (3.213)
$MILITARY\_CEO_t \times X_{t3}$			0.009 (0.934)
$MILITARY\_CEO_t \times R_{t3}$			0.020** (2.084)
$MILITARY\_CEO_t \times SMTH_{t-4,t}$			−0.017 (−1.339)
$MILITARY\_CEO_t \times SMTH_{t-4,t} \times X_{t-1}$			−0.012 (−0.386)
$MILITARY\_CEO_t \times SMTH_{t-4,t} \times X_t$			0.011 (0.384)
$MILITARY\_CEO_t \times SMTH_{t-4,t} \times X_{t3}$			0.035** (2.495)
$MILITARY\_CEO_t \times SMTH_{t-4,t} \times R_{t3}$			0.023** (2.223)
Constant	0.254*** (10.725)	0.251*** (10.608)	0.252*** (10.532)
Observations	31,644	31,644	31,644
Firm FEs and year FEs	YES	YES	YES
Type	OLS	OLS	OLS
Adj. *R*-squared	0.179	0.179	0.180

Note(s): This table reports the regression results of current stock returns on future earnings, incorporating the three-way interaction among future earnings, income smoothing and CEOs' ex-military experience, along with other control variables. The dependent variable, R_t is the ex-dividend stock return for Fiscal Year *t*. MILITARY_CEO is an indicator variable that equals one if the CEO of the firm in a given year has prior military experience, and zero otherwise. Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

6. Identification strategy

Firms with certain traits, such as a preference for structured governance, may favor both smoother earnings and military-trained executives, raising endogeneity and selection concerns. To isolate the imprinting effect of military service from these confounds, we use three complementary strategies, each targeting a distinct source: PSM for reverse causality and functional form misspecification, IV analysis for unobserved heterogeneity and reverse causality and entropy balancing (EB) for covariate imbalance.

6.1 Propensity score matching

Firms predisposed to greater income smoothing may also be more inclined to appoint military-experienced CEOs. PSM addresses this by constructing a control sample of observationally similar firms without military CEOs, without imposing a specific functional form on the MILITARY_CEO-smoothing relationship (Rosenbaum and Rubin, 1983). Following Shipman *et al.* (2017), we use the matched sample for subsequent multivariate regression.

We estimate propensity scores via a logit model using the controls from equation (1) with year and industry fixed effects, then apply one-to-one nearest neighbor matching without replacement, yielding a balanced sample of 6,416 firm-year observations (3,208 treated, 3,208 control). Panel A of Table 6 reports the first-stage logit; Panel B presents balance diagnostics, confirming treatment and control groups are well-balanced across covariates.

Panel C presents OLS results on the matched sample. The coefficient on MILITARY_CEO remains significantly positive, confirming our findings are not an artifact of endogenous sample selection or omitted variables.

6.2 Instrumental variable analysis

To address concerns that the association between military CEOs and income smoothing reflects spurious correlation or unobserved firm heterogeneity, we use an IV strategy. Consistent with established research on military leadership and corporate performance (Benmelech and Frydman, 2015; Koch-Bayram and Wernicke, 2018), we instrument CEO military background using birth year and a dummy variable indicating birth during the conflict era (1930–1943).

Table 7 presents the results. First-stage estimates confirm instrument strength: birth year is negatively, and the conflict-era dummy positively, associated with military service, both significant and consistent with prior literature.

The Cragg–Donald Wald *F*-statistic of 382.47 and the Kleibergen–Paap Wald *F*-statistic of 61.28 both substantially exceed the Stock and Yogo's (2005) critical threshold of 19.93, rejecting weak instrument concerns; the Hansen *p*-value of 0.481 further supports instrument validity.

The second-stage coefficient on the instrumented military CEO variable remains positive and statistically significant, confirming our findings withstand this endogeneity correction[7].

6.3 Additional robustness tests: entropy balancing

EB (Hainmueller, 2012) addresses covariate imbalance without PSM's model dependence. The results from EB confirm the ex-military CEO and income smoothing association is robust; full details appear in Appendix 2 B1.

7. Conclusion

This study investigates whether and how CEOs' military background shapes the practice and consequences of accrual-based income smoothing. Using a comprehensive sample of US firms, we find that firms led by ex-military CEOs engage in greater income smoothing, and

Table 6. The effect of ex-military CEOs on income smoothing on the propensity score-matched and control sample

Variables	MILITARY_CEO
Panel A: Propensity score estimation	
MA_SCORE	0.011 (1.022)
FIRM_SIZE	0.049*** (3.441)
LEV	0.114 (0.969)
BM	−0.057 (−1.483)
SALE_VOL	0.189 (1.275)
LOSS_PCT	−0.930*** (−11.497)
OP_CYCLE	0.064** (2.385)
SALES_GROWTH	−0.030 (−0.420)
OP_LEV	0.260*** (5.744)
AVG_CFO	−0.237 (−1.438)
Constant	−2.312*** (−9.978)
Observations	34,357
Pseudo R^2	0.092

	MILITARY_CEO = 0 n = 3,208		MILITARY_CEO = 1 n = 3,208			
Variables	Mean	SD	Mean	SD	Diff. in means	*p*-value
Panel B. Descriptive statistics for matched sample						
$SMTH_{t,t+4}$	0.025	0.654	0.117	0.512	−0.092***	0.000
MA_SCORE	0.512	0.188	0.511	0.148	0.001	0.227
FIRM_SIZE	7.065	2.037	7.020	1.847	0.044	0.358
LEV	0.224	0.172	0.220	0.164	0.004	0.290
BM	0.549	0.479	0.564	0.487	−0.016	0.195
SALE_VOL	0.113	0.121	0.116	0.128	−0.003	0.309
LOSS_PCT	0.189	0.300	0.184	0.292	0.005	0.520
OP_CYCLE	3.181	0.742	3.187	0.720	−0.006	0.724
SALES_GROWTH	0.071	0.261	0.075	0.239	−0.004	0.541
OP_LEV	0.263	0.206	0.273	0.197	−0.010	0.145
AVG_CFO	0.083	0.125	0.088	0.116	−0.005	0.116

Variables	$SMTH_{t,t+4}$
Panel C: Regression analysis on matched sample	
MILITARY_CEO	0.521** (2.341)
MA_SCORE	0.060 (1.305)
FIRM_SIZE	−0.018 (−0.769)
LEV	0.069 (0.651)
BM	−0.054** (−2.010)
SALE_VOL	−0.130 (−1.253)
LOSS_PCT	−0.146** (−2.082)
OP_CYCLE	−0.049 (−1.198)
SALES_GROWTH	−0.135*** (−2.816)
OP_LEV	0.067 (0.423)
AVG_CFO	0.723*** (3.426)
Constant	−0.008 (−0.040)

(*continued*)

Table 6. Continued

Variables	$SMTH_{t,t+4}$
Observations	6,416
Firm FEs and year FEs	YES
Type	OLS
Adj. *R*-squared	0.477

Note(s): Panel A of this table reports the first-stage logit regression underlying the propensity score matching (PSM) procedure used to construct the treatment and control samples. The dependent variable is MILITARY_CEO, an indicator equal to one if the firm is led by a CEO with prior military experience and zero otherwise. The independent variables include firm characteristics commonly associated with CEO selection and earnings properties, such as firm size, leverage, book-to-market ratio, sales volatility, loss incidence, operating cycle, sales growth, operating leverage and average cash flow. The estimated coefficients are used to derive each firm's propensity score, which forms the basis for matching firms with military CEOs to otherwise similar firms without military CEOs. Standard errors are clustered at the firm level. The *z*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1. Panel B reports summary statistics for the matched sample. Panel C of this table reports the results from the model that examines the relationship between CEO's military experience and income smoothing on the propensity score-matched and control sample. Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

Table 7. The effect of ex-military CEOs on income smoothing: instrumental variable analysis using birth-cohort instruments

Variables	MILITARY_CEO	$SMTH_{t,t+4}$
MILITARY_CEO (instrumented)		0.445** (2.363)
birth_year_ceo	−0.056*** (−22.703)	
conflict_cohort	0.168*** (3.368)	
Observations	33,787	33,787
Adjusted *R*-squared	0.413	0.451
Firm controls	YES	YES
CEO controls	YES	YES
Firm and year FEs	YES	YES
Hansen *p*-value	0.481	
Cragg–Donald Wald *F*-statistic	382.471	
Kleibergen–Paap Wald *F*-statistic	61.280	

Note(s): This table reports first-stage (Column 1) and second-stage (Column 2) 2SLS results. Instruments: birth_year_ceo (CEO birth year) and conflict_cohort (indicator for CEO born between 1930 and 1943). First stage predicts MILITARY_CEO; second stage regresses SMTH on instrumented MILITARY_CEO. Standard errors are clustered at the firm level. The *z*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

that such smoothing enhances the informativeness of current earnings and stock prices with respect to future performance, indicating that military CEOs use smoothing strategically rather than opportunistically. These findings are robust across multiple identification strategies, including firm fixed effects, PSM, EB and IV analyses.

Our study makes two key contributions. First, we identify military experience as a novel, psychologically grounded determinant of accrual-based income smoothing, distinct from

managerial ability, demonstrating that formative experiences outside the corporate domain leave enduring marks on executives' reporting practices. Second, we broaden the literature on ex-military CEOs by documenting a distinct, strategic channel through which military imprinting shapes corporate reporting: rather than simply avoiding earnings management, as prior work on military executives emphasizes, ex-military CEOs use accrual-based smoothing to enhance the informativeness of both earnings and stock prices, underscoring that the intent behind earnings management, not just its magnitude, shapes its consequences.

This study is not without limitations. Our sample is drawn exclusively from US public firms, and the effect of CEO characteristics on financial reporting behavior may not generalize to other regulatory and institutional settings. Corporate governance mechanisms and enforcement intensity vary considerably across countries, and prior research shows that earnings management and the influence of executive characteristics on firm outcomes both vary across investor-protection regimes (Leuz *et al.*, 2003; Al Sa'Ed and Saleh, 2024). Future research could examine whether the role of military-imprinted CEOs in smoothing extends to non-US settings with weaker investor protections.

Notes

[1.] Our analyses reveal *no* correlation between military CEOs and the DEA efficiency-based measure of managerial ability. We also find that the positive association between military CEOs and income smoothing remains statistically and economically significant when controlling for efficiency-based managerial ability, providing evidence that military experience has a distinct effect on CEOs' income smoothing behavior.

[2.] Nurakhmet and Park (2024) examined CEO characteristics and income smoothing in UK firms but focus on observable traits such as tenure, educational background and gender rather than imprinting experiences.

[3.] All variables are measured at the firm year level; following Baik *et al.* (2020), we omit firm subscripts to improve notational clarity.

[4.] Variable definitions are provided in Appendix 1.

[5.] These standardized effects are calculated by dividing the MILITARY_CEO coefficients of 0.729 and 0.586 from Columns (1) and (2) by the standard deviation of SMTH of 0.602.

[6.] Interestingly, the three-way interactions with prior-year and current-year earnings ($MILITARY\_CEO \times SMTH_{t-4,t} \times X_{t-1}$ and $MILITARY\_CEO \times SMTH_{t-4,t} \times X_t$) are not statistically significant, confirming the military effect concentrates on forward-looking performance signals rather than contemporaneous or lagged earnings components.

[7.] The birth cohort instrument's identifying power may be concentrated in earlier years, since CEOs born 1930–1943 are unlikely to still be active CEOs later in the panel. We thank the editor for this observation, addressed in Section B.2 of the Online Appendix using two alternative approaches.

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Appendix 1

Table A1. Variable definition

Variables	Definition
Dependent variables	
SMTH	Proxy for income smoothing, and calculated as the common factor of SMTH1, SMTH2, SMTH3
SMTH1	The standard deviation of operating earnings (OIADP) divided by the standard deviation of cash flows from operations (OANCF), with both earnings and cash flows scaled by lagged total assets. The standard deviation is computed over at least three of the five most recent years, and the measure is multiplied by −1 for ease of interpretation
SMTH2	The Spearman correlation between the change in total accruals (IB – OANCF) and the change in cash flows from operations (OANCF), with both measures scaled by lagged total assets. The correlation is computed over at least three of the past five years. For ease of interpretation, the measure is multiplied by −1
SMTH3	The Spearman correlation between changes in discretionary accruals and changes in pre-managed income. Discretionary accruals are estimated using the cross-sectional Jones (1991) model, while pre-managed income is defined as net income minus discretionary accruals. The correlation is calculated over at least three of the past five years. For ease of interpretation, the measure is multiplied by −1
CFO_t	Operating cash flows (OANCF) for year *t*, deflated by lagged total assets
Independent variables	
Variable(s) of interest	
MILITARY_CEO	An indicator variable that equals one if the CEO of the firm in a given year has prior military experience, and zero otherwise
Control variables	
MA_SCORE	Managerial ability ranking developed by Demerjian *et al* (2012)
FIRM_SIZE	Natural log of market value of equity
LEV	Financial leverage, defined as total liabilities (LT) divided by total assets (AT)
BM	Book-to-market ratio, defined as the natural log of book value of equity (CEQ) divided by market value of equity (PRCC_F × CSHO)
SALE_VOL	The standard deviation of sales (SALE) scaled by lagged total assets (AT), over at least three of the last five years (t4,t)
LOSS_PCT	The proportion of years in which a firm reports negative net income (IB), defined as having losses in at least three out of the five most recent fiscal years (*t* – 4 through *t*)
OP_CYCLE	The natural logarithm of the firm's operating cycle, calculated as (Sales ÷ 360)÷(average accounts receivable, RECT) + (COGS ÷ 360)÷(average inventory, INVT), and averaged over at least three of the five most recent fiscal years (*t* – 4 through *t*)
SALES_GROWTH	Sales growth, the annual change in revenues defined as $(Sales_t - Sales_{t-1})/Sales_{t-1}$
OP_LEV	Net property, plant and equipment (PPENT) divided by total assets (AT)
AVG_CFO	Average operating cash flow. Average cash flows from operations (OANCF) scaled by lagged total assets, measured over the last five years (t4,t)
X_t	Earnings per share (EPS) for year t
X_{t3}	The cumulative EPS from years t + 1 through t + 3
R_t	The ex-dividend annual stock return for year t
R_{t3}	The annually compounded stock return from year t + 1 to t + 3
E_t	Income before extraordinary items (IB) for year t, deflated by lagged total assets
birth_year_ceo	CEO's birth year

Appendix 2

B.1 Entropy balancing

While PSM helps address endogeneity concerns, it has limitations – most notably, its reliance on a model-specified propensity score and the resulting loss of sample size. To mitigate these issues and reinforce the robustness of our findings, we conduct an additional analysis using entropy balancing (Hainmueller, 2012). In contrast to PSM, entropy balancing does not rely on a specific model to estimate matching probabilities. Instead, it uses an iterative reweighting algorithm to ensure that the treatment and control groups are statistically equivalent across the selected covariates in terms of their moments (e.g. means and variances). This approach retains the full sample while improving covariate balance between military and nonmilitary CEO firms.

Table A2 presents the results of this entropy-balanced analysis. The coefficient on MILITARY_CEO remains positive and statistically and economically significant, reinforcing our main finding that firms led by ex-military CEOs engage in significantly greater income smoothing. The stability and significance of the results across specifications suggest that our conclusions are not driven by model specification or sample selection biases associated with PSM.

B.2 Alternative instrumental variable approaches

Our main instrumental variable analysis (Table 7) instruments CEO military background using birth year and an indicator for birth during the conflict era (1930–1943), following Benmelech and Frydman (2015). Because CEOs born in this era are concentrated in the earlier portion of our 1993–2022 panel, a natural concern is that the instrument's identifying power, and consequently our second-stage estimates, may be driven disproportionately by observations from the early years of the sample.

Table A2. The effect of ex-military CEOs on income smoothing on entropy-balanced sample

Variables	$SMTH_{t,t+4}$
MILITARY_CEO	0.475*** (3.986)
MA_SCORE	0.072*** (2.688)
FIRM_SIZE	−0.032** (−2.097)
LEV	0.078 (1.137)
BM	−0.080*** (−4.156)
SALE_VOL	−0.134** (−2.126)
LOSS_PCT	−0.198*** (−4.833)
OP_CYCLE	−0.028 (−0.994)
SALES_GROWTH	−0.068*** (−2.589)
OP_LEV	0.026 (0.282)
AVG_CFO	0.504*** (3.927)
Constant	0.194 (1.352)
Observations	34,357
Firm FEs and year Fes	YES
Type	OLS
Adj. *R*-squared	0.448

Note(s): This table reports the results from the model that examines the relationship between CEO's military experience and income smoothing on the entropy-balanced sample. Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. Definitions of all variables are provided in Appendix 1

We address this concern using two complementary approaches: restricting the sample to the period in which the instrument retains meaningful support, and using an alternative instrument that does not rely on birth cohort timing at all.

1) Restricted sample period: We restrict the sample to 1993–2011, consistent with the sample period used in Law and Mills (2017), who study military CEOs in a closely related setting over 1992–2011.

Table A3 reports OLS estimates replicating our main specification in Table 3 over this restricted period. The coefficient on MILITARY_CEO remains positive and statistically significant, confirming that the direct association between military experience and income smoothing is not confined to, or dependent on, the later years of our panel.

Table A4 reports the corresponding two-stage least squares estimates using the same birth cohort instruments as Table 7. Rather than weakening, the first stage instrument strengthens over this restricted window: the conflict era coefficient rises to 0.276 from 0.168, and the Kleibergen–Paap *F*-statistic rises to 66.23 from 61.28 in the full sample. The second-stage MILITARY_CEO coefficient remains similar. This indicates that the identifying variation is, if anything, concentrated where the instrument is strongest, and that our full sample estimates are not an artifact of weak, diluted identification in later years.

2) Industry year average instrument: While the birth cohort approach is the dominant identification strategy used in the military CEO literature (Benmelech and Frydman, 2015; Koch-Bayram and Wernicke, 2018), its identifying power is necessarily concentrated in the earlier years of any long panel. To provide a test free of this limitation, we construct an alternative instrument based on the industry year average proportion of military CEOs, excluding the focal firm, lagged two and three years, an approach widely used elsewhere in the accounting and finance literature (Dass *et al.*,

Table A3. The effect of ex-military CEOs on income smoothing: restricted sample (1993–2011)

Variables	(1) SMTHt,t + 4
MILITARY_CEO	0.461*** (3.071)
MA_SCORE	0.162*** (2.954)
FIRM_SIZE	−0.042*** (−3.629)
LEV	0.029 (0.617)
BM	−0.047*** (−4.315)
SALE_VOL	−0.168*** (−4.422)
LOSS_PCT	−0.134*** (−4.519)
OP_CYCLE	0.028 (1.452)
SALES_GROWTH	−0.053*** (−2.846)
OP_LEV	−0.056 (−0.775)
AVG_CFO	0.239*** (2.983)
Constant	0.322*** (3.396)
Observations	24,030
Firm FEs and year FEs	YES
Type	OLS
Adj. *R*-squared	0.429

Note(s): This table reports the results from the model that examines the relationship between CEO's military experience and income smoothing on the restricted sample (1993–2011). Standard errors are clustered at the firm level. The *t*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. Definitions of all variables are provided in Appendix 1

Table A4. The effect of ex-military CEOs on income smoothing: instrumental variable analysis using birth-cohort instruments on restricted sample (1993–2011)

Variables	MILITARY_CEO		$SMTH_{t,t+4}$
MILITARY_CEO (instrumented)			0.456*** (2.987)
birth_year_ceo	−0.067*** (−22.975)		
conflict_cohort	0.276*** (4.264)		
Observations	23,637		23,637
Adjusted *R*-squared	0.425		0.458
Firm controls	YES		YES
CEO controls	YES		YES
Firm and year FEs	YES		YES
Hansen *p*-value		0.430	
Cragg–Donald Wald *F*-statistic		363.3	
Kleibergen–Paap Wald *F*-statistic		66.23	

Note(s): This table reports first-stage (Column 1) and second-stage (Column 2) results from two-stage least squares (2SLS) estimation on the restricted sample (1993–2011). Instruments are birth_year_ceo (CEO's birth year) and conflict_cohort (=1 if CEO born between 1930 and 1943, 0 otherwise). The first stage predicts MILITARY_CEO; the second stage regresses SMTH on instrumented MILITARY_CEO and controls. Standard errors are clustered at the firm level. The *z*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

2014; Dhaliwal *et al.*, 2016) and whose identification does not depend on the timing of any historical cohort. Peer firms' propensity to hire military experienced CEOs plausibly reflects industry norms and executive labor market conditions that also shape the focal firm's own hiring, while remaining unrelated to firm-specific determinants of income smoothing once firm and year fixed effects are included.

Table A5. The effect of ex-military CEOs on income smoothing: instrumental variable analysis using industry-year average instruments

Variables	MILITARY_CEO		$SMTH_{t,t+4}$
MILITARY_CEO (instrumented)			0.329*** (3.584)
$INDUSTRY\_AVG_{t-2}$	4.384*** (8.416)		
$INDUSTRY\_AVG_{t-3}$	1.304*** (2.693)		
Observations	28,426		28,426
Adjusted *R*-squared	0.193		0.351
Firm controls	YES		YES
CEO controls	YES		YES
Firm and year FEs	YES		YES
Hansen *p*-value		0.378	
Cragg–Donald Wald *F*-statistic		208.717	
Kleibergen–Paap Wald *F*-statistic		131.295	

Note(s): This table reports first-stage (Column 1) and second-stage (Column 2) 2SLS results using industry-year average military CEO composition as alternative instruments. Instruments are $INDUSTRY\_AVG_{t-2}$ and $INDUSTRY\_AVG_{t-3}$, constructed as the mean proportion of military CEOs within each industry-year (excluding the focal firm), lagged by 2 and 3 years respectively. The first stage predicts MILITARY_CEO; the second stage regresses SMTH on instrumented MILITARY_CEO and controls. Standard errors are clustered at the firm level. The *z*-statistics are reported in parentheses below. ***, ** and * denote two-tailed significance at the 0.01, 0.05 and 0.10 levels, respectively. All variables are defined in Appendix 1

Table A5 reports first stage and second stage two-stage least squares results using these alternative instruments. The first stage coefficients on both lagged industry averages are positive and highly significant, and the Kleibergen–Paap and Cragg–Donald *F*-statistics both indicate a strong instrument. The second-stage MILITARY_CEO coefficient remains positive and statistically significant, consistent with our main finding.

References

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