

# Who Sits at the Top Matters: TMT Human Capital, Fit, and Firm Performance

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## Extended Abstract

Firms operate in increasingly complex environments shaped by globalization, digitalization, sustainability pressures, and intensifying competition, making strategic leadership a decisive factor of performance (e.g., Urquhart & Zhang, 2022; Lei et al., 2024). While who sits at the top matters, the mechanisms through which Top Management Teams' (TMTs) education and experience translate into firm performance remain insufficiently understood and are far from straightforward.

Existing research on TMT has mostly focused on CEOs or Boards of Directors, analyzing sociodemographic traits or static characteristics, often relying on small or sector-specific samples. However, much less is known about how the composition, evolution and alignment of human capital of TMT members (encompassing top managers and executives), particularly their formal education and professional experience, shape firm-level outcomes across an entire economy. In particular, there are mixed evidence on whether diversity in education and experience enhances or undermines firm performance, highlighting the double-edged sword nature of diversity (e.g., Bantel & Jackson, 1989; Li & He, 2023; Xu & Li, 2023; Hernández-Atienza *et al.*, 2024).

To address this gap and drawing on Upper Echelons (Hambrick & Mason, 1984) and Human Capital (Becker, 1993; Davenport, 1999/2007) theories, this study aims to examine, the impact and cause-effect relationship between TMT's human capital composition (in terms of level and field) and alignment, in particular with respect to TMT's formal education and professional experience, affect firm productivity and financial performance, through the use of statistical analysis of numerical data and the development of numerical indicators. The central research question of this study is then: do the level, field and diversity of TMT's formal education and professional experience contribute to firms' performance?

Our analysis uses a uniquely, economy-wide and comprehensive panel of over 360,000 Portuguese firms, across industries, between 2010 and 2023 (covering 2.18 million firm-year observations). We link detailed administrative data on managers' education and professional experience to firm-level performance, based on the *Quadros de Pessoal* (Personnel Records) and *Sistema de Contas Integradas das Empresas* (Integrated Business Accounts System) databases. This allows for an unprecedented scope and representativeness in TMT research.

Using the logarithm of real gross value added per worker, at market prices, as the main measure of firm performance, the study uses as key explanatory variables TMT member's level of formal education and experience level, while also developing original measures of the educational and professional alignment (considering members' scientific field of study and industries of prior work experience), as well as curated diversity metrics, to capture nuanced dimensions of managerial human capital. Control variables account for other determinants of firm performance, encompassing workforces' human capital endowments, corporate governance characteristics, strategic characteristics, and structural characteristics, having included variables such as TMT size, firm age and size, foreign ownership, export intensity, region, among others.

In order to track different firms across time while controlling for unobserved heterogeneity, we apply panel econometric techniques with fixed effects to analyse the data.

Results show that both the *level* and *fit* of TMT human capital matter with higher average education and industry-specific experience, i.e., experience aligned with a firm's industry/activities, significantly enhancing productivity. Additionally, curated heterogeneity in education levels have a positive impact, while excessive dispersion or misalignment in experience undermines performance. These findings help to reconcile mixed evidence on diversity by distinguishing between breadth and dispersion, showing that managerial fit amplifies firm-specific value creation.

Consequently, this study leads us to conclude that firms perform better when their top teams combine strong educational backgrounds and industry-relevant experience. On the other hand, diversity in knowledge and experience helps only when it complements the firm's strategic and operational needs. Excessive variation or poor match between managerial backgrounds and firm activities can harm outcomes. For executives, boards, and policymakers, the message is clear: assembling TMTs requires balancing expertise with diversity and ensuring alignment with the firm's industry and goals. Structured succession planning and targeted recruitment that promote this balance can significantly strengthen firms' productivity and resilience.

The study contributes methodologically, conceptually, and empirically to the Upper Echelons and Human Capital literatures, moving beyond CEO-centric and financial-performance studies by considering a large sample of private, non-financial Portuguese firms, linking managerial human capital to firm productivity and by distinguishing between curated breadth and dispersion through the use of different diversity measures. Policy implications highlight the value of fostering industry-specific managerial skills, promoting mobility across adjacent sectors, and integrating managerial training with workforce development and R&D support, as levers to enhance productivity and competitiveness.

In sum, by integrating longitudinal data with theoretical insights on alignment and heterogeneity, this study refines the Upper Echelons perspective and advances understanding of when and how TMT human capital shape firm success.

**Keywords:** Top Management Teams (TMTs); Managerial Human Capital; Firm Performance; Education and Experience Alignment; Team Diversity

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