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Starstruck: How Hiring High-Status Employees Affects Incumbents' Performance

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Abstract. This study investigates the effects of high-status inbound mobility on the performance of incumbents. Leveraging sociological theory on status, we suggest that high-status newcomers generate only limited knowledge spillovers compared to the resources they drain from incumbents. Building on this mechanism, we formulate our first hypothesis that hiring stars negatively affects incumbents' performance. We argue that this effect is asymmetric across incumbents. Because high-status incumbents can better cope with the shock in the internal allocation of resources produced by high-status newcomers, we expect that they will experience a lower performance decline than low-status incumbents. We test our hypotheses by studying the change in recommendation profitability of incumbent securities analysts experiencing inbound mobility events in the period 1996–2007. Our results show that the higher the status of the hired analyst, as captured by the *Institutional Investor* ranking history, the greater the decline in the incumbent analyst's recommendation profitability, and that this decline is moderated by the status of the incumbent analyst.

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Keywords: employee mobility • social status • organizational resources • individual performance

Introduction

How does hiring high-status employees affect incumbents' performance? In the extant literature, scholars have focused primarily on the positive knowledge spillovers that can emanate from star performers as the crucial mechanism that translates high-status hiring into better individual and organizational performance (Azoulay et al. 2010, Oettl 2012, Tzabbar et al. 2015). By focusing primarily on knowledge spillovers, however, most researchers have not contemplated that the entry of a new stars in an organization might also disrupt the existing distribution of power and resources, and thus negatively affect the performance of incumbents (Emerson 1962, Magee and Galinsky 2008, Pfeffer 1992). We believe that, ultimately, the effect of hiring high-status individuals is a function of both these counterbalancing forces; that is, the net effect of hiring stars depends on the balance between positive knowledge spillovers and negative resource draining.

In contexts in which status stems from direct demonstrations of quality, knowledge spillovers might compensate for, if not outweigh, the negative consequences of shifts in power and internal resource allocation.[1] But as sociologists have shown, in most settings, status is only a weak indicator of quality (Gould 2002, Merton 1968). Status—defined as a superior rank in the social order (Jensen and Roy 2008, Piazza and Castellucci 2013, Sorenson 2014)—often assumes symbolic value in markets (Malter 2014). Particularly when awarded through rankings or certification contests (Merton 1968, Graffin and Ward 2010, Rao 1994, Sauder and Espeland 2009, Wade et al. 2006), but also when inferred from affiliations (Podolny 1993) or ascribed characteristics (e.g., gender or race; Castilla 2008, Jasso 2013), status overinflates quality perceptions of high-status actors relative to their actual quality (Blau 1964, Kim and King 2014, Bowers and Prato 2017). A critical consequence of the delta between perceived and actual quality is that high-status actors receive comparatively more resources than merited, a process often referred to as the Matthew effect (Bothner et al. 2011; Merton 1968, 1988).

We build on this resource advantage mechanism to propose that, in the context of hiring, the imbalance between the resources that high-status actors consume and their knowledge contribution translates into a negative impact on incumbents. When high-status actors join new organizations, they are likely to produce a shock in the internal allocation of power and resources and to siphon organizational resources away from incumbents without contributing an equivalent amount of knowledge. This imbalance between what incumbents gain and lose after a hiring event informs our first hypothesis that hiring high-status actors is likely to negatively affect incumbents' performance.

However, high-status newcomers might not have the same effect on all incumbents (see, for instance, Slavova et al. 2016 for a study on the role of tenure). We leverage the emerging status asymmetry literature—suggesting that status differences among organizational members can affect knowledge flows (Bunderson and Reagans 2011, Tzabbar 2009, Tzabbar and Vestal 2015) as well as resource allocation processes (Kehoe and Tzabbar 2015)—to develop our second hypothesis on the asymmetric organizational effects of hiring high-status actors. Our core argument is that, similar to high-status newcomers, high-status incumbents enjoy the cumulative resource advantages posited by the Matthew effect; that is, we argue that, compared with their low-status colleagues, high-status incumbents are more likely to be immune to the threat of losing power and control over organizational resources when a high-status newcomer joins the organization. Thus, we expect that high-status incumbents' performance decline less than low-status incumbents' performance when a new high-status actor joins an organization.

We used a sample of sell-side securities analysts' mobility events among U.S. brokers from 1996 to 2007 to test our hypotheses. We leveraged a widely used measure of status in this field, namely, *Institutional Investor* magazine's All-America Research Team ranking, an achievement only weakly correlated with analysts' performance (Emery and Li 2009). Our results show that when a brokerage house hires a star analyst, incumbent employees' performance, measured as the profitability of their stock recommendations, significantly decreases in proportion to the status of the newcomer. Moreover, we show that the decline in incumbents' performance is greater for low-status analysts than for high-status analysts.

This article is structured as follows. First, we review the literature on status, particularly studies linking status to quality and resources. Based on this theoretical background, we build our hypotheses about the effects of high-status hiring on incumbents. We then outline the empirical strategy we employ to test our hypotheses and the different approaches we use to address endogeneity concerns. We conclude this article by describing how the joint consideration of positive knowledge spillovers and negative resource spillovers in hiring can contribute to the literature on employee mobility.

Theoretical Background

Status, Quality, and Resources

One of the central tenets of status research in sociology is that status and quality are only loosely coupled (Merton 1968). In this literature, status is defined as the prestige accorded to actors "because of the hierarchical positions they occupy in a social structure" (Jensen and Roy 2008, p. 496; see also Piazza and Castellucci 2013, Sorenson 2014). Despite being a function of position, rather than prior performance or quality, audiences tend to associate status with quality in a "form of superstitious learning, surmising that status and quality must move in tandem" (Sorenson 2014, p. 2).

Empirical evidence supports the idea that individuals tend to positively evaluate actors in high-status positions, disjointly from their actual quality (Podolny 1993). Simcoe and Waguespack (2010), for example, showed that, ceteris paribus, technical contributions submitted by high-status engineers tend to be perceived as higher quality (Simcoe and Waguespack 2010, p. 274). Similarly, Kim and King (2014) showed that umpires in Major League Baseball are "more likely to recognize quality when quality is absent (i.e., calling a strike when a pitch was actually a ball) if the actor (i.e., pitcher) has high status" (Kim and King 2014, p. 2620). As actors reinforce their status through these biased evaluations of quality, small differences in quality among actors can develop over time into greater status disparities (Gould 2002, Lynn et al. 2009). Therefore, status amplifies—and at times distorts (Malter 2014)—the quality differences among actors.

The gaps between status and quality are magnified in contexts in which the status hierarchy is determined by certification contests such as rankings or awards that designate a few selected actors as being the best in their field while ignoring the rest[2] (Sauder and Espeland 2009, Sauder et al. 2012). Not only are these acknowledgments typically awarded based on subjective, often biased perceptions of quality (Sauder 2008), but they are also limited in number, thus creating a gulf between the few who receive the awards and the many who do not (Merton 1968).

The status–quality gap is at the core of Merton's (1968, 1988) classic formulation of the key resource advantage that accrues to actors who are bestowed high-status positions: the Matthew effect. High-status actors enjoy a cumulative advantage in resources, both tangible (e.g., financial, human, and physical; D'Aveni 1996, Phillips 2001, Stuart and Ding 2006, Stuart et al. 2011) and intangible (e.g., attention and recognition; Azoulay et al. 2014, Merton 1968, Simcoe and Waguespack 2010, Washington and Zajac 2005).[3] Findings in the extant literature show that high-status actors might be able to translate their resource advantages into superior performance (Bothner et al. 2012); however, researchers have neglected how the resource advantages enjoyed by high-status actors might have (unintended) consequences on the performance of other actors. In particular, scholars have not placed sufficient emphasis on the fact that the resources gained by high-status actors might have been "taken" from their lower-status colleagues. In developing our hypotheses, we build on this underexplored negative spillover of status.

Status Hiring and the Imbalance Between Knowledge Contribution and Resource Absorption

As previously highlighted, the literature has provided robust empirical support for the Matthew effect and the benefits that accrue to high-status actors in many contexts. Yet, an often-neglected aspect of the Matthew effect is that other actors might suffer from cumulative resource deprivation, while high-status actors benefit from a cumulative resource advantage.[4] In short, as the rich get richer, the poor become poorer.

Reschke et al. (2017) recently explored the expectation that one's status might have negative consequences on others, and found that a high-status scientist might divert an audience's attention from other scientists who compete in the same field. Almost-as-accomplished peers who work in proximate scientific domains in which a scientist makes her mark (i.e., by winning a prestigious prize) suffer from the competitor's increased prestige because it focuses "the limelight on that actor to such a degree that it crowds out attention to others cast in the winner's shadow" (Reschke et al. 2017, p. 2). A similar mechanism is at play within organizational domains, where not only intangible resources (e.g., attention) but also tangible ones tend to be allocated based on status.

Organizations are bundles of limited tangible and intangible resources (March and Simon 1958) for which organizational members compete (March 1962, Pfeffer 1992). Because competition for such resources is a zero-sum game, if high-status actors gain privileged access to them, they constrain their colleagues' access, thus potentially negatively impacting their colleagues' performance. For example, findings in the literature suggest that star scientists "use their positional advantage to secure access to equipment, facilities, research assistance, and protected research time" (Sauder et al. 2012, p. 271), and "the organizational resources and attention conferred to a star . . . limit the opportunities of other, non-star, inventors" (Kehoe and Tzabbar 2015, p. 709) within the organization.

We believe that the negative spillover effect on organizational resources caused by high-status actors is amplified in hiring situations. The signal of quality conveyed by status assumes special importance in situations characterized by high uncertainty, in which actors must choose exchange partners despite having no prior direct experience with them (Podolny 1994, p. 479). Hiring is one such situation, and high-status newcomers are therefore in a privileged position to extract significant resources from their new employers (Phillips 2001). Specifically, high-status newcomers are likely to gain access to resources exceeding the levels merited by their performance. For example, findings show that high-status external hires receive compensation that is not justified by their performance in the new organization (Groysberg et al. 2008, Scully 1999). External hires are generally paid significantly more than internally promoted employees, even though the latter tend to perform better (Bidwell 2011). Because high-status actors are typically paid more (Groysberg et al. 2011, Wade et al. 2006), it is likely that the performance-reward bias for high-status hires is even more extreme (Castilla and Benard 2010, Chen et al. 2008, Ridgeway 2014).

Organizations not only offer high-status actors higher salaries to lure them away from competitors, but also may promise more attractive working conditions such as better working spaces, machinery, and staff (Rousseau et al. 2006), restricting incumbents' access to organizational resources and perhaps even shrinking their budgets in the process. In short, with the entry of high-status actors, the standing incumbents' organizational power and their control over organizational resources may be threatened. Potentially, this threat could also negatively impact incumbents' emotional resources (Casciaro and Lobo 2014, Collins 2004), manifested as loss of motivation, envy, and anxiety (Staw et al. 1981).

Despite this siphoning of resources, high-status newcomers might have positive effects for the organizations that hire them. For example, research suggests that star scientists with exceptional publication records or patenting outputs provide exposure to significant knowledge and learning opportunities at a net benefit to their colleagues (Almeida and Kogut 1999, Rosenkopf and Almeida 2003, Song et al. 2003). The positive effect of star scientists arguably rests on the high task interdependence in science (Thompson 1967), where knowledge sharing is a crucial factor for individual performance. But even in these highly collaborative contexts, hiring stars might come with a cost for incumbents. Star scientists are likely to gain privileged access to organizational resources with the result that other scientists will become more dependent on them and will be less likely to generate new ideas autonomously (Kehoe and Tzabbar 2015).

The negative resource effect of stars on coworkers is amplified when the status of star is achieved through contests that are only weakly related to quality. When awards magnify differences between how actors are celebrated in the field and their actual quality, hiring stars is likely to produce only limited positive spillovers (Ertug and Castellucci 2013, Washington and Zajac 2005, Oettl 2012). The weak correlation between status and quality therefore generates a negative balance between the positive and the negative spillovers of hiring stars: the positive knowledge contributions of high-status hires are offset by their absorption of resources. Because high-status newcomers are likely to obtain disproportionate access to organizational resources in comparison to the knowledge and skills they contribute, we expect that incumbents' performance is more likely to be negatively affected by the entry of a high-status actor, and thus hypothesize the following:

Hypothesis 1 (H1). *The higher the status of the newcomer, the greater the decline in the performance of organizational incumbents.*

Moderating Effect of Incumbents' Status

Hiring events are unlikely to have the same effects on all incumbents. Recent literature has shown, for example, that the effect of hiring is contingent upon incumbents' organizational tenure (Slavova et al. 2016). It is likely that hiring also has different effects on incumbents based on their status. At the organizational level, scholars argue that status differences hinder knowledge flows among employees (Bunderson and Reagans 2011).[5] By inhibiting learning and collaboration (Van der Vegt et al. 2010), status asymmetry has been shown to hamper an organization's ability to integrate the diverse knowledge of newly hired (Tzabbar 2009) and geographically dispersed members (Tzabbar and Vestal 2015). When moving from aggregate organizational outcomes to the intraorganizational level, the literature suggests that status differences might yield mixed effects. In studying the effect of the presence of star scientists in research and development departments, for example, Kehoe and Tzabbar (2015) showed that nonstar scientists might benefit from working with star colleagues in terms of productivity, but also suffer in their independent research as they become dependent on them for resources and ideas. Borrowing their metaphor, star scientists might not only "light the way" for nonstars, but also "steal their shine."

In light of this work, and building on our theoretical framework, we further expect that the performance of low-status incumbents declines more after the entry of a high-status newcomer because resources are more likely to be taken from incumbents with low (versus high) status (Merton 1968). Compared to their low-status colleagues, high-status incumbents enjoy greater negotiating power with their organizations, as they have significant mobility opportunities and can threaten to leave. To retain their high-status employees, organizations are more likely to guarantee them their budgets, and eventually take the resources needed for attracting high-status newcomers from low-status incumbents.

High-status incumbents also may be buffered from the attention-draining effect of new stars entering the organization. High-status newcomers tend to attract attention away from low-status incumbents—who are likely to be further ignored and become even more peripheral in the organization—rather than from high-status ones. This pattern is epitomized in research on media attention to celebrities, where a textual analysis of names in newspapers and magazines shows that new celebrities are less likely to divert media attention from recognized celebrities than from actors who have yet to make their marks: "only at the bottom of the public attention hierarchy do names exhibit fast turnover; at upper tiers, stable coverage persists around a fixed level and rank for decades" (Van de Rijt et al. 2013, p. 266).

Finally, the psychological repercussions of resource deprivation caused by high-status newcomers can differ between high- and low-status incumbents. High-status incumbents are more likely to perceive a high-status newcomer as direct competition within the social hierarchy (Bendersky and Hays 2012) and a threat to their social standing (Pettit et al. 2010, Scheepers and Ellemers 2005). Unlike low-status actors, however, high-status actors can still leverage significant organizational resources to react to the threat and activate behavior to preserve their status (Bothner et al. 2007, Moliterno et al. 2014). Moreover, high-status actors might respond more proactively to the threat by activating a larger share of organizational resources (Smith et al. 2012).

In short, high-status incumbents can leverage the benefits associated with their organizational status to cope more effectively with the threat induced by the entry of a new star in the organization. Leveraging their status, high-status incumbents are more likely to retain their established power within the organization and access to organizational resources than low-status ones. Thus, we expect that, compared to high-status employees, low-status actors are more likely to be affected in their performance by the hiring of a new star, and thus hypothesize the following:

Hypothesis 2 (H2). *The status of incumbents moderates the negative effect of a high-status newcomer on incumbents' performance, so that higher-status incumbents suffer less of a decline in performance than lower-status incumbents.*

Data and Methods

Setting

Our empirical setting is sell-side security analysts in the United States. Securities analysts are employed by brokerage houses to provide stock market investment advice to investors, who, in turn, rate securities analysts every year. *Institutional Investor* magazine (hereafter, *II*) releases an annual All-America Research Team (i.e., all-star) ranking based on a survey sent to worldwide buyers of sell-side research, including portfolio managers, investment officers, and buy-side analysts from major money management institutions. The analysts' rankings are then determined by weighting the survey's scores according to the size of each respondent's institution and are published in the magazine's October issue with only the first, second, third, and runner-up positions announced. This truncated distribution, as Merton (1968) suggested in relation to the French Academy being limited to 40 members, creates the condition for the development of a status ordering loosely coupled with performance.

The *II* ranking has had a huge impact on the profession since its inception, quickly becoming the most coveted award among analysts and the best indicator of their status in the field (Bowers et al. 2014, Burt 2007, Phillips and Zuckerman 2001). As the former director of research at (the now bankrupt) Shearson Lehman Brothers said, "Before *II*, you didn't know who the best analysts were . . . *II* had an unbelievable effect. It started knighting people as the experts. . . . You could be seventh-best in the United States and you're nothing. It's either one, two, three, runner-up or nothing" (Groysberg 2010, p. 44).

Unlike other rankings in the field (e.g., those released by the *Wall Street Journal*), the *II* All-America Research Team ranking is not based on an algorithmic valuation of analysts' performance (i.e., on their ability to issue recommendations that can generate abnormal returns for the investors who follow them). Instead, performance is only one of the factors that might lead to being included in the rankings;[6] an analyst who appeared in *II*'s rankings multiple times admitted, "How accurate our stock picks were didn't matter so much. What did matter was whom the buy-side analysts and portfolio managers voted for in the poll. And so, our jobs became as much about responding to the needs of every potential voter as they were about actually doing research and accurately picking stocks" (Reingold and Reingold 2009, pp. 58–59).

Despite the weak correlation between the *II* rankings and analysts' performance (Emery and Li 2009), the *II* designation translates into privileged access to organizational resources as epitomized by the disproportionate pay all-star analysts receive (e.g., Gasparino 2005, Reingold and Reingold 2009). As shown by empirical research, the "total compensation of All-Star analysts [is] 61% higher than that of non-star analysts, holding other factors constant" (Groysberg et al. 2011, p. 971). High-status analysts not only receive better salaries, but also have access to superior organizational resources, such as better staff: "Today the senior analyst needs strong associates [i.e., assistants], and part of their job is to make the star look like a star" (*Institutional Investor* 1996, p. 52; cited in Clement 1999, p. 289).

Another characteristic of this setting that makes it particularly appropriate for studying the effect of hiring events is that analysts' performance is immediately revealed and constantly updated. A formerly ranked analyst explained: "Unlike many people in the corporate world, investors and their advisors got graded every day. If I missed some news or made a bad call, I'd hear about it immediately, first from the trading prices of the stocks and then from an unhappy money manager who'd followed my advice or a . . . salesman who'd pitched it hard" (Groysberg and Healy 2013, p. 37). Unlike studies of chief executive officers or managers, contexts in which it is particularly challenging to disentangle individual performance from organizational performance, and studies of scientists, contexts in which temporal lags in the publication and patenting processes make it difficult to directly link hiring events to changes in individual performance outputs, our setting enables us to track individual performance over time in a fine-grained way and to clearly identify punctuated changes in individual performance.

Data and Sample

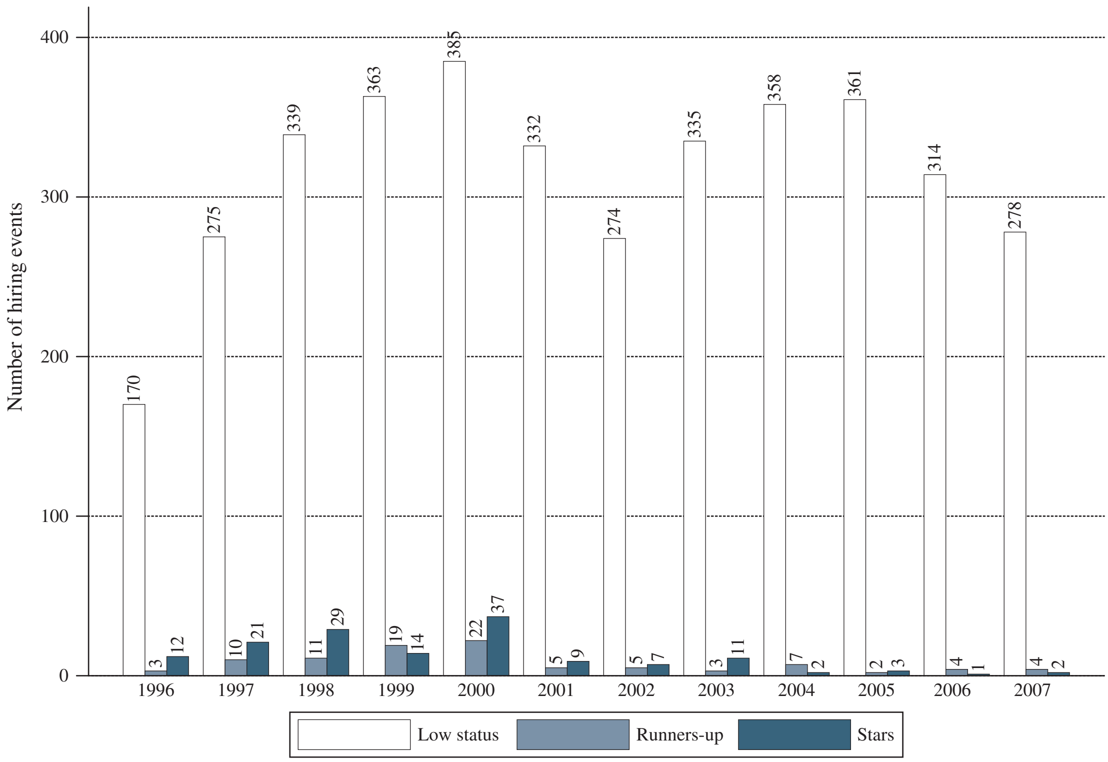
Our primary data sources are the All-America Research Team ranking, compiled by *II*, and the Institutional Broker Estimate System (hereafter, IBES). IBES is a database that includes stock recommendations from a large and representative sample of securities analysts, from those employed by the biggest investment banks to those employed by the smallest boutique research firms. Recommendations are reported using a five-point scale that indicates strong buy, buy, hold, sell, and strong sell. To compute the returns associated with these recommendations (analyst performance), we extracted daily stock price information from the Center for Research on Security Prices. To calculate abnormal returns that exceed normal expectations (described later in the Measures section), we used factors that have been shown to predict stock prices in the finance literature, which are available on Kenneth French's website.[7]

Analysts and the brokerage houses that employ them are identified in IBES through specific IDs.[8] In the period from 1996 to 2007, a total of 11,712 unique analysts from 696 organizations issued recommendations on IBES. Each year, only a small percentage of such analysts (on average about 12%) appear on the *II* ranking. In Figure 1, we report the number of analysts who are hired from other organizations for any given year in our sample. We classify such hires by their position in the ranking (whether they are ranked among the top three in their industry, are a runner-up analyst, or are excluded) when they issued their first recommendation for the new brokerage house. Not surprisingly, hiring low-status (unranked) analysts is much more common than hiring stars or runners-up from other organizations.[9]

Empirical Strategy

We adopted several alternative approaches to estimate the effect of hiring new (high-status) employees on the

Figure 1. (Color online) Number of Hiring Events per Year



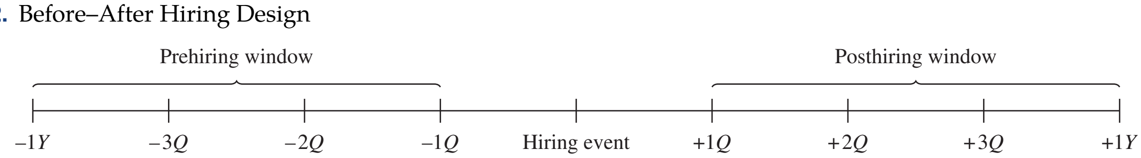
incumbent's performance. Consistent with the finance literature (e.g., Hong and Kacperczyk 2010), we first used a before–after treatment model, where treatment in our case is the hiring of an analyst, and the analyst's status is the intensity of the treatment. Specifically, our main models correspond to a difference-in-differences regression with variable treatment intensity. These models test whether the difference in incumbents' performance *before* and *after* the hiring event significantly increases as the status of the hired analyst increases[10] (see Acemoglu et al. 2004 for a similar research design) and take the following form:

$$Y_{it} = B_0 + B_1(TI) + B_2(P) + B_3(TI * P), \qquad (1)$$

where Y is the performance of focal analyst i (i.e., the average abnormal return of his or her stock recommendations) in a given window t, *TI* is the intensity of the treatment to which the analyst is exposed (in our case, the status of the newcomer analyst), P is a time dummy variable with a value equal to 1 for observations occurring after the treatment (the hiring event) and 0 otherwise, and the interaction term $TI * P$ identifies the treatment intensity after hiring. A positive coefficient of the interaction term (B_3) would indicate that the performance of incumbent analysts improves as the status of a newcomer increases, whereas a negative coefficient would support the hypothesized effect: that the performance of incumbent analysts declines as the status of a newcomer increases. The null hypothesis is that the status of the newcomer has no effect on incumbents' performance.

The before–after treatment methodology requires identifying the precise time of the event and defining the pretreatment and posttreatment time windows. As depicted in Figure 2, we identified the timing of the hiring event based on the first recommendation issued by the newcomer analyst for his or her new employer. Following Hong and Kacperczyk (2010), we identified a two-year period for our pre- and posttreatment windows, with one year of data selected for each of the pre- and posttreatment periods. To identify the incumbent analysts who are affected by the focal entry, we ensure that they had issued recommendations for the hiring brokerage house prior to the beginning of the prehiring window and they continued issuing them after the

Figure 2. Before–After Hiring Design



end of the posthiring window. We excluded incumbents' recommendations issued in the quarter preceding the newcomer's first recommendation because the hiring event already may have had effects; for example, the analyst might have joined the organization before the first observed recommendation or the incumbents might have anticipated the newcomer joining the organization, thus affecting their recommendations. For similar reasons, we excluded recommendations issued up to one quarter after the hiring date. The resulting sample comprises 3,124 hiring events, each affecting an average of almost 17 analysts.[11] We then compared the performance of these analysts before and after the hiring event as described in (1).[12]

We adopted two approaches to test our hypotheses using the before–after treatment design: a fixed-effect estimation and a dyadic (multilevel) approach. In the fixed effect model, we first considered that there might be several unobserved factors coinciding with the hiring event that can affect an analyst's performance (such as resource differences among hiring brokerage firms at the time of the hiring event, the specific characteristics of the employer from which the analyst was hired, the industry specialization of the hired analyst, etc.). To control for this unobserved heterogeneity, we included a set of dummies for the specific hiring events.[13] Because there might be also time-invariant differences across incumbent analysts (such as innate technical and social skills, gender, race, education, industry of specialization, etc.), we also included fixed effects for each focal analyst. In this two-way (hiring event and incumbent analyst) fixed effects model, we also accounted for the nonindependence of treatment observations associated with the same newcomer entry by clustering standard errors around the focal hired analyst.

As a robustness check, we also adopted the same before–after treatment approach by accounting for nonindependence across incumbents' observations through dyadic models (i.e., multilevel linear models). Consistent with the clustering approach previously described, we employed a *one-to-many dyadic design* (Kenny et al. 2006), accounting for the fact that *many* analysts within the hiring organization are subject to a common influence by *one* hired analyst. This design corresponds to using hierarchical models with observations nested within the same hired analyst.

The before–after treatment approach just described hinges upon the assumption that the effect of the current treatment intensity (i.e., the status of the focal hire) is not confounded by prior intensity of treatments (i.e., the status of prior hires) or by the treatment (i.e., hiring event) per se. In the Robustness Checks section, we also test our hypotheses using marginal structural models to account for such potential confounding effects.

Measures

Dependent Variable. To measure the performance of securities analysts, we followed the approach implemented by Barber et al. (2007; see also Groysberg et al. 2013) and computed the buy-and-hold abnormal return (BHAR) that would be obtained by creating a portfolio of stocks updated based on each analyst's stock recommendations. We measured the analysts' recommendation returns for both long positions (e.g., buy and strong buy) and short positions (e.g., sell and strong sell) in the pre- and posthiring event windows described in Figure 2. Specifically, we calculated each analyst's portfolio return as follows:

$$R_{jt} = \frac{\sum_{i=1}^{n_t} x_{ijd} \cdot BHAR_{j[d+1,\,d+90]}}{\sum_{i=1}^{n_t} x_{ijd}}, \tag{2}$$

where x_{ijd} is the number of dollars invested in stock i at the day d of analyst j's recommendation,[14] and $BHAR_{j[d+1,\,d+90]}$ is the buy-and-hold abnormal return obtained by going long or short in j's recommended stock the day after the recommendation and holding the position up to 90 days.[15] Therefore, R_{jt} represents the average return for each dollar invested following analyst j's investment recommendations in period t (where period t is defined as the pre- and the posthiring windows defined previously). We calculated the BHAR on each analyst j's recommendations by subtracting the expected returns $E(r)$ from the actual returns $A(r)$:

$$BHAR_j = A(r)_j - E(r)_j. \tag{3}$$

As in Barber et al. (2007) and Groysberg et al. (2013), we estimated the expected returns using the Carhart (1997) model, also known as the four-factor model. Specifically, for each recommendation issued by an analyst, we estimated a linear regression that predicted the returns realized by each stock in the analyst's portfolio prior to the recommendation date (within the −30 to −150 trading day window), as described in the following equation:

$$E(r)_j = \alpha + B_1(K_m - R_f) + B_2(SMB) + B_3(HML) + B_4(MOM). \tag{4}$$

The first three factors are those identified by Fama and French (1993). Specifically, R_f is the risk-free return rate, and K_m is the return of the whole stock market. *SMB* and *HML* stand for "small [cap] minus big" and "high [book/price] minus low," respectively; they measure the historic excess returns of small caps and "value" stocks. The fourth factor (*MOM*) is a momentum factor that captures the excess returns of past winning versus past losing stocks.

Independent Variables.

Posthiring. Our before–after treatment approach hinges on the expectation that an analyst's posttreatment performance (i.e., after a newcomer joins the organization) differs from his or her pretreatment performance (i.e., prior to the newcomer's arrival), and that this difference depends on his or her status vis-à-vis the status of the newcomer. To capture whether there is indeed a change in performance after the hiring event, we constructed a dummy variable that takes a value of 1 for the incumbent analyst's performance observed in the posthiring window, and 0 for his or her performance in the prehiring window. As described in Equation (1), we then interacted this variable with "newcomer's status" and "incumbent's status" to test whether treatment effects change based on the statuses of newcomers and incumbents.

Newcomer's status. We identified each newcomer's status based on the *II* ranking. As a first approximation of a newcomer's status, we used a three-state categorical variable based on the three main categories identified by *II* illustrated in Figure 1: currently ranked as a *star* (i.e., recognized as one of the top three in his or her industry at the time of hiring), currently named as a *runner-up*, or excluded from the ranking (*low status*). This operationalization has the advantage of simplicity and facilitates the interpretability of the regression results. It does, however, consider the status of analysts who have been ranked for the first time as being equal to those with long histories of *II* awards. This proxy for status does not recognize that status is an enduring property of actors (Malter 2014, Schmalbeck 1998).

Therefore, as a sensitivity test, we also adopted different operationalizations of *newcomer's status*, accounting for whether the currently ranked analyst has also a *ranking history*. We first followed Bowers et al. (2014, p. 48), who "summed each year an analyst had been listed as an All-Star, weighted by its recency; that is 1/(year t−year of the award)" (see also Ertug and Castellucci 2013 for a similar approach in another setting). Although "this measure gives more weight to recent All-Star rankings to account for the enduring, but weakening, effect of being ranked" and accounts "both for how recently an analyst was an All-Star as well as how many awards s/he has received" (Bowers et al. 2014, p. 48), it does not account for differences in ranking positions. To distinguish stars from runners-up, we assign a value of 1 to runner-up positions and a value of 2 to star positions before taking the weighted sum. Because the resulting values are highly skewed, we used a natural log transformed variable. We added 1 before taking the log to ensure that we did not exclude low-status analysts (i.e., never ranked analysts).[16]

Incumbent's status. We followed the same procedure to calculate each incumbent's status. In a first approximation, we used a variable capturing whether the analyst is ranked as a star or runner-up or unranked at the time of the hiring event. Then, as we did for newcomer's status, we also accounted for past ranking by computing the weighted sum of historical *II* awards attained prior to the hiring event.

Control Variables. In our main models, we followed a conservative approach to include fixed effects for each specific hiring event and for each incumbent analyst: the former ensures that our results are not biased by unobserved differences related in the hiring organization or the hired analyst at the time of the hiring event; the latter controls for unobserved characteristics of the affected analysts that are stable over time.

To ensure that our results are not biased by potential confounding hiring events occurring within the specific windows in which we measure the incumbent's performance, we also included the *number of runners-up* and *the number of stars* that had been *hired* by the focal organization in the pre- and posthiring windows, respectively. Similarly, to avoid estimation biases due to analysts who left the organization, we measured the *number of runners-up* and *number of stars* who *left* the organization during each window. Finally, to discard for the possibility that the focal hiring effect was confounded by the presence of other incumbent analysts, we controlled for the total *number of incumbent analysts*, the *number of runners-up*, and the *number of stars* that were affected by the same entry.

To make sure that the abnormal returns of analysts' recommendations were not simply the result of their frequency or of their imitation of other analysts' recommendations, we controlled for the (natural log of the) *number of recommendations* issued in the given window and for the average *portfolio boldness* (calculated as the average deviance from consensus of such recommendations).

Finally, we also included a set of variables related to incumbents' and newcomers' individual characteristics that might affect incumbents' differential responses to newcomers, and thus confound the measured effect of status. Since recent literature in organization theory has shown that hiring might have different effects on incumbents with different tenures (Slavova et al. 2016), we controlled for the (natural log of the) number of years the analyst had been employed by the hiring organization prior to the hiring event, and for whether his or her change in performance after the hiring event was due to such differences in *tenure*. Similarly, we controlled for the possibility that the incumbent's response to the newcomer was just the result of hiring a high-performance analyst rather than a high-status one. To do so, we controlled for the average performance attained by the newcomer in the three years prior to joining the new organization (*newcomer prehiring performance*). Finally, to tease out potential industry effects due to a similar industry specialization between the newcomer and the incumbent analyst, we measured the extent to which the two analysts focused on the same industries. To do so, we first constructed a vector of industries for each analyst based on their frequency of stock coverage in each market industry (identified as three-digit Standard Industrial Classification codes) in the three years prior to the hiring event. We then computed the *industry overlap* between incumbent and newcomer analyst as the cosine similarity between their corresponding vectors (De Vaan et al. 2015).

Results

In Table 1, we report the descriptive statistics for our variables and the correlations among them.

Table 2 shows the results of our before–after treatment models when contrasting the effect of hiring a runner-up or a star analyst versus an unranked one. In Models 1–3, we report the results of our fixed effects models including fixed effects for the focal hiring event and for the incumbent analysts.[17] In Model 4–6, we test our hypotheses using a multilevel (dyadic) approach including random effects from the focal hiring event.

We test our first hypothesis, stating that the performance of incumbent analysts decreases as the status of a newcomer increases, with the two specifications in Models 1 and 4, respectively. The negative coefficients of *posthiring* × *star newcomer* in both models provide evidence that the negative effects of hiring a star analyst offset the positive ones: hiring a star analyst is followed by a drop in an incumbent's performance. Specifically, after the entry of a star in the organization, the abnormal return of incumbents' stock recommendations decreases by 2.5% with respect to hiring a nonstar analyst. The negative but not significant effect associated to runner-up status in Model 1 suggests instead that, on average, hiring a runner-up analyst might not produce significantly different effects than hiring an unranked analyst.

Model 2 and 5 test whether the effect of hiring stars varies with the status of the incumbent and, specifically, whether an incumbent's status positively moderates the negative effect of hiring a high-status analyst. The positive coefficient of *posthiring* × *star newcomer* × *star incumbent* confirms such a moderation effect and suggests that the performance of high-status analysts declines significantly less than the performance of low-status analysts when a high-status newcomer joins an organization. Specifically, whereas the abnormal recommendation profitability of an unranked incumbent analyst falls 3.9% after the entry of a new star, the performance of an incumbent star seems not to be affected from such an entry. Model 3 and 6 introduce all our control variables and show that our results are robust to the potentially confounding events, and that the estimated coefficients remain consistent across models.

Table 1. Summary Statistics and Correlation Matrix

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. *Incumbent portfolio performance*	−0.05	0.25																	
2. *Posthiring*	0.50	0.50	−0.00																
3. *Star/RU/low-status newcomer*	0.22	0.58	−0.02	0.00															
4. *Newcomer status* (historical)	0.20	0.54	−0.02	0.00	0.94														
5. *Star/RU/low-status incumbent*	0.41	0.75	0.02	0.00	0.11	0.10													
6. *Incumbent status* (historical)	0.39	0.74	0.02	0.00	0.11	0.10	0.94												
7. *Incumbent tenure* (ln)	1.90	0.67	0.03	0.00	0.01	0.01	0.31	0.36											
8. *Newcomer prehiring performance*	−0.08	0.24	0.02	0.00	0.08	0.09	0.01	0.01	0.01										
9. *Industry overlap*	0.05	0.16	−0.04	0.00	−0.05	−0.05	−0.06	−0.06	−0.04	−0.06									
10. *No. of recommendations* (ln)	1.64	0.72	−0.02	0.01	−0.01	−0.01	0.11	0.12	0.14	−0.01	0.02								
11. *Incumbent portfolio boldness*	0.78	0.36	0.07	0.01	−0.06	−0.05	−0.03	−0.03	0.02	0.00	−0.02	−0.02							
12. *No. of stars hired*	1.35	2.76	−0.04	0.00	0.26	0.25	0.15	0.16	−0.01	0.01	−0.03	−0.03	−0.10						
13. *No. of runners-up hired*	0.69	1.14	−0.04	−0.00	0.21	0.21	0.11	0.11	−0.01	0.01	−0.05	−0.07	−0.08	0.50					
14. *No. of stars who left*	1.04	1.41	0.02	0.05	0.15	0.13	0.23	0.22	0.02	0.01	−0.06	0.01	0.00	0.27	0.14				
15. *No. of runners-up who left*	0.90	1.25	0.02	0.06	0.12	0.11	0.24	0.22	0.02	−0.00	−0.07	0.01	−0.01	0.22	0.15	0.52			
16. *No. of incumbent* analysts	31.03	16.76	0.03	0.00	0.16	0.14	0.31	0.30	0.04	0.03	−0.12	−0.10	0.04	0.19	0.13	0.43	0.45		
17. *No. of star incumbents*	6.44	6.54	0.01	0.00	0.21	0.19	0.40	0.40	0.08	0.01	−0.09	−0.08	−0.01	0.24	0.18	0.46	0.49	0.83	
18. *No. of runner-up incumbents*	3.63	3.35	0.01	0.00	0.20	0.18	0.37	0.37	0.06	0.04	−0.09	−0.08	−0.02	0.31	0.17	0.47	0.50	0.76	0.77

Note. RU, runner-up.

Table 2. Effect of Hiring Unranked vs. Runners-Up vs. Stars Analysts on Incumbents' Performance, 1996–2007

	Fixed effects			Multilevel		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Posthiring	0.001	−0.002	0.014**	0.001	−0.002	0.013*
	(0.002)	(0.002)	(0.005)	(0.002)	(0.002)	(0.005)
RU newcomer				0.002	0.004	0.003
				(0.006)	(0.007)	(0.007)
Star newcomer				−0.001	0.002	0.011^{+}
				(0.005)	(0.006)	(0.006)
Posthiring × *RU newcomer*	−0.005	−0.004	−0.003	−0.005	−0.004	−0.003
	(0.009)	(0.011)	(0.011)	(0.007)	(0.009)	(0.009)
Posthiring × *Star newcomer*	−0.025***	−0.039***	−0.044***	−0.025***	−0.039***	−0.044***
	(0.007)	(0.010)	(0.010)	(0.005)	(0.007)	(0.007)
RU incumbent		0.001	−0.004		0.009*	0.008^{+}
		(0.004)	(0.005)		(0.004)	(0.005)
Star incumbent		0.007^{+}	0.001		0.011**	0.008*
		(0.004)	(0.004)		(0.003)	(0.004)
Posthiring × *RU incumbent*		0.018**	0.018**		0.018**	0.018**
		(0.006)	(0.006)		(0.006)	(0.006)
Posthiring × *Star incumbent*		0.007^{+}	0.013**		0.007	0.013*
		(0.004)	(0.004)		(0.005)	(0.005)
RU newcomer × *RU incumbent*		0.005	0.003		0.003	0.000
		(0.015)	(0.016)		(0.016)	(0.016)
RU newcomer × *Star incumbent*		−0.007	−0.007		−0.015	−0.015
		(0.011)	(0.011)		(0.012)	(0.013)
Star newcomer × *RU incumbent*		−0.010	−0.015^{+}		0.006	0.005
		(0.009)	(0.009)		(0.012)	(0.012)
Star newcomer × *Star incumbent*		−0.011	−0.014		−0.024*	−0.024*
		(0.009)	(0.009)		(0.009)	(0.010)
Posthiring × *RU newcomer* × *RU incumbent*		−0.018	−0.014		−0.018	−0.015
		(0.023)	(0.024)		(0.022)	(0.023)
Posthiring × *RU newcomer* × *Star incumbent*		−0.004	−0.010		−0.004	−0.010
		(0.016)	(0.016)		(0.017)	(0.018)
Posthiring × *Star newcomer* × *RU incumbent*		0.015	0.017		0.015	0.016
		(0.014)	(0.014)		(0.016)	(0.017)
Posthiring × *Star newcomer* × *Star incumbent*		0.042**	0.043**		0.042**	0.043**
		(0.014)	(0.014)		(0.013)	(0.014)

In Table 3, we run the same models as those described in Table 2, but we use a continuous measure of status (calculated as previously explained) that accounts for the analysts' history of all-star awards to better grasp the differences in the status order. Consistent with the results obtained with the three-status categorical variable in Table 2, we observe that the performance of incumbent analysts decreases as the status of the newcomer increases, and that the status of the incumbent moderates this effect. Figure 3 graphically illustrates this moderation effect.

As depicted in Figure 3, the line associated with low-status incumbents is downward sloping, suggesting that low-status incumbents (i.e., analysts who were never mentioned in *II*) suffer progressively more in their performance as the status of the newcomer increases. The progressively higher slopes of the lines associated with incumbent analysts with greater status suggest that the status of the incumbent mitigates the negative affect of hiring stars.[18]

Further Robustness Checks

Marginal Structural Models (MSMs). One potential limitation of the results presented so far is that analysts are not randomly assigned to different treatment intensities. The observed treatment intensity (i.e., the status of the newcomer analyst to which the focal incumbent analyst is exposed) is conditional upon the treatment decision (the decision by the employing organization to hire new analysts) and likely depends on prior treatments (e.g., the number of stars hired in the past) as well as on other time-varying variables (e.g., the status of the incumbent analyst). The observed treatment intensity therefore might not truly be an "independent" variable, thus making causal inference with standard approaches problematic.

Table 2. (Continued)

	Fixed effects			Multilevel		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Incumbent tenure (ln)			0.017**			0.012***
			(0.006)			(0.002)
Posthiring × *Incumbent tenure* (ln)			−0.009***			−0.008**
			(0.002)			(0.003)
Industry overlap			0.002			−0.052***
			(0.008)			(0.007)
Posthiring × *Industry overlap*			−0.020			−0.020*
			(0.013)			(0.010)
Newcomer prehiring performance						0.017**
						(0.006)
Posthiring × *Newcomer prehiring performance*			−0.006			−0.007
			(0.009)			(0.007)
No. of recommendations (ln)			−0.007***			−0.007***
			(0.002)			(0.001)
Incumbent portfolio boldness			0.030***			0.037***
			(0.003)			(0.002)
No. of stars hired			−0.049***			−0.001
			(0.010)			(0.000)
No. of runners-up hired			−0.108***			−0.010***
			(0.024)			(0.001)
No. of stars who left			0.001			0.002+
			(0.001)			(0.001)
No. of runners-up who left			0.007***			0.005***
			(0.001)			(0.001)
No. of incumbent analysts						0.000**
						(0.000)
No. of star incumbents						−0.001+
						(0.000)
No. of runner-up incumbents						−0.001+
						(0.001)
Constant				−0.054***	−0.056***	−0.096***
				(0.002)	(0.002)	(0.005)
Hiring event fixed effects	Yes	Yes	Yes			
Incumbent analyst fixed effects	Yes	Yes	Yes			
R_2	0.26	0.26	0.28			
LL				−2,232.86	−2,179.96	−2,178.42
N	105,268	105,268	90,472	105,268	105,268	90,520

Notes. Standard errors in are parentheses and are clustered by the hired analyst for the fixed effects models. RU, runner-up; LL, log-likelihood.
$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

This problem resonates with the challenge in medical studies of estimating treatment effectiveness among patients when treatment and treatment intensity are not assigned at random, and can change at any time as a function of the history of past treatments and prognosis. The most appropriate approach for producing causal treatment effect estimates in these situations is to use marginal structural models (Hernán et al. 2001, Robins et al. 2000; see also Yue et al. 2013 for a recent application of this approach in management).

In the MSM regression framework, instead of controlling for time-dependent confounding factors (as in the regression models), each subject is assigned a weight that is inversely proportional to the estimated probability of receiving the observed treatment history. In simple terms, this approach "creates counterfactuals": it "corrects" for the nonrandom assignment of treatment by overweighting (underweighting) observations of individuals whose past treatments and covariates are underrepresented (overrepresented) compared to what would have been observed if treatment had been randomized.

To define the analyst's entire history of treatment, we restricted our analysis to a subsample of analysts whose careers we were able to track from the dates they joined their first employers until they exited from the sample or moved to new organizations (when they are censored and drop out from the analysis). To mitigate

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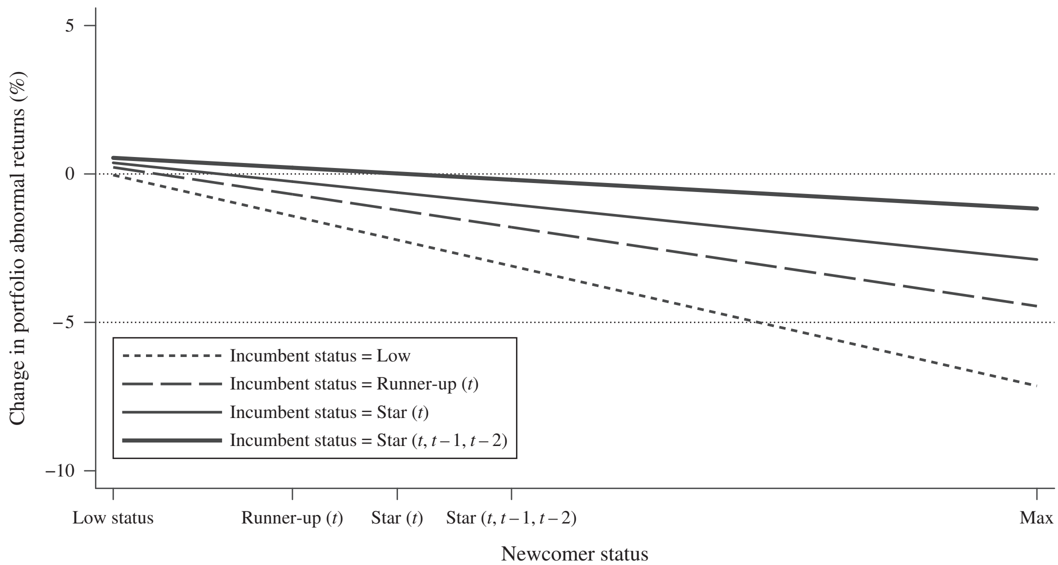
Table 3. Effect of Hiring Historically Awarded Analysts on Incumbents' Performance, 1996–2007

	Fixed effects			Multilevel		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Posthiring	0.001	−0.000	0.015**	0.001	−0.000	0.014**
	(0.002)	(0.002)	(0.005)	(0.002)	(0.002)	(0.005)
Newcomer status				−0.000	0.003	0.007*
				(0.003)	(0.003)	(0.003)
Posthiring × *Newcomer status*	−0.013***	−0.020***	−0.022***	−0.013***	−0.020***	−0.022***
	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.004)
Incumbent status		0.000	−0.003		0.006***	0.005*
		(0.002)	(0.002)		(0.002)	(0.002)
Posthiring × *Incumbent status*		0.004*	0.007**		0.004+	0.007**
		(0.002)	(0.002)		(0.002)	(0.003)
Newcomer status × *Incumbent status*		−0.006**	−0.006**		−0.006**	−0.006*
		(0.002)	(0.002)		(0.002)	(0.002)
Posthiring × *Newcomer status* × *Incumbent status*		0.010**	0.009**		0.010**	0.009**
		(0.003)	(0.003)		(0.003)	(0.003)
Incumbent tenure (ln)			0.019**			0.012***
			(0.006)			(0.002)
Posthiring × *Incumbent tenure* (ln)			−0.009***			−0.009**
			(0.002)			(0.003)
Industry overlap			0.002			−0.052***
			(0.008)			(0.007)
Posthiring × *Industry overlap*			−0.021			−0.021*
			(0.013)			(0.010)
Newcomer prehiring performance						0.016**
						(0.006)
Posthiring × *Newcomer prehiring performance*			−0.006			−0.006
			(0.009)			(0.007)
No. of recommendations (ln)			−0.007***			−0.007***
			(0.002)			(0.001)
Incumbent portfolio boldness			0.030***			0.037***
			(0.003)			(0.002)
No. of stars hired			−0.051***			−0.001
			(0.010)			(0.000)
No. of runners-up hired			−0.107***			−0.010***
			(0.024)			(0.001)
No. of stars who left			0.001			0.002+
			(0.001)			(0.001)
No. of runners-up who left			0.007***			0.006***
			(0.001)			(0.001)
No. of incumbent analysts						0.000**
						(0.000)
No. of star incumbents						−0.001*
						(0.000)
No. of runner-up incumbents						−0.001
						(0.001)
Constant				−0.054***	−0.056***	−0.097***
				(0.001)	(0.002)	(0.005)
Hiring event fixed effects	Yes	Yes	Yes			
Incumbent analyst fixed effects	Yes	Yes	Yes			
R_2	0.26	0.26	0.28			
LL				−2,231.82	−2,196.59	−2,193.71
N	105,268	105,268	90,472	105,268	105,268	90,520

Notes. Standard errors are in parentheses and are clustered by the hired analyst for the fixed effects models. LL, log-likelihood.
$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

concerns due to left censoring, whereby analysts were operating in the industry before IBES started collecting their recommendations, we consider only analysts issuing their first recommendation after January 1995 for a brokerage house that was already operating (issuing estimates on IBES) before the focal analyst's first recommendation.[19] Our sample consists, therefore, of 3,479 analysts.

Figure 3. Moderating Effect of Incumbents' Status on Incumbents' Performance Drop After High-Status Hirings

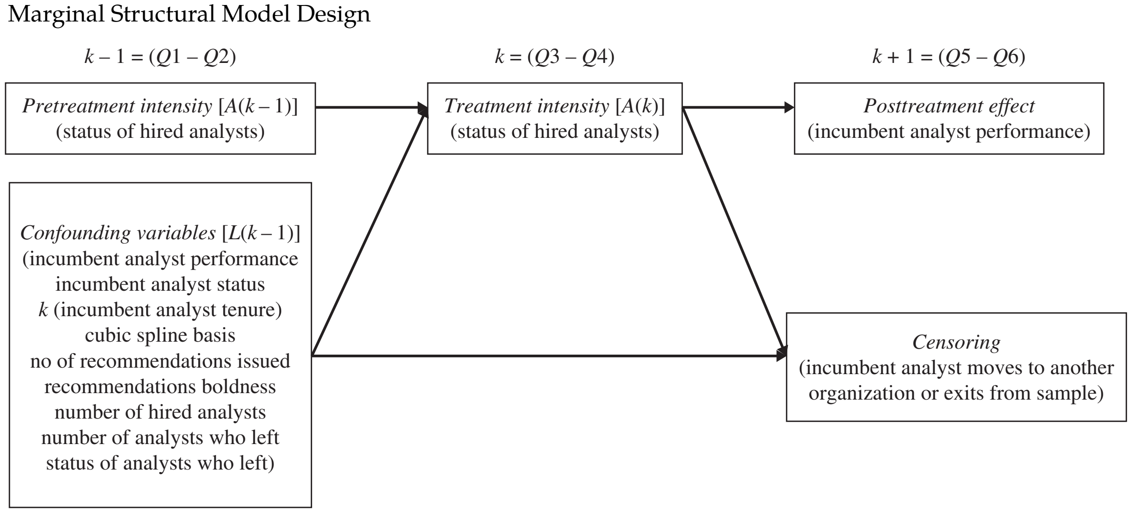


Consistent with an MSM framework, we then created observations discretized by time for each of these analysts (rather than by hiring events), so that there is one observation per analyst per window.[20] We specifically created pretreatment, treatment, and posttreatment periods around moving windows, as illustrated in Figure 4. For each window in the treatment period, we computed whether the organization hired a new analyst and, if so, the newcomer's status.[21] We then used confounding covariates measured in the pretreatment window to estimate each subject's probability of having his or her actual treatment history. Each analyst is followed for an average of about four windows before being dropped out from the analysis (since he moved to another brokerage house or left the profession), thus giving rise to about 14,000 observations.

To conduct our analysis, we followed the guidelines and code provided by Faries and Kadziola (2010) for cases like ours, where the effect of treatment is measured at multiple points in time. For each analyst's observation, we measured three weights: (i) one adjusting for the likelihood of being exposed to treatment (to a new hire, regardless of his or her status), (ii) one for being exposed to the observed treatment intensity (to the status of the new hire),[22] and (iii) one for censoring (being fired or moving to another organization). As commonly recommended (Robins et al. 2000, Hernán et al. 2001), we use stabilized weights[23] as described in the following equation:

$$SW_t = \prod_{k=0}^{t} \frac{f[A(k)|\bar{A}(k-1), V]}{f[A(k)|\bar{A}(k-1), \bar{L}(k-1)]}, \tag{5}$$

Figure 4. Marginal Structural Model Design



where $A(k)$ represents the treatment at time k, $\bar{A}(k-1)$ represents the treatment history prior to time k, V represents a vector of baseline covariate (in our case, a dummy for the first time window in which the analyst entered in the study, the size and status of the organization in which he or she started his or her profession, and the first performance he or she attained), and $\bar{L}(k)$ represents a vector of time-varying covariates through time $k-1$, which includes baseline covariates V. Because one assumption of the MSM method is that controlling observables is sufficient to control for confounding effects, in $\bar{L}(k-1)$ we include some of the most important variables—at the organization level and the analyst level—that should affect the analyst's probability of being exposed to the given hiring event(s) in the given window (see Figure 4).

In the second-stage of the MSM approach, we used the weights obtained in Equation (5) to conduct a weighted repeated measures model analysis using generalized estimating equations and an exchangeable correlation matrix, also accounting for repeating observations within analysts (Faries and Kadziola 2010). Model 1 in Table 4 reports the results of such models estimating the analyst's performance change from baseline performance. The negative coefficient associated to hiring higher-status newcomers provides further support to our first hypothesis, even when considering the differential history of treatment of each analyst. This result is confirmed also in Model 2, where we also control for whether the analyst was subject to treatment (there was a new hiring in the treatment window), and in Model 3, where we estimate the effect of high-status newcomers only on treated observations that were subject to hiring in the prior window[24] (as in the before–after treatment model).

Structural Nested Mean Models (SNMMs). Our second hypothesis aims at estimating moderated causal effects with time-varying treatments (status of hires) and time-varying moderators (status of incumbents). The most appropriate approach for estimating time-varying causal effect moderations is to implement structural nested mean models (Robins et al. 2007). To estimate such models, we followed recent literature in epidemiology (with empirical applications also in sociology) that developed an easy-to-use estimator of SNMMs, by combining a regression-with-residuals approach with the inverse-probability-of-treatment weighting strategy described in the marginal structural models (Almirall et al. 2014; Wodtke and Almirall 2017; Wodtke et al. 2016, 2011). Because of space constraints, we point the reader to Wodtke and Almirall (2017) for a thorough description of these models in contexts similar to ours, estimating the moderation of individual characteristics on neighbors' effects. We mention here two major differences with respect to the models described previously: (i) This approach residualizes the candidate moderator (the status of the incumbent) by estimating $E(S_{t-1} \mid S_{t-2}, A_{t-1})$ and uses the residual as a covariate in the model for the SNMM. (ii) The form of the numerator in computing the weights for the SNMM models

> differs from the form of the numerator used in weights to estimate MSMs. Specifically, because MSMs are conditional only on baseline covariates, the numerator of the weights is only a function of baseline covariates and prior treatment, whereas, because SNMMs are conditional on time-varying moderators S_{t-1}, the numerator of $SW(t)$ may be a function of both S_{t-1} and prior treatment. (Almirall et al. 2014, p. 12)

Results reported in Models 4–6 in Table 4 confirm the positive interaction effect between the status of hired

Table 4. Effect of Hiring on Change in Incumbents' Performance from Baseline

	MSM			SNMM		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Newcomer status	-0.023^{**}	-0.023^{**}	-0.0217^{**}	-0.018^{**}	-0.021^{***}	-0.020^{***}
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.002)
Incumbent status (residual)				−0.002	−0.005	−0.004
				(0.016)	(0.016)	(0.018)
Newcomer status × *Incumbent status*				0.029^{*}	0.030^{*}	0.032^{*}
				(0.001)	(0.014)	(0.015)
Analyst's baseline performance	-0.997^{***}	-0.997^{***}	-0.997^{***}	-1.011^{***}	-1.011^{***}	-1.027^{***}
	(0.007)	(0.007)	(0.008)	(0.006)	(0.006)	(0.007)
Hired analyst (dummy)		−0.005			0.022^{***}	
		(0.009)			(0.006)	
Constant	0.304^{+}	0.304^{+}	-1.376^{*}	0.285	0.284	-0.992^{***}
	(0.172)	(0.172)	(0.580)	(0.304)	(0.304)	(0.119)
Brokerage house dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	14,313	14,313	9,126	14,313	14,313	9,126

Note. Standard errors are in parentheses.
$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

analysts and the status of the incumbents hypothesized in H2.

Discussion

Despite repeated warnings about hazardous consequences in the war for talent (Groysberg et al. 2008, Pfeffer 2001), firms continue to invest considerable resources in hiring stars. This strategy finds support in empirical research on star scientists showing that organizations that employ scientists with exceptional publication records see general improvement in the performance of their employees (Azoulay et al. 2010, Oettl 2012, Zucker et al. 2002). But in most business settings, individual performance cannot be as readily observed as in the academic setting. The difficulties associated with objectively assessing the performance of market candidates is one of the main reasons why rankings have proliferated in a range of fields to establish who "the best" are. Since organizations use these rankings (as well as other status signals) to guide their recruiting processes (Graffin and Ward 2010, Rao 1994, Wade et al. 2006), the question of how to precisely assess the effects of hiring high-status actors on incumbents' performance becomes critical in evaluating how hiring stars ultimately affects organizational performance.

We answered this question by developing a theoretical framework based on three core ideas in organization theory: (a) the imperfect correlation between status and quality, (b) the resource advantages that actors in high-status positions accrue, and, symmetrically, (c) the relative deprivation that such status advantages trigger for actors in lower-status positions. Building on these ideas, we hypothesized that when hiring high-status employees, the negative consequences of resource reallocation are likely to offset the positive effects of knowledge spillovers.

Our results might appear to diverge from the findings in the literature reporting a general positive effect of star scientists on colleagues' performance (Agrawal et al. 2017, Azoulay et al. 2010, Oettl 2012). Our theory suggests, however, that this divergence lies in the different balance between knowledge spillovers and resource allocation generated by individuals whose prestige is based on status rather than on objective measures of quality. When stardom emanates from objective manifestations of superior quality, organizations and their members might benefit from hiring stars. However, when stardom does not reflect fundamental differences in quality, such as when certification contests artificially enhance the status of a few individuals, hiring stars is more likely to generate an uneven redistribution of scarce organizational resources that is not necessarily counterbalanced by the superior knowledge of the newcomer. When studying star hiring processes, therefore, our results call for a more precise identification of the mechanisms underlying stardom. Previous research, also studying securities analysts, showed that hired stars suffer an immediate drop in individual performance unless they join a firm with superior capabilities or they move with their teams (Groysberg et al. 2008). Our results suggest that hiring star analysts also has negative effects on incumbent analysts.

By uncovering the conditions under which hiring stars creates negative, rather than positive consequences for incumbents, our study contributes to the emerging literature investigating the negative effect of status. Much of this literature is focused on the negative effects of status on those who attain it. In one recent analysis, for example, Jensen and Kim (2015) showed that status (such as that bestowed on actors who receive Academy Award nominations) might negatively impact the personal lives of those who obtain it. Similarly, Kovács and Sharkey (2014) showed that authors receive lower ratings from their readers after receiving awards because they attract readers with tastes that might not be aligned with the authors' genres. Only very recently have scholars revealed the potential for negative spillovers on alters from high-status egos. In shifting the focus from high-status actors to their "neighborhoods," Reschke et al. (2017, p. 2) found, for example, that when specific scientists experience elevated status (bestowed via prestigious prizes), scientists who "compete" in neighboring fields experience negative repercussions. Similarly, Kehoe and Tzabbar (2015) suggested that the presence of stars in organizations might be a mixed blessing for their colleagues: although they enhance their colleagues' productivity, their colleagues become more dependent on them and contribute fewer innovative ideas. We contribute by extending understandings of the ecological impact of status by considering mobility events as status shocks for the hiring organization and suggesting an alternative theoretical mechanism.

Moreover, unlike most of the star mobility literature, which is focused primarily on average effects on organizations, in this study we were able to explore the intraorganizational asymmetric effects of mobility across different incumbent employees. We specifically heeded the call to explore whether "recruitment has differential effects on the performance of . . . subsets of incumbents (e.g., star versus non-star incumbents)" (Slavova et al. 2016, p. 86), thus contributing to the literature on how status asymmetries within organizations affect performance (Kehoe and Tzabbar 2015). Our findings show that the magnitude of the decline in performance caused by high-status hires depends on the status of the incumbents. We invoked a resource-based mechanism to justify this result, but in the future, researchers also can explore the psychological effects that high-status newcomers have on incumbents. Findings from experimental research, for example, suggest that actors might feel threatened and exert more effort when facing the prospect of losing status (Pettit et al. 2010), and that such threats are stronger from actors with similar (Doyle et al. 2016) or lower status (Pettit and Lount 2010). How such psychological reactions activated by high status newcomers affect organizational performance remains to be explored.

Our design, which provides a cleaner identification of the effect of a hiring event, does limit us to testing relatively short-term effects. Over a longer period of time, the disruptive effect of a high-status newcomer may dissipate as the new star becomes embedded in the organization and resources are reallocated based on merit, rather than on external signals of quality (Podolny 1993). Moreover, hiring high-status actors might send positive signals to stakeholders that lead to other positive consequences (Acharya and Pollock 2013, Benjamin and Podolny 1999, Ertug and Castellucci 2013, Roberts et al. 2011), or generate effects that unfold over a longer time period than the one we observed. Agrawal et al. (2017), for instance, suggested that the entry of star scientists might indirectly affect incumbents' productivity by raising the quality of subsequent recruits. Since our findings show that this strategy comes at a cost to incumbents, researchers should evaluate the net benefit of this approach in the future.

Our theory has two main scope conditions. First, our theory operates in contexts where there is a loose coupling between an actor's performance quality and his or her status. The certification contests that we study are one such instance, but we would expect our theory to apply when status stems from affiliation (Podolny 1993) or is the result of other status cues (e.g., gender or race; Castilla 2008, Jasso 2013) not directly associated with quality. Another scope condition of our article is a relatively low task interdependence between actors. The work of securities analysts is less interdependent than that of scientists working on the same project, and under this condition actors are less likely to benefit from the knowledge benefits of hiring high-status actors.

Our theory also assumes that in organization contexts, status is associated with power or control over resources (Magee and Galinsky 2008). This is the case in many organizational contexts, particularly in situations characterized by uncertainty (Podolny 1994). In the context of hiring, for instance, the quality of the actor cannot be judged through direct experience, but only through observed signals. In other contexts, however, high-status actors might not gain control over resources. In these contexts, experimental research has shown that low-status actors might behave differently (Hays and Bendersky 2015). If low-status actors are not at a disadvantage in terms of resources, they might engage in more competitive behaviors to change this situation. Such increased competitive inclinations might thus decrease low-status actors' performance by distracting them from the main task (Hays and Bendersky 2015) and reducing their willingness to collaborate (Bendersky and Hays 2012); on the other hand, it might increase their performance by boosting their efforts (Bothner et al. 2007, Moliterno et al. 2014).

To conclude, our findings can be leveraged to suggest normative implications for managers who might be tempted to hire high-status actors. Not only is talent from other organizations more expensive than turning to options of comparable quality already available within the organization (Bidwell 2011), but externally hiring high-status actors may also negatively affect the performance of organizational incumbents, thus defeating the purpose. Managers often justify hiring stars based on the expectation that the new hires will mentor lower-status colleagues and trigger organization-wide effects; however, our results suggest that hiring stars might actually reinforce the positions of incumbents at the very top of the social hierarchy. Our findings therefore suggest that the practice of hiring stars is unlikely to benefit neither all organizations, nor all employees who work for them. Managers who continue to hire stars may instead contribute to the further balkanization of their organizations and ultimately degrade performance at both the individual and organizational levels.

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Endnotes

[1] This seems to be the case in science, where actors are typically elevated to the status of star on the basis of an exceptional track record of publications and citations (Aguinis and O'Boyle 2014). In this context, even if recent literature acknowledges that star scientists might absorb significant organizational resources, thus constraining the freedom of less successful collaborators to explore new ideas, there is evidence that the presence of star scientists generates exceptional knowledge spillovers that boosts colleagues' productivity (Kehoe and Tzabbar 2015).

[2] Scholars have studied certification contests in numerous fields: J.D. Power's ranking of automobiles (Rao 1994), *U.S. News & World Report*'s ranking of law schools (Sauder and Lancaster 2006), *Financial World*'s CEO of the Year (Wade et al. 2006), the National Basketball Association's Most Valuable Player Award (Ertug and Castellucci 2013), induction into the Major League Baseball Hall of Fame (Graffin and Ward 2010), the Howard Hughes Medical Investigator Award (Azoulay et al. 2014), the Academy Awards (Jensen and Kim 2015), and literary prizes such as the Booker Prize or the National Award (Kovács and Sharkey 2014).

[3] Findings also show that high-status actors enjoy greater relational resources and social capital because low-status actors strive to establish ties with them to enhance their own statuses, and in exchange offer better resources at a lower cost (Bidwell et al. 2015, Podolny 1993), greater help (Castellucci and Ertug 2010, Van der Vegt et al. 2006), and more knowledge exchanges (Thomas-Hunt et al. 2003).

[4] Merton's (1968, 1988) original formulation emphasized both cumulative resource advantage (the biblical "everyone that hath shall be given, and he shall have abundance") and cumulative resource deprivation ("from him that hath not shall be taken away, even that which he hath") (Matthew (25:29) American King James Version, http://biblehub.com/akjv/matthew/25.htm (accessed June 10, 2018)). In the context of science, resource deprivation translates into "minimizing or withholding [of such] recognition for scientists who have not yet made their mark" (Merton 1988, p. 609).

[5] Related literature also suggests that organizational performance suffers if there are too many high-status individuals (Cattani et al. 2013, Groysberg et al. 2011).

[6] Actual performance, of course, remains an important aspect of the analysts' profession. Accurate analysts are less likely to be fired (Hong et al. 2000, Mikhail et al. 1999), and are more likely to receive better salaries if their performance leads to inclusion in performance-based rankings such those released by the *Wall Street Journal* (Groysberg et al. 2011). Moreover, as is typical of status hierarchies, the *II* ranking does correlate to analysts' performance, albeit weakly (Emery and Li 2009).

[7] See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

[8] We used the translation file that IBES provided to match analysts' names to ID codes up to the year 2007, which enabled us to match the all-star analysts' rankings to information extracted from IBES.

[9] Hiring of *II* analysts significantly declined after 2001, partly because the number of categories considered by *II* in constructing the ranking decreased (Bowers and Prato 2017), and partly because research unit budgets within brokerage houses were cut following the burst of the dot-com bubble.

[10] Note that in our case the control group comprises analysts who are exposed to low-status newcomers.

[11] More specifically, our treated sample consists of the analysts who worked for at least two years for the same brokerage house and specifically for at least one year before and one year after the hiring event. Only 3,924 analysts satisfied these conditions.

[12] As a result, each affected analyst accounts for two observations (one for before and one for after the hiring event), and therefore our final sample consists of more than 105,000 observations.

[13] All of these variables, as well as all other variables that do not vary among observations affected by the same hiring event (such as the status of the hired analyst), would be dropped in such a fixed effects model.

[14] To be consistent with prior literature, we report results with a one-dollar investment for each recommendation (without accounting for its strength), but we obtained robust results also when accounting for the different strengths of each recommendation, that is, by assuming a two-dollar investment for a strong buy or strong sell recommendation and a one-dollar investment for a standard buy or sell recommendation.

[15] We also tested our hypotheses with 60- and 120-day event windows and obtained robust results.

[16] We obtain robust results also with a measure of status that assigns the same value to runners-up and stars (i.e., 1), as in Bowers et al. (2014), as well as with a measure that assigns four, three, two, and one point(s) to analysts ranked first, second, third, and runner-up, respectively. These results, not reported in the article, are available from the authors upon request.

[17] In these models, all variables that do not vary within the hiring event (such as the status of the hired analyst) are dropped from the regression.

[18] Tests of simple slope show that whereas the performance of a low-status analyst does not significantly change after the organization hires another low-status newcomer, it significantly decreases after his or her organization hires an analyst who has been ranked for the first time as runner-up (performance drop equal to 1.4%) or for the first time as star (performance drop equal to 2.2%), or a star analyst who has been ranked for three consecutive years (performance drop equals to 3%). As predicted, the negative effect on incumbents' performance prompted by a high-status newcomer entry is moderated by the status of the incumbent: whereas a runner-up incumbent still significantly suffers from the entry of another runner-up (performance drop equal to 0.7%), a repeated star (an analyst ranked as a star for three consecutive years) does not significantly suffer from the entry of a star with a similar ranking history, and his or her performance remains stable. The effect of a first-time star newcomer on a first-time star incumbent is significant only at 0.1 level and shows a drop in performance equal to 0.6%.

[19] We thus exclude analysts who issued their first recommendations before 1995 and analysts who issued their first recommendations during the first window the brokerage house first appeared in IBES. The latter exclusion is needed to ensure that the first analyst's recommendation is not just the result of the brokerage house starting issuing recommendations via IBES. Whereas this approach should significantly reduce left censoring, there might still be cases of analysts who were already operating in the industry before their first recommendation appeared on IBES. Analysts, for example, might have been working for a brokerage house that did not yet issue recommendations through IBES. To further mitigate these concerns, we further restricted our sample by including only analysts who issued their first recommendations after January 1996 (reducing the sample to 3,198 analysts) and after January 1997 (reducing the sample to 2,906 analysts), obtaining consistent results.

[20] By creating observations by time windows (instead of by hiring events), we can also estimate the probability of treatment (i.e., hiring in the given window), and not just the probability of the treatment intensity (i.e., the status of the newcomer). Moreover, as suggested by Fewell et al. (2004), this approach offers the advantage of rendering the lagged variables used to estimate the probability of treatment exposure comparable between subjects. In medical treatments where visits occur at regular, standardized intervals (e.g., every month), this condition would be satisfied by construction. However, hiring is not performed at regular intervals. One organization's most recent hiring event might have been one week ago, whereas another's might have been one year ago, making the lagged variable to the most recent hiring event incomparable between subjects.

[21] If the brokerage firm hired more than one analyst in the window, we summed their statuses.

[22] Because the observed status of new hires is not dichotomous, we use the appropriate regression approach for constructing the inverse probability weight for continuous exposures. Specifically, we followed Naimi et al. (2014), who recommend quantile binning, and estimated the cumulative probability to hire an analyst in a given decile of status.

[23] "The so-called unstabilized weights can have the disadvantage that large weights can emerge. For example, a participant who is highly unlikely to select the treatment (based on the observed covariates) and ends up taking the treatment will get a very large weight. Analyses will thus become heavily dependent on a single or few individuals. This often increases the variance (and hence the associated uncertainty of estimates), sometimes dramatically so" (Thoemmes and Ong 2016, p. 42). "For the IPTW [inverse-probability-of-treatment weight] estimates to perform well, our estimate of $SW(t)$ cannot be exceedingly variable (Hernán et al. 2001). To guarantee this," following Fewell et al. (2004, pp. 409–410), "we reduce the number of free parameters in the model estimating $SW(t)$. Instead of estimating a separate intercept for each month, we assume that the intercept is a smooth function and estimate it using cubic splines."

[24] All models include baseline performance achieved by the analyst and dummies identifying the brokerage house employing the analyst.

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