Rocket Fuel for Success?
Labor Market Returns to Audit Experience

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Abstract

This study examines the human capital accumulated through audit experience. Compared to individuals who work in a single functional area for one company or who work on narrowly defined projects on an episodic basis for multiple companies, auditors obtain in-depth exposure to the finance and various business functions across multiple companies and, thus, can develop a versatile skillset and accumulate sustainable human capital at an accelerated pace, which empowers them to advance more quickly in their post-audit careers. Using granular individual employment profile data to track employees' career progress, I find that ex-auditors who transition to finance roles are more likely to receive promotions in their subsequent positions compared to their peers who start in the same roles without an auditing background. This pattern is more pronounced when ex-auditors can apply their skills more effectively in their subsequent roles, and for ex-auditors who have worked in one of the Big 5 audit firms and who have 3-5 years of audit tenure. A comparison across professions shows that ex-auditors advance at similar rates to their peers with previous financial advisory experience but at faster rates than their peers with backgrounds in accounting or banking. Additional analyses suggest that ex-auditors not only deliver value within the finance domain, but also contribute to overall profitability and, thus, are more likely to be promoted to executive positions. Collectively, this study provides the first empirical evidence on the labor market returns to audit experience.

Keywords: audit experience; human capital accumulation; labor market returns; skill versatility

JEL Classification: J24; J62; M42

1. Introduction

Audit jobs allow employees to develop a versatile skill set through an in-depth exposure to the finance and various business processes of various companies. However, in recent years, audit firms have increasingly observed a declining interest among potential entrants in audit careers.[1] Many early-career individuals perceive auditing as a monotonous profession with stagnating salary and limited career development opportunities, leading to an auditor shortage in the US.[2] Are these perceptions about auditing true, or can the skills accumulated through auditing expedite employees' human capital accumulation and yield long-term returns in employees' subsequent jobs? This study sheds light on this question by examining whether individuals with prior auditing experience achieve a greater career advancement in finance compared to those with other accounting or finance-related backgrounds.[3] Given the challenges audit firms face in attracting talent, examining labor market returns to audit experience is crucial in increasing the enthusiasm for the profession and building a robust auditor pipeline.

Human capital corresponds to a worker's stock of knowledge and skills that contribute to her productivity. How individuals accumulate human capital and the returns to human capital have been a subject of long-standing interest in labor economics. Becker's (1964) human capital model suggests that workers make a variety of investments to build their marketable skills. Ben-Porath (1967) suggests that individuals invest in human capital through formal education and on-the-job experience. Building on this logic, Mincer (1978) documents positive market returns to human

[1] "Attracting talent is a real issue for everybody in this category," said Daniel Goelzer, a former acting chairman of the Public Company Accounting Oversight Board (Maurer, 2024 April 5). Regardless of the high demand for auditors, accounting programs are observing a declining student interest in accounting major. Even among those who enter as accounting majors, a sizable number of accounting students do not begin their postgraduate work in auditing.

[2] According to the Bureau of Labor Statistics, more than 300,000 accountants and auditors have quit their jobs in the US in the past two years, resulting in a 17% industry-wide employment decline—a gap that is difficult to fill given the diminishing pipeline of college students choosing accounting (Ellis, 2022 December 28). The shortage is expected to worsen as more accountants retire without a robust pipeline of replacements.

[3] In this paper, I use "finance" to refer to a broad range of roles within corporate finance and accounting functions.

capital accumulated through years of schooling and experience. The Becker Model of Training (1964) differentiates general skills and firm-specific skills, highlighting the importance of skill transferability in developing employees' sustainable human capital. The human capital theorem has been successful in explaining individuals' skill accumulation (Goldin and Katz, 2008),[4] providing insights into the supply side of human capital from employees' perspective. Attempting to illuminate the demand side, another strand of literature links the tasks performed by workers to the necessary skills for performing these tasks (e.g., Acemoglu and Autor, 2011), suggesting that employees with comparative advantages in performing specific tasks are assigned to relevant positions to perform those tasks. The human capital theorem along with the task-skill framework thus provides a thorough understanding of how human capital investments translate into labor market outcomes. Embedded in these frameworks, I examine whether audit experience expedites employees' human capital accumulation that can yield long-term returns in employees' subsequent careers in finance.

The returns to audit experience depends on whether audit experience equips employees with the skills that can enhance their productivity, whether these skills are transferable to other businesses, and whether ex-auditors' comparative advantages are recognized in the workplace. While performing their professional assurance services, auditors obtain an in-depth understanding of the client's finance and business processes and are exposed to various businesses across different sectors, allowing them to observe the industry best practices, recurring business patterns, and market dynamics. This enriched experience endows auditors with a valuable toolkit of insights and solutions that are transferable to a variety of business scenarios. Moreover, during the course

[4] Following Becker (1964) and Mincer (1978), one strand of research documents the labor market returns to schooling (e.g., Card, 1999, 2001; Heckman, Lochner and Todd, 2006; Angrist and Krueger, 1991; Shenfelter and Rouse, 1998), and another strand of studies document the positive labor market returns to job experience (e.g., Murphy and Welch,1990; Polachek, 1981; Becker and Tomes, 1979; Bagger, Fontaine, Postel-Vinay and Robin, 2014).

of the audit, auditors are equipped with a broad spectrum of skills ranging from financial expertise and technological proficiency to business acumen and people skills, which are essential skills in performing a variety of tasks. The combination of financial expertise, in-depth business knowledge, broad exposure, and versatile skills constitute valuable human capital that enables ex-auditors in their subsequent jobs to see beyond the immediate tasks in finance, connect the dots across functional areas, and discern broader business patterns. Consequently, ex-auditors can not only meet the transactional and reporting requirements, but also offer broader business insights to identify opportunities and to deliver value beyond the finance function in their new company. Organizations often have thorough performance evaluation procedures that allow employers to effectively recognize and assess the capabilities of ex-auditors in their new positions. Therefore, ex-auditors' comparative advantages are likely to be recognized by employers, who are then more inclined to entrust ex-auditors with key positions and greater responsibilities. As a result, ex-auditors are likely to be promoted faster and to exhibit greater career progress in subsequent jobs than their non-ex-auditor counterparts.

Nevertheless, auditing has been viewed sometimes as a monotonous career that offers limited skill development opportunities to employees.[5][6] Auditors' primary responsibility is to provide assurance to the clients' financial statements—there may be a perception that the adherence to accounting standards may restrict employees' human capital development. To obtain business insights and develop versatile skills from audit tasks, an auditor may need to proactively seek out and leverage the learning opportunities that audit tasks offer. However, tight deadline

[5] For example, said by an undergraduate student at Washington & Lee University, "Working in the Big Four seems to be more limited to just like, CFO or chief finance type role. Investment banking was more versatile...Optionality for different careers later on was probably the No.1 thing" (Mutoh, 2023 May 12).

[6] "The millennial and Gen Z workforce has displayed different values and priorities compared to previous generations…The traditional image of auditors as number-crunching professionals with limited growth opportunities may deter young talents from choosing public practice as their desired career path," said by a director of a professional service recruitment platform (Charlene C., 2023 July 30).

pressures, especially during the audit peak period, may keep auditors focused on completing specific tasks, with limited bandwidth to take proactive actions to develop business insights and versatile skills. Moreover, unlike some other professionals whose skill development is less structured, auditors are required to obtain the CPA license that heavily emphasizes accounting expertise. The specialized licensing requirements may reinforce the domain-specific nature of auditors' skills, restricting auditors' skill transferability. On top of that, employers outside of the public accounting sector may perceive auditing background solely as a compliance-focused experience, failing to recognize the full spectrum of skills and unique value that ex-auditors can bring to an organization. Considering all these factors, whether auditing experience can accumulate competitive human capital that empowers employees to excel in their subsequent jobs is an empirical question.

This study uses individuals' granular employment profile data from Revelio Labs to examine the returns to auditing experience by comparing the subsequent career progress of ex-auditors who transition to the finance-related positions with that of individuals who transition to the same positions without an auditing background. I focus on ex-auditors transitioning to finance roles because about 83% of individuals with auditing experience subsequently transition to finance positions, suggesting that financial expertise accumulated through auditing is closely relevant and directly applicable to finance roles. Revelio collects hundreds of millions of public employment records from a variety of sources, including employee online professional profiles, company job postings, and government data (Fadhel, Panella, Rouen and Serafeim, 2022). This data set allows me to track employee characteristics, job movements, previous and current roles, geographies, seniority levels, and estimated pay of millions of U.S. employees during 1995-2022. I define ex-auditors as individuals who have previously served as an auditor in public accounting firms and

later transition to a finance-related role within public companies outside of the auditing industry. My final sample consists of 11,565 ex-auditors over 1995-2022, among which 65% have worked in one of the Big5 audit firms. To assess individual employees' career advancement, I analyze the job promotion record of each employee following their auditing experience, as documented in the Revelio database.

Turning to the main analysis, I select a sample of employees without auditing experience who commenced in the same position, in the same office, and at the same time as ex-auditors' counterparts. Among this group, 25.5% had prior experience in accounting and corporate finance, 20% had served in financial advisory positions, 42.2% had experience related to investment and banking, and the rest had other previous working backgrounds including operations, marketing, and sales, among others. I regress employees' promotion rate measures against an ex-auditor indicator variable, controlling for employees' job tenure at a company, as well as their demographic characteristics, educational background, and prior working tenure. The results indicate that ex-auditors are 3.5-4.5% more likely to be promoted and are promoted more quickly than their non-ex-auditor counterparts during their tenure at a company. These findings suggest that audit experience is associated with a positive labor market return in the form of greater promotion opportunities in subsequent jobs.

To gauge the types of human capital that ex-auditors possess, I examine the circumstances in which the market returns to the human capital accumulated through auditing is more prominent. Auditors' proficiency in finance and business processes, combined with their industry expertise and economic insights, constitutes their competitive edge; thus, ex-auditors are more likely to excel in the environments where they can leverage these skills. Consistent with this prediction, I find that ex-auditors are promoted more quickly in companies with more complex financial reporting

and business operations, suggesting ex-auditors' finance and business insights enable them to stand out especially when faced with complex and challenging scenarios. I also find that ex-auditors are promoted more quickly when they have more prior exposure to the new companies' industry through their audit offices' client portfolios and when the audit office and the new company are located in the same Metropolitan Statistical Area (MSA), suggesting that ex-auditors' industry expertise and economic insights constitute greater competitive advantages when their knowledge is more relevant to the new companies.

Next, I explore the heterogeneity in the extent of human capital employees can accumulate within the audit profession and across different professions. Within the audit profession, I find that ex-auditors who have worked in one of the Big5 audit firms have a greater chance of getting promoted than those from smaller audit firms, suggesting that the greater exposure and more comprehensive training offered by large audit firms could sharpen employees' insights and skills, thus better preparing them to succeed in subsequent jobs. I also find that the returns to audit experience is most pronounced for ex-auditors with 3-5 years of audit experience, suggesting that 3-5 years may represent the optimal audit tenure for employees to gain sufficiently broad exposure while also achieving a deep understanding of the diverse aspects of their clients' business operations. Further, a comparison of the extent of human capital accumulated across professions indicates that individuals with prior auditing experience advance at similar rates to their peers with previous financial advisory experience but at faster rates than their peers with backgrounds in accounting or banking. As individuals focused solely on accounting may lack a comprehensive perspective, while those in banking may not reach the same level of depth in their understanding, ex-auditors' advantages likely stem from auditing jobs' unique blend of in-depth business insights and broad exposure.

Ex-auditors may leverage their depth of business insights and breadth of versatile skills to make broader contributions to a company beyond the finance functions. To shed light on the spectrum of skills that ex-auditors possess, I examine the unique value that ex-auditors bring to an organization. As employees' promotions are typically granted in acknowledgment of their contribution to the company, the scope of the organization-wide performance metrics used to assess employees' contribution and decide on their promotions often reflect the extent of the impact that employees make. If ex-auditors' versatile skills enable them to make a greater contribution to an organization, their promotion progress will be more closely tied to the overarching company-wide performance metrics. To test this prediction, I construct a panel at the employer-employee-year level and examine the association between an employee's yearly promotion and two company-wide performance metrics in that year: internal control efficiency, as a domain-specific metric primarily reflecting a company's financial reporting and control efficiency, and overall earnings performance, as a broader profitability metric influenced by a wide range of business activities. I find that the promotion rates of both ex-auditors and their counterparts are associated with the company's internal control efficiency, but ex-auditors' promotion rates are more closely tied to the company's earnings performance than those of their counterparts. These findings suggest that ex-auditors not only deliver value within the finance domain but also extend their impact to various business functions, potentially impacting a company's overall profitability.

Lastly, I provide additional evidence on the potential for ex-auditors to ascend to executive roles. I posit that the in-depth understanding of various aspects of a business coupled with broad exposure allows one to connect the dots and fully comprehend a business's dynamics, thereby enhancing her strategic decision-making and paving the way to executive positions. Consistent

with this expectation, I find that ex-auditors, compared with their non-ex-auditor counterparts, are more likely to be promoted to executive positions during their tenure at a company. These results suggest that audit experience equips employees with a well-rounded skill set to see beyond the immediate job tasks and delve into broader business patterns, potentially preparing them for leadership and executive roles.

My results are subject to endogeneity concerns stemming from correlated omitted variables and self-selection issues. I take several steps to alleviate these concerns. First, as the control counterparts, I select individuals starting in the same position, in the same office, and at the same time as ex-auditors do, and I augment the model with the combination of job position, working office, and job start time fixed effects. This sample selection scheme and fixed effect structure enable me to compare each ex-auditor/matched non-ex-auditor pair within the same job position, office, and job start time, thereby identifying the effect of employees' competency on their career advancement. Second, I use audit firms' mergers and acquisitions (M&A) events and litigations involving audit firms as exogenous shocks to the extent of human capital that employees can accumulate through auditing. M&A activities by audit offices significantly enlarge the audit offices' client portfolios, and litigations involving audit offices often enhance the rigor of an office's audit procedures. These events could sharpen the depth and breadth of insights that auditors obtain, indirectly contributing to auditors' human capital accumulation. As these events are exogenous to the career decisions of auditors who joined the audit office before the event, they are exogenous shocks to these auditors' human capital accumulation. The results of the difference-in-difference analyses corroborate my documented findings. Third, I use entropy balancing and coarsened exact matching to match the sample of non-ex-auditors with the ex-auditor sample along several dimensions including educational background, demographic attributes, and prior working

tenure. The results are robust using the matched samples. Last, I conduct a two-stage least squares (2SLS) test in which I use the number of audit firms' feeder schools in an MSA to instrument individuals' decision to pursue a career in audit. The inference remains unchanged.

This study makes several contributions. First, I provide the first large-sample empirical evidence quantifying the labor market returns to human capital investment in the form of audit experience. Auditing has been seen as a less attractive career over the last two decades, primarily due to the public perception of its stagnating salaries[7] and restrictive career development opportunities, resulting in an auditor shortage in the US. Attempting to counteract this trend, public accounting firms have aggressively raised the entry-level salary by 13% to nearly $61,000 in 2022, but increasing pay alone does not seem to reverse the public perceptions of the auditing profession (Maurer, 2023; Steinhardt, 2023).[8] To enhance the appeal of auditing among potential new entrants, professional organizations, corporate recruiters, and accounting educators need to educate graduate students about the unique human capital accumulated through audit experience. This study provides the first large-sample empirical evidence on the labor market returns associated with audit experience, highlighting audit experience as a human capital investment for individual workers. While this investment may not directly translate into immediate financial returns during the audit tenure, over time, it can lead to better job advancement and potentially greater financial rewards in subsequent roles. These insights are crucial in shaping the public perceptions about auditing and attracting talent to the profession.

[7] According to Burning Glass, the starting pay for graduates working in accounting firms, relative to other professions, can seem low. The median graduate working in accounting had a starting salary of $66,504 in 2021, compared with $97,562 in data science and $101,401 in tech (Mutoh, 2023 May 12).

[8] Jim Brady, chief operating officer at Grant Thornton, said "I just don't think giving a ton of 25 percent pay raises across the board is going to reverse what's been building over the last two decades" (Steinhards, 2023, March 29).

Second, this study complements the literature examining auditors' skills and expertise. Prior literature documents that auditors, while providing assurance to clients, obtain industry expertise and valuable insights, which can benefit their clients in various aspects (e.g., Louis, 2005; Cai, Kim, Park and White, 2016; Choi, Dhaliwal and Lamoreaux, 2017; Bae, Choi, Dhaliwal and Lamoreaux, 2017; Axelton, Demere, Gramlich and Harris, 2022; Kang, Lennox and Pandey, 2022). Another strand of studies examines the association between audit quality and auditors' skills, such as the attributes of lead engagement partners (Gul, Wu and Yang, 2013; Mowchan, Seidel and Zimmerman, 2023), auditors' IT proficiency (Fedyk, Hodson, Khimich and Fedyk, 2022), and auditors' social and cognitive skills (Ham, Hann, Rabier and Wang, 2023). This study complements this literature by showing that auditors' skills and expertise not only improve the audit quality but represent unique human capital for individual employees to advance their careers.

Third, this study is closely related to the human capital literature in labor economics. Rooted in Becker (1964), Mincer (1978), and Ben-Porath (1967), employees' skills have been regarded as a type of capital in which employees continuously make investments through formal education and on-the-job experience. Embedded in this framework, subsequent studies have provided fruitful evidence on the wage premium associated with employees' education and job tenure. However, most empirical work uses the length of job tenure to proxy for the homogeneous on-the-job human capital accumulation, while the heterogeneity in different types of job experiences is largely unexplored. This study fills this void by examining the labor market returns to audit experience. The results suggest that the human capital accumulated through auditing is highly transferable to various tasks and valued by employers outside of public accounting, and thus is associated with prominent labor market returns.

This study is subject to several caveats. First, employees' seniority measures in Revelio are estimated based on the roles employees serve in a company, probably containing measurement errors. However, these measurement errors are unlikely to be correlated with whether an individual is an ex-auditor and with error terms, thus less likely to bias the inference. Second, individuals' online employment profile data may have limited coverage of all employed workers in the U.S. Even so, the data tend to offer a relatively thorough overview of white-collar professionals, and the Revelio dataset has been utilized in prior research in studying employees' job movements (Ham, Hann, Wang and Yang, 2024; Pacelli, Shi and Zou, 2023; Renschler, Ahn, Hoitash and Hoitash, 2023). Third, although I perform several analyses to strengthen identification, the study is subject to the caveat that employees' unobservable characteristics such as innate ability, personality, family background, and early career plans simultaneously drive their job choices and career advancement. Nevertheless, the positive association between employees' audit background and their future career progress that I document provides important insights to accounting educators, recruiters, and college students.

The remainder of the paper proceeds as follows. Section 2 discusses the theoretical framework and develops the main hypothesis. Section 3 describes the data, sample, and research design. Section 4 presents the main empirical results. Section 5, 6 and 7 discuss the cross-sectional tests, additional analyses, and robustness tests. Section 8 concludes.

2. Theoretical Framework and Hypothesis Development

2.1 Theoretical Framework

Human capital corresponds to a worker's stock of knowledge, skills, and characteristics, which enhances a worker's productivity (Becker 1964). A worker's human capital stems from various sources, including innate ability (Gardner 1983), and skills and knowledge accumulated

through formal education as well as on-the-job training and experience (Ben-Porath 1967; Mincer 1978). As human capital enhances individual and organizational productivity, it is associated with positive market returns. Based on the human capital theorem, employees make investments in their human capital through schooling and on-the-job training in exchange for the future returns, while trading off the associated costs, such as tuition fees, time, effort, and foregone earnings during the period of investment (Mincer, 1978).

A natural concern for workers in forecasting the returns to their human capital investments is that the skills a worker acquires through her job experience may not be as widely transferable as skills obtained from schooling. The Becker Model of Training (1964) resolves this concern by differentiating general skills and firm-specific skills— employees acquiring general skills are likely to receive greater market returns over time as these skills are widely applicable and transferable to a wide range of tasks, while employees acquiring specific skills may have limited wage prospects due to limited applicability of their skills in a wider context. In a similar spirit, Ljungqvist and Sargent (1998, 2002) suggest that workers lose some of their human capital when they leave their jobs due to the limited applicability of their firm-specific knowledge, subsequently spurring a large body of research in skill holdup, labor market dynamics, worker mobility, outside job options, and wage bargaining power (e.g., De Loecker, Eeckhout and Unger, 2020; Stansbury and Summers, 2020).

Although the human capital model has been highly successful in explaining individuals' investments in human capital (Goldin and Katz, 2008), it does not adequately address the demand side of the human capital market. Specifically, it falls short in identifying the skills employers seek for performing certain job tasks and how employees are allocated to these tasks. Attempting to shed light on the demand aspect, Acemoglu and Autor (2011) develop the task-skill framework

that maps employees' skills (i.e., inherent capabilities to perform various tasks) to specific job tasks (i.e., units of work activities that contribute to output). In this framework, workers are assigned to job tasks based on their comparative advantages and apply their skills to the assigned tasks in exchange for compensation. The human capital model combined with the task-skill framework thus provides a more thorough picture of how human capital investments translate into labor market outcomes.

Grounded in these frameworks, I examine labor market returns to audit experience. The returns to audit experience depend on (1) whether audit experience equips employees with the skill sets that can enhance their productivity; (2) whether these skills are transferable to other business contexts; and (3) whether these competitive advantages are recognized by employers. If audit experience equips employees with essential skills that can enhance their productivity in the workplace, such experience is likely to foster employees' human capital development. However, the benefits and the sustainability of this human capital depend on how well the skills gained from auditing can be applied to other business contexts. Ex-auditors can effectively leverage their skills in subsequent roles only if these skills are transferable and relevant to the tasks in subsequent positions. Lastly, the realization of returns to this human capital depends on whether employers recognize the full spectrum of skills possessed by ex-auditors. Only by recognizing ex-auditors' comparative advantages, can employers assign ex-auditors to roles where their unique strengths align with specific tasks and their full potential is released.

2.2 Human Capital Accumulated Through Auditing

Auditors' primary responsibility is to provide assurance to the accuracy and reliability of the clients' financial statements. While performing the assurance services, auditors gain an in-depth understanding of various aspects of the client, including financial performance, business

processes, risk management, and regulatory compliance. During the audit process, auditors need to frame a full picture of these various attributes, allowing them to obtain an in-depth understanding of how a business operates, adapts, and succeeds in its respective domains. For example, auditing a manufacturing client allows an auditor to gain insights into supply chain management and production efficiency, while auditing a technology company could provide her with insight into intellectual property management and innovation cycles. These in-depth insights enable auditors to develop invaluable industry expertise and business acumen, which are crucial for diverse decision-making. Consistent with this possibility, Bae et al. (2017) find that auditors' industry expertise not only improves audit quality but also enhances clients' investment efficiency.

Moreover, auditors interact with a wide range of clients within their portfolios, through which they can observe the industry's best practices and recurring business patterns. For instance, auditors may notice the commonalities in successful marketing strategies across industries or identify effective cost-cutting strategies that have been employed in multiple organizations. Audit firms also invest significant resources in developing their knowledge base and providing frequent firm-wide training and best practice manuals to employees. This broad exposure equips auditors with a versatile toolkit of solutions and insights that can be widely applied to various business scenarios. Consistent with this possibility, Axelton et al. (2022) find that auditors can diffuse the operational knowledge and industry best practices across companies. Kimbrough and Yang (2024) suggest that auditors' economic insights can be a valuable input for enhancing clients' management forecasts.

Furthermore, during the audit process, auditors are equipped with a broad spectrum of skills ranging from technical proficiency to soft skills. With the advance of technology, employers have increasingly demanded an expanded skillset from employees (Deming, 2017; Hershbein and Kahn

2018; Ham et al., 2023). The versatile skills acquired through auditing can be particularly in demand in today's labor market. For instance, auditors are trained to analyze financial data and business information, and to identify risks and control deficiencies; the financial acumen and analytical thinking are important skills in various roles across industries. Auditors regularly complete the tasks in team settings and conduct analytical procedures that involve asking open-ended questions to the management team (Trompeter and Wright 2010; Bol, Estep, Moers and Peecher, 2018); the communication and teamwork skills acquired are one of the most requested and necessary soft skills in today's labor market (Deming, 2017; Fe, Gill and Prowse, 2022).[9] Auditors detect potential deficiencies, negotiate with clients, and propose potential solutions, through which they develop their critical thinking and business acumen as well as problem-solving and decision-making skills, which are particularly valuable in today's labor market where many routine physical tasks are automated (Caplin, Deming, Leth-Petersen and Weidmann, 2023). Collectively, the in-depth financial and industry expertise, coupled with broad exposure and versatile skills, are valuable human capital that can be applied to a wide range of finance-related tasks.

2.3 Hypothesis Development

As discussed previously, an important component of an individual's human capital is the transferability of her skillset (Becker, 1964), which is largely determined by her experience in prior positions. A typical early-stage position entails working for a single company and focuses on a specific functional area. The limited variety of companies and functional areas to which an employee in roles such as internal auditing or corporate finance is exposed inherently restricts the transferability of her acquired skills. While employees can gradually build up the transferability of

[9] A 2017 survey by the National Association of Colleges and Employers found that "ability to work in a team" was the most commonly desired attribute of new college graduates.

their skillset over time by transitioning among companies or positions, a more efficient way to build up transferable skills is to seek positions that provide exposure to a variety of companies and functional areas.

Auditors, through their diverse client portfolios, gain broad insights across a variety of companies, fostering the development of a transferable skill set that can be applied to a variety of business sceneries. Although some other professional service jobs also offer broad exposure to a wide range of companies, auditing is further distinguished by the depth of knowledge auditors must acquire about the variety of the functional areas of each client because auditing standards mandate a comprehensive examination of financial records and business operations. This regulatory requirement necessitates a thorough understanding of every aspect of a company's financial health and operational integrity. Moreover, unlike other professional service jobs, which tend to be episodic, auditors often engage with their clients continuously throughout the fiscal year. This ongoing relationship with the client allows auditors to accumulate a deep understanding of various aspects of the client's business that short-term engagements may not reveal. Therefore, auditors can gather a wealth of knowledge and skills that are both broad in scope and deep in insight, which are unique comparative advantages that other workers may not possess.

The market returns to ex-auditors' comparative advantages depend on how well employers recognize and appreciate them. The effectiveness of internal performance evaluation systems plays a crucial role in realizing the market value of ex-auditors' unique strengths. Companies often utilize structured performance appraisal systems designed to comprehensively review and measure employees' performance in a systematic manner. These systems often encompass a variety of evaluation tools and methodologies, including self-assessments, peer reviews, supervisor evaluations, and objective performance indicators. By integrating these diverse evaluation

mechanisms, employers can not only acknowledge the unique skill sets that ex-auditors possess but also evaluate how these skills add value to the company. Consequently, ex-auditors' comparative advantages are likely to be recognized by employers, who are then more inclined to entrust ex-auditors with key positions and greater responsibilities. This recognition often translates into greater opportunities for promotion, facilitating ex-auditors' career advancement within the organization. Taken collectively, the skills accumulated through auditing, which, interpreted through the lens of the human capital model, are transferable human capital that will be recognized by employers and thus associated with positive market returns. Based on the foregoing discussions, I develop my hypothesis as:

H1: Ex-auditors demonstrate greater career progress than their non-ex-auditor counterparts in subsequent finance-related jobs.

3. Data, Sample, and Empirical Design

3.1 Data, Sample, and Measures

I use granular employees' employment profile data from Revelio Lab to track individual employees' working experience, educational background, and career progress. Revelio provides individual-level employment data containing individual-specific information on current and historical roles, demographic characteristics, and educational background. The company collects hundreds of millions of public employment records from a variety of sources, including employee online professional profiles, company job postings, and government data (Fadhel, Panella, Rouen, and Serafeim, 2022). To standardize employees' seniority level, Revelio uses an ensemble model to assign a continuous seniority score to each employee's job position based on the employees' job titles and assign each seniority score into one of the following standardized seniority levels: Entry, Junior, Associate, Manager, Director, Executive, and Senior Executive. This standardized

seniority assignment enables me to consistently track the change in employees' seniority across offices over time. Appendix B provides more details and examples of the seniority measures constructed in the dataset.

To obtain a sample of ex-auditors, I use employees' historical job records from Revelio to select a sample of individuals who have had auditing experience in a public accounting firm and subsequently moved to a public firm outside the auditing industry. I identify employees who have worked as an auditor in a public accounting firm using the following selection criteria: (1) the employee has worked in a public accounting firm operating in the "Certified Public Accountants" industry, defined using the 6-digit NAICS industry code "541211;" (2) the employee's job title contains variations of the "audit" or "assurance" keywords during the employee's job tenure at the audit firm; (3) the employee has worked in an office in the U.S. during the employee's job tenure at the audit firm; (4) the employee was not solely working as an intern, part-time employee, or temporary worker at the audit firm; (5) to reduce the type II errors, I exclude employees whose job titles contain the variations of "tax," "consulting," or "IT" related keywords; and (6) the employee has moved to a public firm after her auditing tenure. These selection criteria create a sample of 44,862 ex-auditors who subsequently moved to 5,662 public firms after their audit tenure from 1995 to 2022.

Next, I identify a pool of employees from these public firms to which ex-auditors have transitioned. From this group, I select a sample of individuals, as ex-auditors' counterparts, who do not have prior auditing experience but started the same role in the same office and within the same time window as ex-auditors. This time window commences in 1995, with subsequent windows spanning five years each. Appendix C lists a sample of pairs of ex-auditors and their matched non-ex-auditor counterparts to illustrate the matching process. I exclude ex-auditors

lacking a corresponding matched non-ex-auditor counterpart in the same job role, office and starting time window, resulting in a sample of 27,032 ex-auditors working in 3,666 public firms. Moreover, I exclude employees whose demographic and educational data are missing in the Revelio database. Lastly, I exclude ex-auditors who did not move to a finance position, where a position is flagged as a finance position if the associated O*NET code of the position is in the "13-2000 Financial Specialists" category or "11-3031 Financial Manager" category. My final sample consists of 11,565 ex-auditors and 99,545 matched non-ex-auditors who have moved to a finance position in a public firm from 1995 to 2022. Appendix D lists the details of my sample selection procedures.

To examine the labor market returns to employees' human capital investment, I construct two measures to proxy for an individual's career progress in subsequent roles. First, I use an indicator variable, *Promotion*, to measure the likelihood of employees being promoted during the job tenure at the company, and second, I use a continuous variable indicating the numeric value of the change in employees' seniority level, *Change Seniority*, to track employees' promotion rates during the tenure at the company. While the seniority level estimated in Revelio may contain measurement errors, these errors are less likely to introduce bias or inconsistency to the estimator if they are not correlated with the independent variable (Wooldridge, 2012). As the seniority measure is estimated based on the roles of employees and the companies they work for, the measurement errors are unlikely to be correlated with whether an individual is an ex-auditor, and thus are less likely to bias the inference.

3.2 Empirical Design

To test my hypothesis, I compare the career advancement of ex-auditors with their non-ex-auditor counterparts during their job tenure at a company by regressing each of the career advancement measures against an *Exauditor* indicator variable using the following model:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2\ Tenure_{i,j} + b_3 Demographic_i + b_4 Education_i + b_5 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (1),$$

where *Career Advancement*$_{i,j}$ is measured alternatively by *Promotion* and *Change Seniority* during employee *i*'s job tenure at the company *j*; *Exauditor*$_i$ is an indicator variable that equals 1 if the employee *i* has a prior auditing background before joining company *j*; *Tenure*$_{i,j}$ is the job tenure of employee *i* at company *j*; *Demographic*$_i$ is a vector of indicator variables indicating employee *i*'s demographic attributes, including *Female, Black, API, and Hispanic*; *Education*$_i$ is a vector of variables controlling for employee *i*'s educational background, including the highest education level an individual has achieved, *Education Level*, to control for the human capital accumulated through formal education, the rank of individuals' undergraduate institution, *School Rank*, to control for employees' innate ability, and a series of indicator variables specifying the employee's fields of education, *Accounting, Finance, Business in General, Economics, Engineering*, and *Others*; *Previous Tenure*$_i$ represents the total number of years of working experience that employee *i* had prior to joining company *j*—this variable accounts for the general human capital accumulated through previous employment purely attributed to the tenure of previous jobs, thereby isolating the variation in the human capital gained from various types of prior experiences. All variables are winsorized at the 1st and 99th percentiles to reduce the impact of outliers. To account for the correlations among error terms, I cluster standard errors by firm and MSA.

To bolster identification, I augment the model with two sets of alternative fixed effects: first, I include the firm, MSA, start role, start seniority, and start time window fixed effects to control for the time-invariant office-level and role-inherent attributes as well as the time-varying

macroeconomic effects; second, I further include the combination of these fixed effects (i.e., firm-MSA-role-seniority-start time fixed effects) to exploit the variation in the employees' competency and career advancement within each job title-office-start time window. This sample selection technique and fixed effect structure enable me to identify the effects of employees' competency in their career advancement for each pair of ex-auditors and their non-ex-auditor counterparts. I expect b_1 to be positive, suggesting that ex-auditors, compared with their non-ex-auditor counterparts, have better career advancement reflected by a higher likelihood of being promoted and a faster promotion rate.

4. Descriptive Statistics and Main Empirical Results

4.1 Sample Descriptive Statistics

Table 1 provides the descriptive statistics of the job movements of the samples of ex-auditors that have moved to a public firm (44,862 ex-auditors) and that are included in the empirical analysis (11,565 ex-auditors). Panel A shows that the average audit tenure is 3.3 (3.2) years, and 63.6% (64.8%) of ex-auditors have worked in one of the Big5 firms for the full sample of ex-auditors who have moved to a public firm (sample of ex-auditors selected for empirical analysis). These descriptive statistics suggest that the sample of ex-auditors who are selected for the empirical analyses is comparable to those who are not included in the final sample due to the lack of non-ex-auditor counterparts or the lack of employees' demographic or educational data. Panel B reports the distribution of industries to which ex-auditors move. The top industries to which ex-auditors move are financial institutions (24.27%), machinery and business equipment (7.70%), retail stores (5.56%), drugs (5.10%), utility (4.43%) and food (4.01%). This variation in industry distribution reveals that ex-auditors are more likely to move to industries that are heavily regulated and industries with high inventory turnover, suggesting ex-auditors' skills are

particularly valuable in industries where compliance with regulations is important and where inventory management and internal controls are crucial in maintaining operational efficiency and the profitability. Panel C reports the distribution of the occupations to which ex-auditors move. The top roles to which ex-auditors move are Financial and Investment Analysis (44.19%), Managers, all other (17.36%), Financial Managers (14.40%), and Accountant and Auditors (12.86%). As 80% of ex-auditors move to finance-related roles, I focus on the sample of ex-auditors moving to finance-related positions.

Table 2 Panel A reports the descriptive statistics of the sample. It shows that 10.4% of the employees are ex-auditors, with the remainder being their non-auditor counterparts. On average, 22.3% of employees receive promotions during their tenure at the company. The average change in seniority level is 0.367, and 0.9% of employees are promoted to executive positions within their tenure. Employees have an average job tenure of 5 years at the current company and 5.5 years of prior work experience. Panel B reports the correlations among the main variables. The outcome variables, *Promotion* and *Change Seniority* are highly correlated with each other, and both variables are highly correlated with the job tenure, *Tenure*. Neither the demographic or educational control variable is highly correlated with the main variable, *Exauditor*, or with other control variables, indicating that multicollinearity is not a concern.

4.2 Results of Hypothesis Testing

Table 3 reports the results of the hypothesis testing. b_1 is significantly positive on *Exauditor* when employees' career advancement is proxied by both *Promotion* and *Change Seniority*. As a gauge of the economic significance, ex-auditors, compared with their non-ex-auditor counterparts, are 3.5%-4.5% more likely to be promoted during their tenure at a company.

These findings suggest that the human capital accumulated through auditing experience is associated with positive market returns in the form of greater promotion opportunities.

5. Cross-sectional Tests

5.1 Moderating Effects of Financial and Business Complexity

To gauge the types of human capital that ex-auditors possess, I examine the circumstances in which the market returns to human capital accumulated through auditing is more prominent. Ex-auditors have been exposed to a wide range of auditing scenarios, especially in complex and challenging contexts, thus possessing a valuable repertoire of solutions that are applicable to difficult situations. Therefore, I posit that ex-auditors are likely to excel in roles in which the company's financial reporting and business operations exhibit greater complexity. To test this prediction, I use *High Intangibility* and *Multiple Segments* to measure a firm's financial reporting complexity and business complexity. *High Intangibility* is an indicator variable that equals 1 if the average intangibility of company *j* during employee *i*'s tenure is higher than the sample median, where intangibility is calculated as the ratio of the intangible assets to the total assets of a company in a year. Previous research has shown that there are significant estimates that go into determining whether and to what extent to recognize potential impairment losses stemming from intangibles (Beatty and Weber, 2006; Li and Sloan, 2017); thus, the financial reporting of firms with a higher proportion of intangible assets is more complex and requires a higher level of professional judgement. *Multiple Segments* is an indicator variable that equals 1 if company *j* during employee *i*'s tenure has multiple business segments. Companies operating across multiple business segments typically engage in a wider range of diversified activities and offer a broader spectrum of services and products within the organization. Thus, having multiple business segments signifies more complex financial reporting and business operations. I then estimate the following model:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2 High\ Complexity_{i,j} + b_3 Exauditor_i\ x\ High\ Complexity_{i,j} + b_4\ Tenure_{i,j} + b_5 Demographic_i + b_6 Education_i + b_7 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (2),$$

where *High Complexity* is measured alternatively by *High Intangibility* or *Multiple Segments*. I include the same set of control variables and fixed effects as in Model (1).

Table 4 Panel A reports the results of estimating the moderating effect of financial and business complexity on ex-auditors' career advancement.[10] Consistent with my expectations, b_3 is significantly positive on the interaction terms, *Exauditor* x *High Complexity*, when employees' career advancement is measured by both *Promotion* and *Change Seniority*, suggesting the financial and business expertise accumulated by ex-auditors enable them to stand out especially when faced with complex and challenging situations.

5.2 Moderating Effects of Skill Applicability

Moreover, I posit that ex-auditors perform better when their skills and insights accumulated through auditing are more applicable to the new company. Auditors are exposed to a variety of businesses in their client portfolio, through which they accumulate valuable industry expertise and economic insights. Hence, ex-auditors are more likely to excel when their industry expertise and economic insights are most applicable to their new companies. To test this prediction, I use *Industry Applicability* and *Geographic Applicability* to measure the applicability of ex-auditors' skills to the new company. *Industry Applicability* is an indicator variable that equals 1 if an ex-auditor (and the matched non-ex-auditor counterparts) has obtained relevant industry exposure through her audit office's client portfolio, where the relevance is determined by whether the number of clients, operating in the new company's industry, audited by her previous audit office is higher than the sample median. *Geographic Applicability* is an indicator variable that equals 1

[10] 10,317 observations are excluded from this cross-sectional test due to missing segment or intangibility data.

if an exauditor (and the matched non-ex-auditor counterparts) has obtained relevant local market exposure through audit experience, where the relevance is determined by whether the new employer and her previous audit office are located in the same MSA. I then estimate the following models:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2 High\ Applicability_{i,j} + b_3 Exauditor_i\ x\ High\ Applicability_{i,j} + b_4\ Tenure_{i,j} + b_5 Demographic_i + b_6 Education_i + b_7 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (3),$$

where *High Applicability* is measured alternatively by *Industry Applicability* or *Geographic Applicability*. I include the same set of control variables and fixed effects as those in Model (1).

Table 4 Panel B reports the results of estimating the moderating effect of ex-auditors' skill applicability on ex-auditors' career advancement. Consistent with my expectations, b_3 is significantly positive on the interaction terms, *Exauditor x High Applicability,* when employees' career advancement is measured by both *Promotion* and *Change Seniority*. These results suggest that ex-auditors' industry expertise and economic insights constitute greater competitive advantages when their knowledge is more relevant to the new companies.

6. Additional Tests

6.1 Heterogeneity Within the Audit Profession

Next, I examine the heterogeneity in the extent of human capital that employees can accumulate through auditing. First, I expect employees can accumulate more valuable human capital in large audit firms, because large audit firms have a more diverse client portfolio, often invest heavily in employees' training and development, and possess a greater pool of experts and specialized knowledge resources than small audit firms do. I predict that ex-auditors who have worked in one of the Big5 audit firms will accumulate more valuable human capital and have better

subsequent career advancement than other ex-auditors. To test this prediction, I estimate the following model:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2 Big5 + b_3 Exauditor_i\ x\ Big5 + b_4\ Tenure_{i,j} + b_5 Demographic_i + b_6 Education_i + b_7 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (4),$$

where $Big5$ is an indicator variable that equals 1 if an ex-auditor (and the matched non-ex-auditor counterparts) has worked in one of the Big5 audit firms. I include the same set of control variables and fixed effects as in Model (1).

Table 5 Panel A reports the results. b_3 is significantly positive on the interaction term *Exauditor x Big5* when employees' career advancement is measured by *Promotion*. b_3 is insignificantly positive when employees' career advancement is measured by *Change Seniority.* These results suggest that experience at Big5 audit firms contributes to the accumulation of more valuable human capital, which is linked to a higher likelihood of promotions but not necessarily to greater promotion rates.

Second, I examine the effect of audit tenure on auditors' human capital accumulation. Auditors with a short tenure may miss out on experiencing a complete audit cycle or may not be able to gain enough exposure to a diverse range of scenarios. On the other hand, auditors with a long tenure may get entrenched in a specific way of working and be fixated on serving a certain type of clients, which could limit their exposure and learning opportunities. Thus, there is likely to be a trade-off between the upsides of gaining insights and exposure, building a professional network, and remaining adaptable and learning and the downsides of bureaucratic entrenchment. I predict that the ex-auditors with medium audit tenure could accumulate more valuable human capital and have greater career advancement than ex-auditors who have either a short or a long audit tenure. To test this prediction, I classify ex-auditors into three brackets based on their audit

tenure: ex-auditors with 1-2 years, 3-5 years, and more than 5 years of audit tenure.[11] I then estimate the following model:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2\ 3\_5\ Tenure + b_3 Exauditor_i\ x\ 3\_5\ Tenure + b_4 Higher\ 5\ Tenure + b_5 Exauditor_i\ x\ Higher\ 5\ Tenure + b_6\ Tenure_{i,j} + b_7 Demographic_i + b_8 Education_i + b_9 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (5),$$

where *3_5 Tenure* [*Higher 5 Tenure*] is an indicator variable that equals 1 if an ex-auditor (and the matched non-ex-auditor counterparts) has 3-5 [more than 5] years of audit tenure. I include the same set of control variables and fixed effects as in Model (1).

Table 5 Panel B reports the results. Consistent with my expectations, b_3 is significantly positive on the interaction term, *Exauditor x 3_5 Tenure*, when employees' career advancement is measured by *Promotion* and *Change Seniority*. b_5 is insignificantly positive on the interaction, *Exauditor x Higher 5 Tenure*. These results suggest that 3-5 years represents a potential optimal auditing tenure during which the tasks performed enable auditors to acquire the skills and knowledge that are most valuable in the labor market.

6.2 Heterogeneity Across Different Professions

To further explore the heterogeneity in the extent of human capital that employees can accumulate across different professions, I compare the career trajectories, *Change Seniority*, of ex-auditors with those of individuals from comparable control groups in accounting, financial advisory, banking, and other relevant fields. Different benchmarks for comparison are defined based on non-ex-auditors' prior job role categories defined in Revelio. Specifically, individuals

[11] Although the exact job tenure and auditors' responsibility may vary based on firms, regions, and individual performance, I follow the structured career progress path of Big4 audit firms to define the seniority of auditors and to group them into four brackets. In the Big4 audit firms, new hires often start as an associate, during which period employees acquire the foundational skills and competencies; associates often get promoted to senior associate after 2 years, at which stage individuals take on more responsibilities and have more direct interactions with clients in an audit engagement, and competent senior associates are promoted to managers after 5 years of experience, in which role they are expected coordinate with the clients at the highest levels and oversee the audit engagement and team.

with prior roles classified as "internal auditors" or "accountants" are identified as having an accounting background; individuals with prior roles labeled "financial advisory" or "financial analyst" are identified as possessing a financial advisory background; individuals with prior roles classified as "investment specialist" or "banker" are categorized as having a banking or investment background; all other employees are designated as having other related backgrounds.

Table 6 reports the estimated results. Columns (1)-(2), (3)-(4), (5)-(6) and (7)-(8) report the results of estimating the model comparing ex-auditors and their counterparts with backgrounds in corporate accounting, financial advisory, banking, and other fields, respectively. b_1 on *Exauditor* is insignificantly positive when estimating the difference between ex-auditors' career progress and progress of those having a financial advisory background; however, it is significantly positive when comparing the promotion rates of ex-auditors with those of individuals having accounting, banking, and other related experience. These results suggest that individuals with prior auditing experience exhibit similar performance levels to those with a financial advisory background, but often surpass their peers from accounting, banking, or other fields in performance. This disparity may be attributed to accounting professionals' potential lack of a holistic view and bankers' possible shortfall in achieving the same depth of understanding of various business functions. By contrast, ex-auditors' unique advantages likely arise from their comprehensive business insights and extensive exposure that auditing job entails.

6.3 Ex-auditors' Contribution to an Organization

To shed light on the spectrum of skills that ex-auditors possess, I examine the unique value that ex-auditors bring to an organization. As employees' promotions are typically granted in acknowledgment of their contribution to the company, the scope of the organization-wide performance metrics used to assess employees' contribution and decide on their promotions often

reflects the extent of impact employees make. If ex-auditors' versatile skills enable them to make a greater contribution to an organization, they will be granted a wider span of control, and consequently, their promotion progress will be more closely tied to the overarching company-wide performance metrics. To test this prediction, I construct a panel at the employer-employee-year level and examine the association between an employee's yearly promotion and two company-wide performance metrics in that year: internal control efficiency, *ICW*, and overall earnings performance, *Change ROA*. Internal control efficiency is a domain-specific organizational metric that is predominantly relevant to a company's financial reporting and control efficiency, while earnings represent a broader metric reflecting the company's profitability over a year and providing a comprehensive view of a company's financial health and operational success. Unlike the more specialized focus of internal control efficiency, earnings performance is influenced by a wide array of factors including sales revenue, cost management, and operational efficiency. I then regress an indicator variable indicating whether an employee is promoted in year *t*, *Annual Promotion*, on these two variables and the interactions of these variables with the ex-auditor indicator variable using the following model:

$$Annual\ Promotion_{i,j,t} = a_{i,j} + b_1 Exauditor_i + b_2\ Change\ ROA_{j,t} + b_3 ICW_{j,t} + b_4\ Exauditor_i\ x\ Change\ ROA_{j,t} + b_5\ Exauditor_i\ x\ ICW_{j,t} + b_6\ Tenure\_year_{i,j,t} + b_7 Demographic_i + b_8 Education_i + b_9 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (6),$$

where *Annual Promotion* is an indicator variable indicating whether employee *i* is promoted in year *t* at company *j*; *Change ROA* is the change in the ROA of company *j* from year *t-1* to year *t*; *ICW* is an indicator variable that equals 1 if a firm discloses an internal control weakness in year *t*; $Tenure\_Year_{i,j,t}$ is the job tenure of employee *i* at company *j* until year *t*, calculated as the number of years between the job starting year and year *t*. I augment the model with two sets of alternative fixed effects: first, I include the office, position in year *t*, and year fixed effects to control for the

office-level and role-inherent attributes as well as he macroeconomic effects; second, I include the combination of these fixed effects (i.e., office-position in year *t*-year fixed effects) to exploit the variation within each office-role-year. As the unit of this analysis is at the employer-employee-year level, I cluster standard errors by employer-employee to account for the correlations among error terms. I expect b_4 to be positive, suggesting ex-auditors' career progress is more closely tied to the company performance than that of their non-ex-auditor counterparts.

Table 7 reports the results. The coefficient b_2 on *Change ROA* is insignificant, indicating that the career progress of employees in finance-related positions is not, in general, significantly impacted by the overall profitability of the company in that year. However, b_3 on *ICW* is significantly negative, suggesting that the presence of internal control issues negatively impacts these employees' career advancement. Notably, b_4 on the interaction term *Exauditor x Change ROA* is significantly positive, suggesting that ex-auditors' promotion rates are more positively affected by the changes in the company's overall performance than those of their non-ex-auditor counterparts. On the other hand, b_5 on the interaction term *Exauditor x ICW* is insignificant, indicating that internal control weaknesses do not have a differential impact on ex-auditors' career progress.

6.4 Promotion to Executive Positions

Further, I examine the likelihood of ex-auditors achieving promotions to executive positions. Audit experience endows employees with a comprehensive skill set that not only covers their immediate job responsibilities but also enables them to understand broader business trends. This ability positions auditors as strong candidates for leadership and executive roles. To examine this possibility, I identify positions classified as "6 - Executive" or "7 - Senior Executive" in the Revelio database as executive positions and regress an indicator variable, *Executive*, that signifies

whether an employee has been promoted to an executive position during their tenure at the company against the ex-auditor indicator variable, *Exauditor*, using the following model:

$$Executive_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2\, Tenure + b_3 Demographic_i + b_4 Education_i + b_5 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (7),$$

Table 8 reports the results. Consistent with my expectations, b_1 on *Exauditor* is significantly positive, suggesting that individuals with an auditing background are often well-equipped to make substantial contributions to a company, thus making them more likely to be promoted to executive positions.

6.5 Financial Rewards to Ex-auditors

Lastly, I provide additional evidence regarding the financial rewards ex-auditors may receive in their subsequent jobs. If ex-auditors contribute significantly to the new companies, they will receive higher financial compensation in recognition of their impactful work and the tangible benefits they deliver to the company. To test this prediction, I use the estimated salary data from Revelio to construct a salary increase variable, *Change Salary*, defined as the difference between an employee's initial and final salary scaled by the initial salary at a company. I then regress this salary increase estimate against the *Exauditor* indicator variable using the Model (1). Appendix E provides a detailed explanation of the salary estimates in Revelio and reports the results. The findings indicate that the skills and knowledge employees gained from auditing experience are also associated with greater financial rewards in subsequent jobs.

7. Identification and Robustness Tests

While I include two sets of strict fixed effects to examine the difference in the career advancement of ex-auditors and their non-ex-auditor counterparts attributed to the difference in their skills and competencies, there can be other observable or unobservable factors that

simultaneously drive employees' career advancement and their decisions to pursue a career in audit. To mitigate these concerns, I conduct a battery of identification tests.

7.1 Exogenous Shocks to Auditors' Human Capital Accumulation

First, I use audit firms' merger and acquisitions (M&A) activities as an exogenous shock to employees' human capital accumulation. M&A activities often significantly enlarge an audit office's client portfolios, thereby accelerating the accumulation of auditors' insights derived from the expanded client portfolios. This expansion could enhance the depth and breadth of knowledge auditors possess, contributing to their human capital accumulation. Second, I use the litigations that involve audit firms as an exogenous shock to employees' human capital accumulation. The occurrence of litigations and intensified scrutiny can enhance the rigor of audit procedures, facilitating the depth of auditors' insights into the clients they audit. This process not only improves the audit quality but also significantly broadens the auditors' insights, indirectly contributing to auditors' human capital accumulation.

For auditors who have joined an audit office before the M&A (litigation) and left afterwards, the M&A (litigation) event is orthogonal to their decision to pursue a career in auditing and thus is an exogenous shock to their human capital accumulation through auditing. I obtain the data of audit firms' M&A events and litigations involving audit firms from the Audit Analytics database. I first identify a set of audit offices that have either acquired another audit office[12] or experienced litigations after year 2000, from which year the relevant data are available on Audit Analytics. I then flag ex-auditors (and their matched non-ex-auditor counterparts) who have joined these audit offices before the M&A (litigation) events and left afterwards as the treated group, and

[12] I focus on the sample of acquiring offices rather than the acquired ones because the latter often consists of smaller or international offices, resulting in a fairly small sample of ex-auditors who have worked in these offices in my dataset.

ex-auditors (and their matched non-ex-auditor counterparts) who have left these audit offices before these events as the control group. I restrict the sample to the selected treated group and control group, and then conduct a difference-in-difference analysis using the following model:

$$Career\ Advancement_{i,j} = a_{i,j} + b_1 Exauditor_i + b_2 Shock_i + b_3\ Exauditor_i\ x\ Shock_i + b_4\ Tenure_{i,j} + b_5 Demographic_i + b_6 Education_i + b_7 Previous\ Tenure_i + Fixed\ Effects + e_{i,j} \quad (8),$$

where *Shock* is an indicator variable that equals 1 if an ex-auditor (matched non-ex-auditor counterparts) is exogenously affected by these special events. I include the same set of control variables and fixed effects as in Model (1).

Table 9 Panel A and Panel B report the results estimating the impact of M&A activities and litigations on auditors' human capital accumulation, respectively. Consistent with expectations, the coefficients b_3 on the interaction terms, *Ex-Auditor x Shock,* are positive, suggesting that the M&A and litigation events exogenously expedite employees' human capital accumulation and thus lead to greater labor market returns. These results strengthen my identifications.

7.2 Entropy Balancing and Coarsened Exact Matching

Second, I use entropy balancing and coarsened exact matching to match the control sample with the ex-auditor sample along dimensions including employees' demographic characteristics, educational background, current and past job tenure, starting seniority, and starting time window. I then estimate Model (1) using the balanced sample, including the same set of control variables and fixed effects as in Model (1). Table 10 Panel A reports the estimated results. The inferences remain unchanged.

7.3 Instrument Variable Test

Lastly, I conduct a two-stage least-squared (2SLS) test using the number of schools on audit firms' feeder list in the MSA where the employee started their first job as an exogenous

variation to instrument for employees' decision to pursue a career in audit.[13] To the extent that the availability of local accounting programs exogenously affects individual employees' career advancement, it could mitigate the endogeneity concern. Specifically, regions with a greater concentration of feeder schools may experience increased hiring by audit firms, thereby boosting the probability of individuals entering the audit profession, which satisfies the relevance condition. Furthermore, the impact of the number of feeder schools on employees' long-term career paths is presumed to operate solely through employees' decision to enter the audit profession, thus meeting the exclusion requirement. Lastly, the number of feeder schools in an MSA is considered exogenous, thereby fulfilling the randomness condition. I then conduct a 2SLS test with the second-stage model augmented with the same set of fixed effects as in Model (1). Table 10 Panel B reports the results. The inferences remain unchanged.

8. Conclusion

The journey to becoming a CPA and embarking on a career in auditing involves substantial investments: acquiring an extra 30 credits to satisfy the licensing requirement, passing the CPA exams, and dedicating oneself to the demanding and often extensive hours characteristic of the profession. While ascending to a partnership in public accounting is undoubtedly a significant achievement, the question remains: does audit experience continue to offer positive returns for those who leave public accounting? This study sheds light on this question by quantifying the labor market returns to audit experience.

Using granular employment profile data to track individual employees' career advancement, I find that ex-auditors who transition to finance roles are more likely to receive promotions in their subsequent positions compared to their peers who start in the same roles

[13] Following Lee, Naiker and Stewart (2022), I obtain the audit firms' feeder school list from the PwC recruiting list, which is available here: https://www.pwc.com/us/en/careers/entry-level/recruiting/recruiter-map.html.

without an auditing background. This pattern is more pronounced when ex-auditors can apply their skills more effectively in their subsequent roles, and for ex-auditors who have worked in one of the Big 5 audit firms and who have 3-5 years of audit tenure. Additional analyses suggest that ex-auditors not only deliver value within the finance domain but also contribute to the company's overall profitability, thus making them more likely to be promoted to executive positions.

Collectively, this paper provides the first large-sample empirical evidence quantifying the labor market returns to audit experience. Given the significant costs associated with the auditor shortage in an economy, there is an urgent need to build a robust auditor pipeline to meet the market demand. The findings highlight auditing as a valuable human capital investment that will yield long-term returns—while it does not directly translate into immediate financial returns during the audit tenure, over time it can lead to better job advancement and potentially greater financial rewards in subsequent roles.

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Appendix A: Variable Definition

Outcome Variables and Main Independent Variable	
Promotion	An indicator variable that equals 1 if there is a change in the seniority level for employee *i* over her tenure at company *j*.
Change Seniority	The change in seniority level for employee *i* from the start to the end of her tenure at company *j*.
Annual Promotion	An indicator variable that equals 1 if employee *i* is promoted in year *t* at company *j*.
Executive	An indicator variable that equals 1 if employee *i* is promoted to an executive position during her job tenure at company *j*. A position is classified as an executive position if it is designated as "6-Executive" or "7-Senior Executive" in the Revelio database.
Exauditor	An indicator variable that equals 1 if employee *i* has an auditing background before joining company *j*. An employee is flagged as an ex-auditor if: (1) the employee has worked in a public accounting firm operating in the "Certified Public Accountants" industry, defined using the 6-digit NAICS industry code "541211"; (2) the employee's job title contains variations of the "audit" or "assurance" keywords during the employee's audit job tenure; (3) the employee has worked in an office in the U.S. during the employee's job tenure at the audit firm; (4) the employee was not solely working as an intern, part-time employee, or temporary worker at the audit firm; (5) to reduce the type II errors, I exclude employees whose job titles contain the variations of "tax," "consulting," or "IT" related keywords; (6) the employee has moved to a public firm after her auditing tenure.
Cross-sectional Test Variables	
Big5	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has been employed by any of the Big5 audit firms, otherwise 0.
3-5 Tenure	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has 3-5 years of audit tenure, otherwise 0.
Higher 5 Tenure	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has more than 5 years of audit tenure, otherwise 0.
High Intangibility	An indicator variable that equals 1 if the average intangibility of company *j* during employee *i*'s tenure is higher than the sample median, otherwise 0. Intangibility is calculated as the ratio of the intangible assets to the total assets of a company in a year.

Multiple Segments	An indicator variable that equals 1 if company *j*, during employee *i*'s tenure, has multiple business segments, otherwise 0.
Industry Applicability	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has obtained relevant industry exposure through her audit office's client portfolio, otherwise 0. The relevance is determined by whether the number of clients—operating in the new company's industry—audited by her previous audit office is higher than the sample median.
Geographic Applicability	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has obtained relevant exposure to the local economy through her audit experience. This relevance is determined by whether the new employer' office and her previous audit office are located in the same MSA.
Other Variables and Control Variables	
Change ROA	The change in a company's Returns on Assets (ROA) from year *t-1* to year *t*. The ROA is calculated as the ratio of net income to total assets in a year.
ICW	An indicator variable that equals 1 if a firm discloses an internal control weakness in one or more of the following reports in year *t*: Section 302 quarterly certifications, 404(a) management assessment, and 404(b) audit report, otherwise 0.
M&A Shock	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) has been exogenously impacted by the audit firm M&A activities during her audit tenure at the acquiring audit firm. An auditor is considered exogenously impacted by an M&A event if the auditor joined the audit office before the M&A event and left the audit office after the M&A event.
Litigation Shock	An indicator variable that equals 1 if the ex-auditor (and the matched non-ex-auditor counterparts) was exogenously impacted by litigations involving the audit firm during her tenure at that firm. An auditor is considered exogenously impacted by litigation shocks if she joined the audit firm before the litigation and departed after the litigation.
Local Acct Program	The number of schools on audit firms' feeder list in an MSA where the ex-auditor started their first job. Audit firms' feeder school list is obtained from PwC recruiting list, https://www.pwc.com/us/en/careers/entry-level/recruiting/recruiter-map.html (Lee, Naiker and Stewart, 2022).
Predicted Exauditor	Predicted likelihood of an individual being an ex-auditor. It is predicted using the number of accounting programs on audit firms' feeder school list in the local MSA where employees start their first jobs.
Tenure	Job tenure of employee *i* at company *j*, calculated as the number of years between the job staring year and the job ending year at company *j*.

Tenure_year	Job tenure of employee *i* at the company *j* until year *t*, calculated as the number of years between employee *i*'s job staring year at the company *j* and year *t*.
Female	An indicator variable that equals 1 if employee *i* is a female.
Black	An indicator variable that equals 1 if employee *i* is a black.
API	An indicator variable that equals 1 if employee *i* is an Asian Pacific American.
Hispanic	An indicator variable that equals 1 if employee *i* is a Hispanic.
Education Level	Employee's highest educational achievement. This variable is assigned a value based on the highest degree obtained by an employee, where 1 represents high school, 2 represents an associate's degree, 3 represents a bachelor's degree, 4 represents a master's degree, 5 represents an MBA, and 6 represents a doctoral degree.
Education Field	A set of indicator variables indicating an employee's education fields, including *Accounting, Finance, Business in General, Economics, Engineering,* and *Others.*
School Rank	University ranking of undergraduate institution. This variable is assigned a value based on the ranking of the university at which the individual completed their undergraduate studies. A rank of 1 indicates the university's ranking is within the top 1-100; 2 for rankings within 101-200; 3 for 201-300; 4 for 301-400; 5 for 401-500; 6 for 501-600; 7 for 601-700; 8 for 701-800; and 9 for universities ranked beyond 800.
Previous Tenure	Number of years of working experience employee *i* had before joining the company *j*. It is calculated as the difference between an employee's starting year of the first job and of the current job. In cases where the starting year of the first job is unavailable, it is alternatively calculated as the difference between the ending year of the college education and the starting year of the current job.

Appendix B: Examples of Job Titles and Mapped Seniority Levels

Revelio uses an ensemble model to create the seniority metric using data inputs including an individual's job title, company, industry, and employment records. To convert this continuous seniority metric into an ordinal value, Revelio gathers samples of seniority predictions corresponding to recognizable keywords such as "junior," "senior," "director," and maps the metric to the most likely bin. The table below lists some examples of a company (company ID "20921455") of employees' job titles and the mapped seniority level in Revelio.

Seniority Scores	Seniority Levels	Example of Job Titles
1	Entry	Human Resources Assistant
1	Entry	Finance Accounting Intern
2	Junior	Tax Accountant
2	Junior	Auditor
3	Associate	Senior Internal Auditor
3	Associate	Senior Analyst - Accounting, M&A
4	Manager	Tax Manager- Global Tax Planning
4	Manager	Supervisor - Fixed Asset Accounting
4	Manager	Program Manager
5	Director	Senior Manager of Accounting Policies
5	Director	Head Of Accounting
5	Director	Sr Manager Corporate Sustainability
6	Executive	Director, Internal Audit
6	Executive	Associate Director Device Marketing
7	Senior Executive	CFO

Appendix C: Examples of Ex-auditors and their Matched Non-Ex-auditor Counterparts

This appendix lists some examples of the pairs of ex-auditors and their non-ex-auditor counterparts.

Company ID	MSA	Start Year	Start Job Role	Ex-Auditor	Employee ID
218	Los Angeles-Long Beach-Santa Ana CA MSA	2018	Financial Analyst	0	880070722
218	Los Angeles-Long Beach-Santa Ana CA MSA	2018	Financial Analyst	1	676069588
194608	Indianapolis-Carmel IN MSA	2017	Financial Consultant	0	311794233
194608	Indianapolis-Carmel IN MSA	2017	Financial Consultant	1	666511823
366870	Minneapolis-St. Paul-Bloomington MN-WI MSA	2013	Senior Financial Analyst	0	345807446
366870	Minneapolis-St. Paul-Bloomington MN-WI MSA	2013	Senior Financial Analyst	1	837642976
367346	Virginia Beach-Norfolk-Newport News VA-NC MSA	2009	Intermediate Accountant	0	338237652
367346	Virginia Beach-Norfolk-Newport News VA-NC MSA	2009	Intermediate Accountant	1	324829134
367446	New York-Northern New Jersey-Long Island NY-NJ-PA MSA	2013	Senior Internal Auditor	0	112091520
367446	New York-Northern New Jersey-Long Island NY-NJ-PA MSA	2013	Senior Internal Auditor	1	511120591
391289	New York-Northern New Jersey-Long Island NY-NJ-PA MSA	2011	Internal Auditor	0	39067986
391289	New York-Northern New Jersey-Long Island NY-NJ-PA MSA	2011	Internal Auditor	1	265578351
210227	Los Angeles-Long Beach-Santa Ana CA MSA	2007	Controller	0	346791779
210227	Los Angeles-Long Beach-Santa Ana CA MSA	2007	Controller	1	846894032
231886	Chicago-Naperville-Joliet IL-IN-WI MSA	2001	Senior Human Capital Business Partner	0	746885361
231886	Chicago-Naperville-Joliet IL-IN-WI MSA	2001	Senior Human Capital Business Partner	1	257427722
345940	Washington-Arlington-Alexandria DC-VA-MD-WV MSA	2016	Product Implementation Leader - Advanced Analytics	0	380178665
345940	Washington-Arlington-Alexandria DC-VA-MD-WV MSA	2016	Product Implementation Leader - Advanced Analytics	1	507874111
442731	Madison WI MSA	2017	Field Business Planning Analyst	0	152147397
442731	Madison WI MSA	2017	Field Business Planning Analyst	1	578941339

Appendix D: Sample Selection Procedures

This appendix lists the details of the sample selection procedures.

Sample Selection Procedures	Number of Employees	Number of Public Firms
Number of ex-auditors who subsequently transitioned to a public firm in the non-auditing industry	**44, 862**	**5, 662**
- Ex-auditors who do not have a matched non-ex-auditor counterpart	(16,930)	
Number of ex-auditors with the matched counterparts	**27, 932**	**3, 666**
- Ex-auditors with missing demographic and educational data	(13,293)	
- Ex-auditors moving to non-finance positions	(3,074)	
Number of ex-auditors moving to finance-related positions for empirical analyses	**11, 565**	**1, 998**
+ Matched non-ex-auditor counterparts	99, 545	
Final Sample	**111, 110**	**1, 998**

Appendix E: Ex-auditors' Future Financial Rewards

This table provides evidence on ex-auditors' future financial rewards. Revelio uses its salary model to predict the salary for each position using position-specific information such as job title, seniority level, company, and location, as well as user-specific information. The model is trained on salaries found in publicly available visa application data, self-reported data, and job postings. I regress the employees' salary increments, *Change Salary*, against an ex-auditor indicator variable, *Exauditor*, during employees' job tenure at the company, controlling for the same set of control variables and fixed effects as in Model (1). All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed test. Standard errors are clustered by firm and MSA.

	Change Salary	
	(1)	(2)
Exauditor	0.019***	0.009**
	(4.767)	(1.975)
Tenure	0.050***	0.051***
	(26.681)	(24.851)
Female	-0.011***	-0.009**
	(-2.632)	(-2.261)
Black	-0.018***	-0.019***
	(-3.081)	(-3.222)
API	-0.032***	-0.031***
	(-7.869)	(-7.332)
Hispanic	-0.012**	-0.009
	(-2.078)	(-1.531)
Education Level	0.010***	0.011***
	(3.713)	(4.343)
School Rank	-0.003***	-0.003***
	(-7.081)	(-6.662)
Previous Tenure	-0.004***	-0.004***
	(-9.026)	(-8.736)
Constant	-0.057***	-0.067***
	(-4.870)	(-5.658)
Education Field Controls	Y	Y
Office, Position, Start Time FEs	Y	
Office-Position-Start Time FE		Y
Observations	111,110	111,110
Adjusted R-squared	0.193	0.198

Table 1. Job Movement of Ex-auditors

Panel A reports the characteristics of ex-auditors' auditing experience. Panel B and Panel C report the distribution of the industries and roles to which ex-auditors move, respectively.

Panel A: Characteristics of Ex-auditors

	N	Mean	Std. Dev	p.25	p.50	p.75
Audit Tenure (full sample)	44862	3.355	2.458	2	3	4
Big 5 (full sample)	44862	0.636	0.481	0	1	1
Audit Tenure (selected sample)	10378	3.195	2.136	2	3	4
Big 5 (selected sample)	10378	0.648	0.477	0	1	1

Panel B: Industries to which Ex-auditors Move

FF 17	Industry	% full sample (N=44862)	% selected sample (N=11565)
16	Banks, Insurance Companies, and Other Financials	24.27%	24.61%
11	Machinery and Business Equipment	7.70%	5.68%
15	Retail Stores	5.56%	5.27%
7	Drugs, Soap, Perfumes, Tobacco	5.10%	4.10%
14	Utilities	4.43%	4.39%
1	Food	4.01%	3.22%
3	Oil and Petroleum Products	3.53%	3.85%
13	Transportation	3.49%	3.11%
8	Construction and Construction Materials	2.88%	1.80%
12	Automobiles	1.79%	1.72%
6	Chemicals	1.18%	0.83%
4	Textiles, Apparel and Footwear	1.09%	1.07%
5	Consumer Durables	1.07%	0.78%
2	Mining and Minerals	0.68%	0.53%
9	Steel Works	0.52%	0.27%
10	Fabricated Products	0.46%	0.30%

Table 1, continued

Panel C: Roles to which Ex-auditors Move

O*Net Code	Occupation	Finance Position	% full sample (N=44862)	% selected sample (N=11565)
13-2051	Financial and Investment Analysts	Yes	44.19%	59.10%
11-9199	Managers, All Other	No	17.36%	
11-3031	Financial Managers	Yes	14.40%	10.74%
13-2011	Accountants and Auditors	Yes	12.85%	13.06%
13-1111	Management Analysts	No	1.43%	
13-2052	Personal Financial Advisors	Yes	1.14%	1.01%
15-1212	Information Security Analysts	No	0.84%	
13-2082	Tax Preparers	Yes	0.67%	0.53%
13-1041	Compliance Officers	No	0.66%	
13-2099	Financial Specialists, All Other	Yes	0.62%	0.66%

Table 2. Sample Descriptive Statistics

Panel A reports the descriptive statistics for the variables used in the main analyses. Panel B reports the correlations among these variables. The Pearson (Spearman) correlations are provided in the lower (upper) diagonal of Panel B. All variables are defined in Appendix A.

Panel A: Descriptive Statistics

	N	Mean	Std. Dev	p.25	p.50	p.75
Exauditor	111110	0.104	0.305	0	0	0
Promotion	111110	0.223	0.417	0	0	0
Change Seniority	111110	0.367	0.768	0	0	0
Executive	111110	0.009	0.094	0	0	0
Starting Seniority	111110	2.545	1.069	2	2	3
Tenure	111110	5.130	4.209	2	4	7
Female	111110	0.417	0.493	0	0	1
Black	111110	0.070	0.255	0	0	0
API	111110	0.139	0.345	0	0	0
Hispanic	111110	0.072	0.258	0	0	0
Education Level	111110	3.809	0.941	3	3	5
School Rank	111110	5.948	3.283	2	8	9
Previous Tenure	111110	5.457	6.308	1	3	8

Table 2, continued

Panel B: Correlation Table

	Promotion	Change Seniority	Executive	Starting Seniority	Exauditor	Tenure	Female	Black	API	Hispanic	Education Level	School Rank	Previous Tenure
Promotion	1	0.991	0.147	-0.186	0.007	0.379	0.020	-0.006	-0.035	-0.008	0.008	-0.044	-0.081
Change Seniority	0.890	1	0.165	-0.194	0.009	0.387	0.020	-0.006	-0.036	-0.009	0.010	-0.044	-0.080
Executive	0.147	0.200	1	0.082	0.019	0.101	-0.009	-0.005	-0.008	-0.005	0.027	0.003	0.039
Starting Seniority	-0.196	-0.208	0.093	1	0.056	0.182	-0.060	-0.034	0.024	-0.027	0.146	0.063	0.379
Exauditor	0.007	0.013	0.010	0.055	1	-0.033	0.030	-0.004	-0.040	-0.016	-0.039	-0.032	0.125
Tenure	0.320	0.334	0.109	0.211	-0.032	1	0.012	-0.005	-0.040	-0.016	0.032	0.013	0.075
Female	0.020	0.016	-0.009	-0.068	0.030	0.010	1	0.059	0.098	0.012	-0.022	0.054	0.000
Black	-0.006	-0.005	-0.004	-0.036	-0.004	-0.007	0.059	1	-0.110	-0.077	0.014	0.026	-0.006
API	-0.034	-0.036	-0.008	0.018	-0.039	-0.036	0.098	-0.110	1	-0.112	0.038	0.024	-0.022
Hispanic	-0.007	-0.010	-0.004	-0.028	-0.016	-0.019	0.012	-0.077	-0.112	1	-0.008	0.033	-0.009
Education Level	0.006	0.011	0.026	0.149	-0.051	0.035	-0.027	0.013	0.034	-0.008	1	0.088	0.123
School Rank	-0.042	-0.038	0.002	0.054	-0.030	0.017	0.054	0.028	0.017	0.032	0.092	1	0.069
Previous Tenure	-0.11	-0.105	0.034	0.371	0.068	0.064	-0.012	-0.006	-0.045	-0.019	0.092	0.065	1

Table 3. Career Advancement of Ex-auditors

This table reports the regression results of Model (1). I regress the employees' career advancement measures, *Promotion* and *Change Seniority*, on an ex-auditor indicator variable, *Exauditor*, controlling for job tenure, employee demographic characteristics, education background, and prior working tenure. Columns (1) and (3) report the results of estimating the model augmented with the firm, MSA, occupation, seniority, and job start window fixed effects; column (2) and (4) report the results of estimating the model augmented with the office-position-job start window fixed effects. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed test. Standard errors are clustered by firm and MSA.

	Promotion		Change Seniority	
	(1)	(2)	(3)	(4)
Exauditor	0.043***	0.038***	0.100***	0.089***
	(8.973)	(7.881)	(10.820)	(9.764)
Tenure	0.044***	0.044***	0.084***	0.085***
	(25.181)	(25.121)	(26.431)	(26.499)
Female	-0.005	-0.004	-0.015**	-0.014**
	(-1.237)	(-0.950)	(-2.505)	(-2.181)
Black	-0.021***	-0.023***	-0.039***	-0.042***
	(-4.527)	(-4.783)	(-4.187)	(-4.365)
API	-0.034***	-0.033***	-0.065***	-0.064***
	(-10.570)	(-10.735)	(-10.540)	(-10.635)
Hispanic	-0.019***	-0.018***	-0.042***	-0.039***
	(-3.726)	(-3.536)	(-4.382)	(-3.965)
Education Level	0.019***	0.019***	0.042***	0.041***
	(6.641)	(6.480)	(8.218)	(7.592)
School Rank	-0.003***	-0.003***	-0.005***	-0.005***
	(-7.486)	(-7.244)	(-6.183)	(-6.358)
Previous Tenure	-0.003***	-0.003***	-0.004***	-0.004***
	(-6.644)	(-6.559)	(-4.652)	(-4.809)
Constant	-0.033**	-0.037**	-0.164***	-0.165***
	(-2.128)	(-2.402)	(-5.977)	(-5.913)
Education Field Controls	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y	
Office-Position-Start Time FE		Y		Y
Observations	111,110	111,110	111,110	111,110
Adjusted R-squared	0.255	0.276	0.261	0.282

Table 4. Cross-sectional Tests:
Business Complexity and Skill Applicability

This table reports the cross-sectional test results of Model (2) and Model (3). I interact the ex-auditor indicator variable, *Exauditor*, with the financial and business complexity measures, *High Intangibility* and *Multiple Segments*, and skill applicability measures, *Industry Applicability* and *Geographic Applicability*. I regress the employee career advancement measures, *Promotion* and *Change Seniority* on the interaction terms and the main variables, controlling for the same set of variables and fixed effects as in Model (1). Panel A reports the results of estimating the moderating effects of financial and business complexity; Panel B reports the results of estimating the moderating effects of skill applicability. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Standard errors are clustered by firm and MSA.

Panel A: Financial and Business Complexity

	Promotion		Change Seniority		Promotion		Change Seniority	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	High Intangibility				Multiple Segments			
Exauditor	0.026*	0.026**	0.060**	0.058**	0.031**	0.019	0.063**	0.043*
	(1.870)	(2.089)	(2.244)	(2.502)	(2.275)	(1.568)	(2.419)	(1.829)
Complexity	0.013	0.018	0.020	0.031	-0.002	0.020	-0.014	0.029
	(0.912)	(0.893)	(0.520)	(0.677)	(-0.109)	(0.660)	(-0.477)	(0.480)
Exauditor x Complexity	0.024*	0.019*	0.063***	0.051**	0.013	0.022*	0.043**	0.054**
	(1.924)	(1.681)	(2.650)	(2.534)	(1.047)	(1.669)	(1.978)	(2.215)
Tenure	0.044***	0.044***	0.086***	0.087***	0.044***	0.044***	0.086***	0.086***
	(17.969)	(17.630)	(20.948)	(20.845)	(17.985)	(17.437)	(21.002)	(20.641)
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y		Y		Y	
Office-Position-Start Time FE		Y		Y		Y		Y
Observations	100,793	100,793	100,793	100,793	100,793	100,793	100,793	100,793
Adjusted R-squared	0.259	0.280	0.265	0.287	0.259	0.280	0.265	0.287

Table 4, continued

Panel B: Ex-auditors' Skill Applicability

	Promotion		Change Seniority		Promotion		Change Seniority	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Industry Applicability				Geographic Applicability			
Exauditor	0.022**	0.024***	0.058***	0.054***	0.025**	0.017*	0.058***	0.038*
	(2.586)	(2.978)	(3.197)	(2.912)	(2.223)	(1.703)	(2.661)	(1.789)
Applicability	-0.014**		-0.022**		-0.010***		-0.019**	
	(-2.305)		(-2.279)		(-2.958)		(-2.080)	
Exauditor x Applicability	0.026**	0.017	0.052**	0.042*	0.023*	0.025**	0.051*	0.060**
	(2.426)	(1.393)	(2.182)	(1.695)	(1.743)	(1.990)	(1.858)	(2.343)
Tenure	0.044***	0.044***	0.084***	0.085***	0.044***	0.044***	0.084***	0.085***
	(16.633)	(15.963)	(18.899)	(18.358)	(16.631)	(15.976)	(18.911)	(18.383)
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y		Y		Y	
Office-Position-Start Time FE		Y		Y		Y		Y
Observations	111,110	111,110	111,110	111,110	111,110	111,110	111,110	111,110
Adjusted R-squared	0.256	0.276	0.261	0.282	0.256	0.276	0.261	0.282

Table 5. Heterogeneity within Audit Profession:
Big5 Audit Firms and Audit Tenure

This table reports the cross-sectional test results of Model (4) and Model (5). I interact the ex-auditor indicator variable, *Exauditor*, with the audit firm size measure, *Big5,* and audit tenure measures, *3-5 Tenure* and *Higher 5 Tenure*, and regress the employees' career advancement measures, *Promotion* and *Change Seniority*, on the interaction terms and main variables, controlling for the same set of control variables and fixed effects as in Model (1). Panel A reports the results of estimating the moderating effects of audit firm size; Panel B reports the results of estimating the moderating effects of audit tenure. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Standard errors are clustered by firm and MSA.

Panel A. Big5 Audit Firms

	Promotion		Change Seniority	
	(1)	(2)	(3)	(4)
Exauditor	0.032***	0.033***	0.070***	0.073***
	(3.984)	(4.404)	(4.839)	(5.233)
Big5	-0.004		-0.009	
	(-0.932)		(-1.278)	
Exauditor x Big5	0.015**	0.007	0.042***	0.023
	(2.000)	(0.723)	(2.689)	(1.068)
Tenure	0.044***	0.044***	0.084***	0.085***
	(16.627)	(15.957)	(18.895)	(18.355)
Controls	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y	
Office-Position-Start Time FE		Y		Y
Observations	111,110	111,110	111,110	111,110
Adjusted R-squared	0.255	0.276	0.261	0.282

Table 5, continued

Panel B. Audit Tenure

	Promotion		Change Seniority	
	(1)	(2)	(3)	(4)
Exauditor	0.026***	0.022***	0.063***	0.056***
	(2.790)	(2.882)	(3.600)	(0.000)
3-5 Tenure	-0.002		-0.008	
	(-0.608)		(-1.426)	
Exauditor x 3-5 Tenure	0.027***	0.028***	0.063***	0.063***
	(3.328)	(3.289)	(4.600)	(4.036)
Higher 5 Tenure	-0.004		-0.017***	
	(-1.182)		(-3.170)	
Exauditor x Higher 5 Tenure	0.012	0.001	0.010	-0.012
	(1.194)	(0.124)	(0.684)	(-0.673)
Tenure	0.044***	0.044***	0.084***	0.085***
	(16.634)	(15.975)	(18.927)	(18.378)
Controls	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y	
Office-Position-Start Time FE		Y		Y
Observations	111,110	111,110	111,110	111,110
Adjusted R-squared	0.256	0.276	0.261	0.282

Table 6. Heterogeneity Across Professions:
Auditing, Accounting, Financial Advisory, and Banking

This table reports the results of comparing the career progress of ex-auditors with the progress of employees having different backgrounds. I regress employees' career progress measures, *Change Seniority*, on an ex-auditor indicator variable, *Exauditor*, controlling for the same set of control variables and fixed effects as in Model (1). Columns (1)-(2), (3)-(4), (5)-(6) and (7)-(8) report the results of estimating the difference in the career advancement of ex-auditors and of their non-ex-auditor counterparts that have had the corporate accounting, financial advisory, banking, and other backgrounds, respectively. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Standard errors are clustered by firm and MSA.

	Change Seniority							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Accountants		Fin Advisory		Banking		Others	
Exauditor	0.084***	0.074***	0.021	0.020	0.026**	0.026*	0.084***	0.079***
	(6.103)	(5.293)	(1.266)	(1.143)	(1.988)	(1.916)	(6.689)	(6.013)
Tenure	0.095***	0.097***	0.100***	0.101***	0.089***	0.090***	0.091***	0.092***
	(21.999)	(20.752)	(26.651)	(24.924)	(14.346)	(13.640)	(16.232)	(15.739)
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y		Y		Y	
Office-Position-Start Time FE		Y		Y		Y		Y
Observations	34,296	34,147	27,121	26,968	49,863	49,715	44,084	43,927
Adjusted R-squared	0.260	0.276	0.307	0.329	0.289	0.314	0.261	0.289

Table 7. Organizational Performance Metrics and Ex-auditors' Career Advancement

This table reports the results of estimating Model (6). I use the change of a firm's earnings performance from year t-1 to year t, *Change ROA*, as a broad profitability performance metric and an indicator variable indicating whether a firm has internal control weakness in year t, *ICW*, as a domain-specific performance metric mainly related to financial reporting and control efficiency. I then regress an indicator variable indicating whether an employee is promoted in year t, *Annual Promotion*, on these two variables and the interactions of these variables with the ex-auditor indicator variable. I control for employees' job tenure at the company until year t, employee demographic characteristics, education background, and prior working tenure. Columns (1) reports the results of estimating the model augmented with the firm, MSA, occupation, seniority until the current year, and year fixed effects; Column (2) report the results of estimating the model augmented with the office-position until current year-year fixed effects. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed test. Standard errors are clustered by employer-by-employee.

	Annual Promotion	
	(1)	(2)
Exauditor	0.223***	0.223***
	(45.330)	(49.512)
Change ROA	0.001	
	(0.601)	
ICW	-0.008**	
	(-3.296)	
Change ROA x Exauditor	0.016**	0.022**
	(2.578)	(2.979)
ICW x Exauditor	0.010	0.012
	(0.535)	(0.502)
$Tenure_{\_year}$	0.019***	0.021***
	(6.074)	(7.199)
Controls	Y	Y
Office, $Position_{year}$, Year FEs	Y	
Office-$Position_{year}$-Year FE		Y
Observations	1,099,394	1,099,394
Adjusted R-squared	0.126	0.127

Table 8. Ex-auditors and Promotion to Executive Positions

This table reports the regression results of Model (7). I regress an indicator variable indicating whether an employee is promoted to an executive position, *Executive*, on an ex-auditor indicator variable, *Exauditor*, controlling for the same set of control variables and fixed effects as in Model (1). All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed test. Standard errors are clustered by firm and MSA.

	Executive	
	(1)	(2)
Exauditor	0.002**	0.002**
	(2.190)	(2.190)
Tenure	0.002***	0.002***
	(14.475)	(13.332)
Controls	Y	Y
Office, Position, Start Time FEs	Y	
Office-Position-Start Time FE		Y
Observations	111,110	111,110
Adjusted R-squared	0.204	0.226

Table 9. Exogenous Shocks to Auditors' Human Capital Accumulation

This table reports the regression results of Model (8). I use audit firms' merger and acquisition (M&A) activities and litigations involving audit firms as two exogenous events that significantly change the extent of auditors' human capital accumulation. I interact an ex-auditor indicator variable, *Exauditor*, with an indicator variable indicating whether an ex-auditor has been exogenously impacted by these events, *M&A Shock* and *Litigation Shock*, and regress the employees' career advancement measures, *Promotion* and *Change Seniority*, on the interaction terms and the main variables, controlling for the same set of control variables and fixed effects as in Model (1). Panel A and Panel B report the results estimating the impact of M&A activities and litigations on auditors' human capital accumulation, respectively. All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed test. Standard errors are clustered by firm and MSA.

Panel A: Audit Firms' M&A Activities

	Promotion		Change Seniority	
	(1)	(2)	(3)	(4)
Exauditor	0.033***	0.033***	0.081***	0.075***
	(3.823)	(3.837)	(4.363)	(4.145)
M&A Shock	-0.008	0.000	-0.027	0.000
	(-1.478)	(0.000)	(-1.223)	(0.000)
Exauditor x M&A Shock	0.064**	0.075***	0.134**	0.159**
	(2.481)	(2.696)	(2.196)	(2.484)
Tenure	0.031***	0.031***	0.058***	0.058***
	(8.040)	(8.174)	(7.366)	(7.494)
Controls	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y	
Office-Position-Start Time FE		Y		Y
Observations	13,128	13,128	13,128	13,128
Adjusted R-squared	0.266	0.274	0.264	0.270

Table 9, continued

Panel B: Litigations Involving Audit Firms

	Promotion		Change Seniority	
	(1)	(2)	(3)	(4)
Exauditor	-0.006	-0.009	0.009	0.006
	(-0.620)	(-1.029)	(0.543)	(0.342)
Litigation Shock	-0.008	0.000	-0.018	0.000
	(-0.755)	(0.000)	(-0.805)	(0.000)
Exauditor x Litigation Shock	0.042**	0.048**	0.073**	0.086**
	(2.065)	(2.094)	(2.226)	(2.309)
Tenure	0.017***	0.017***	0.029***	0.030***
	(5.415)	(5.399)	(4.613)	(4.572)
Controls	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y	
Office-Position-Start Time FE		Y		Y
Observations	9,540	9,540	9,540	9,540
Adjusted R-squared	0.206	0.223	0.211	0.228

Table 10. Identification Tests

This table reports the results of the identification tests. Panel A reports the results of estimating Model (1) using the entropy balancing and coarsened exact matching to match control sample with the ex-auditor sample along dimensions including employees' demographic characteristics, educational background, tenure at the current company, past job tenure, and starting seniority. Panel B reports the instrumental variable test results. I use the local accounting programs in the local MSA as an instrument for employees' decision to pursue a career in auditing. Column (1) reports the first-stage results; columns (2)-(5) report the second-stage results. I include the same set of controls and fixed effects as in Model (1). All variables are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Standard errors are clustered by firm and MSA.

Panel A: Entropy Balancing and Coarsened Exact Matching

	Promotion		Change Seniority		Promotion		Change Seniority	
	Entropy Balancing				Coarsened Exact Matching			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exauditor	0.044***	0.040***	0.103***	0.092***	0.038***	0.035***	0.086***	0.081***
	(5.391)	(5.100)	(7.047)	(6.274)	(5.169)	(4.502)	(6.281)	(5.485)
Tenure	0.044***	0.044***	0.084***	0.085***	0.046***	0.047***	0.086***	0.090***
	(18.040)	(17.266)	(20.827)	(20.149)	(15.347)	(14.581)	(16.525)	(16.208)
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Office, Position, Start Time FEs	Y		Y		Y		Y	
Office-Position-Start Time FE		Y		Y		Y		Y
Observations	111,110	111,110	111,110	111,110	73,271	72,264	73,271	72,264
Adjusted R-squared	0.253	0.278	0.258	0.283	0.258	0.318	0.264	0.323

Table 10, continued

Panel B: Instrument Variable Test

	Exauditor	Promotion	Change Seniority	Promotion	Change Seniority
	(1)	(2)	(3)	(4)	(5)
	First Stage		Second Stage		
Local Accounting Program	0.022***				
	(5.425)				
Predicted Exauditor		0.043***	0.038***	0.100***	0.089***
		(5.356)	(5.196)	(7.176)	(6.629)
Tenure	-0.002***	0.044***	0.044***	0.084***	0.085***
	(-4.427)	(16.610)	(15.953)	(18.873)	(18.346)
Female	0.003	-0.005	-0.004	-0.015*	-0.014
	(0.537)	(-0.900)	(-0.698)	(-1.848)	(-1.649)
Black	-0.014***	-0.021***	-0.023***	-0.039***	-0.042***
	(-3.634)	(-6.277)	(-6.300)	(-5.640)	(-5.455)
API	-0.013**	-0.034***	-0.033***	-0.065***	-0.064***
	(-2.392)	(-13.673)	(-12.957)	(-14.564)	(-15.098)
Hispanic	-0.021***	-0.019***	-0.018***	-0.042***	-0.039***
	(-3.518)	(-4.256)	(-4.254)	(-5.527)	(-5.206)
Education Level	-0.000	0.019***	0.019***	0.042***	0.041***
	(-0.069)	(4.961)	(4.642)	(5.283)	(4.749)
School Rank	-0.004***	-0.003***	-0.003***	-0.005***	-0.005***
	(-4.012)	(-5.474)	(-5.351)	(-3.924)	(-3.897)
Previous Tenure	0.002***	-0.003***	-0.003***	-0.004***	-0.004***
	(3.995)	(-3.842)	(-3.605)	(-2.909)	(-2.798)
Constant	0.165***	-0.033*	-0.037*	-0.164***	-0.165***
	(8.158)	(-1.693)	(-1.830)	(-4.697)	(-4.480)
Education Field Controls	Y	Y	Y	Y	Y
Office, Position, Start Time FEs		Y		Y	
Office-Position-Start Time FE			Y		Y
Observations	111,110	111,110	111,110	111,110	111,110
Adjusted R-squared	0.121	0.255	0.276	0.261	0.282