Management Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

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To cite this article:
Kevin B. Hendricks, Manpreet Hora, Vinod R. Singhal (2015) An Empirical Investigation on the Appointments of Supply Chain and Operations Management Executives. Management Science 61(7):1562-1583. http://dx.doi.org/10.1287/mnsc.2014.1987

MANAGEMENT SCIENCE
Vol. 61, No. 7, July 2015, pp. 1562–1583
ISSN 0025-1909 (print) | ISSN 1526-5501 (online)

http://dx.doi.org/10.1287/mnsc.2014.1987

An Empirical Investigation on the Appointments of Supply Chain and Operations Management Executives

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This paper provides empirical evidence on the performance effects and choice of appointments of supply chain and operations management executives (SCOMEs). The analysis is based on a sample of 681 SCOME appointments that were publicly announced during the 2000–2011 period. We find that the stock market reaction is positive on the day of the announcement. Categorizing the SCOME appointments as new or old and insider or outsider, we find that the market reaction for newly created SCOME positions is positive. The market also reacts more positively when a SCOME is an outsider rather than an insider. The strongest positive reaction is observed when outsiders are hired for newly created SCOME positions. We find evidence of both poor stock price performance and poor operating performance in the period preceding the appointment of new SCOMEs. New SCOME appointments are not followed by an immediate improvement in stock price and operating performance. However, there is no further decline in performance, suggesting that the decline observed in the preappointment period does not continue after the new SCOME is appointed. We also find that the likelihood of a SCOME being an outsider is greater for firms that are smaller, operate in more concentrated industries, and have experienced poor prior performance.

Keywords: appointments of supply chain executives; stock market value; operating performance
History: Received January 6, 2012; accepted March 30, 2014, by Serguei Netessine, operations management. Published online in *Articles in Advance* October 27, 2014.

1. Introduction

Over the last decade, the complexity and challenges of managing global and outsourced supply chain networks in an intensely competitive environment have increased the prominence and importance of the supply chain and operations management (SCOM) function. To ensure that SCOM functions are effectively executed, many firms are changing the composition of their top management team (TMT) by creating positions to which to appoint supply chain and operations management executives (SCOMEs). SCOMEs have responsibility for all or a broad spectrum of SCOM functions including manufacturing, operations, supply chain, procurement, logistics, and distribution. Many SCOME positions are at the senior vice president and executive vice president levels, and these senior executives are sometimes referred to as chief supply chain officers (CSCOs). In several firms, SCOMEs now report directly to chief executive officers (CEOs) or chief operating officers (COOs), a sharp contrast from 15 to 20 years ago when such SCOME positions were generally not part of TMTs and rarely reported to CEOs or COOs (Groysberg et al. 2011).

Although there is an extensive body of analytical and empirical literature on design, development, and implementation of strategies in SCOM, we know little about executives who have the responsibility to manage all or a broad spectrum of SCOM functions. For example, little is known about the backgrounds of individuals who are appointed as SCOMEs, how investors react to the appointment of SCOMEs, and what factors influence choices made by a firm to appoint SCOMEs by promoting internally within a firm or by hiring an outsider. This gap is surprising given that SCOM strategy is a key part of a firm's corporate strategy. As an initial step toward developing more systematic knowledge about SCOMEs, this paper empirically examines three issues.

First, we examine the stock market (or investor) reaction to announcements of appointments of SCOMEs. Our sample consists of announcements of replacements of existing SCOME positions as well as appointments of newly created SCOME positions. We hypothesize that newly created SCOME positions will be viewed positively by investors and test whether the stock market reaction is consistent with this prediction. We also examine whether the stock market reacts differently to

hiring SCOMEs from inside or outside the firm. Hiring an insider or outsider has its own advantages and disadvantages, and the stock market reaction provides an indication of which strategy is valued more by investors.

Our motivation to examine the stock market reaction to appointments of SCOMEs is to provide an assessment of whether the stock market values the top-level focus placed on SCOM functions. Furthermore, our work complements research that examines stock market reaction to appointments of other senior executives. Much of this research has focused on CEO appointments (see Huson et al. 2004 and Kind and Schläpfer 2010 for a review of the literature). However, studies on the stock market reaction to non-CEO appointments in other functional areas are limited and include chief financial officers (CFOs) (Mian 2001), chief information officers (CIOs) (Chatterjee et al. 2001), and chief marketing officers (CMOs) (Nath and Mahajan 2008, Boyd et al. 2010). We contribute to this limited literature and compare and contrast the stock market reaction to appointments of SCOMEs with appointments of senior executives in other functional areas.

Second, we examine the stock price and operating performance before and after the appointment of SCOMEs. Examining the performance before the SCOME appointments provides insights into whether these appointments are associated with poor prior performance. The motivation for examining the performance after the SCOME appointment is to see whether such appointments are associated with improvement in performance.

Third, we examine factors that drive the choice of SCOMEs. In appointing SCOMEs, a firm could choose to promote an insider or hire an outsider. We provide evidence on factors that affect the likelihood of whether a SCOME is an insider or outsider. More specifically, we hypothesize why factors such as firm size, homogeneity of a firm's industry, level of concentration of a firm's industry, and performance of a firm in the period prior to the appointment of a SCOME affect the choice of appointments from inside or outside a firm. This analysis provides empirical evidence on the practices followed by firms with respect to appointment of SCOMEs. These findings also provide guidance and suggestions to firms on some factors to consider in appointing SCOMEs.

Our empirical analyses are based on a sample of public announcements of 681 SCOME appointments over a 10-year period from 2000 to 2011. Our results on the stock market reaction, from the four-factor model (Fama and French 1993, Carhart 1997), show that on the announcement day, the mean (median) reaction is 0.24% (0.09%). The mean (median) market reaction is 0.63% (0.28%) for newly created positions and 0.07% (0.05%) for existing positions. Furthermore, the market reacts more positively when a SCOME is an outsider than an insider. The mean (median) market reaction is 0.45% (0.16%) for outsider appointments and −0.18% (−0.02%) for insider appointments. In the case of outsiders appointed to newly created SCOME positions, the mean (median) abnormal return is 0.82% (0.22%).

We find evidence of both poor stock price performance and poor operating performance in the period preceding the appointment of SCOMEs. The mean (median) stock price performance is −5.64% (−1.98%) during the year preceding the appointment of SCOMEs. In the period preceding the appointment of SCOMEs, we see a statistically significant decrease in return on assets, some evidence of a decline in sales over assets, and a statistically significant increase in total costs over sales. We find that new SCOME appointments are not followed by an immediate improvement in stock price and operating performance. However, there is no further decline in performance, suggesting that the decline in performance observed in the preappointment period does not continue after the new SCOME is appointed. We find that the likelihood of a SCOME being an outsider is greater for firms that are smaller, operate in more concentrated industries, and have experienced poor prior performance.

The rest of this paper is organized as follows. The next section develops the hypotheses on the stock market reaction and the factors that affect the likelihood of hiring from inside or outside the firm. Section 3 describes the sample collection. Section 4 presents the empirical results on the stock market reaction to appointments of SCOMEs. Section 5 presents the operating performance results associated with the appointments of SCOMEs. Section 6 presents the results on factors that affect the choice of appointments from inside a firm or outside a firm. Section 7 synthesizes and discusses the implications of the results.

2. Hypotheses

2.1. Hypotheses About the Stock Market Reaction to SCOME Appointments

Creating a new SCOME position sends a signal to the stock market about the importance a firm places on its SCOM activities. It elevates the role of SCOM in the firm and indicates that the firm is making a commitment to improve the effectiveness of SCOM. SCOM activities include integrating the supply chain; managing supply chain risks; deciding the extent of outsourcing; selecting and building collaborative relationships with key suppliers; and overseeing manufacturing, logistics, and distribution, among other things. There is an extensive body of research on how effective management of these activities can create value. For example, Fisher (1997) argues that matching the structure of the supply chain to the product characteristics

can lead to improved performance. A key element of supply integration is sharing information among supply chain partners. This helps to manage supply chain complexity and to reduce information asymmetry and, thus, to mitigate the negative consequences of bullwhip effect (Lee et al. 1997, 2000; Cachon and Fisher 2000). Frohlich and Westbrook (2001) and Schoenherr and Swink (2012) find that supply chain integration enhances firm performance.

Managing supply chain risks is another key aspect of SCOM activities. Supply chain risks can cause demand–supply mismatches. Hendricks and Singhal (2003, 2009) find that demand–supply mismatches lead to significant loss in shareholder value and that firms do not quickly recover from such losses. Mechanisms for managing supply chain risks include, among others, contracting, contingency planning, and collaborative sharing of information (Cachon 2003, Boyaci and Gallego 2004, Chopra and Sodhi 2004, Kleindorfer and Saad 2005, Sheffi 2005, Tomlin 2006). To deal with such SCOM activities, decisions need to be made regarding resource allocation in investing in technologies, sales and operations planning improvement, the level of reliance on insourcing/outsourcing, and alignment in functional and organizational strategies. Creating new SCOME positions will enable firms to have an individual whose responsibility is to focus on these critical areas of SCOM functions.

The creation of a new SCOME position can inform other members of the TMT about the challenges, opportunities, and potential of SCOM activities, which in turn can help to build awareness and cooperation among various functions. Creating new SCOME positions provides an opportunity to articulate the vision, role, and contribution of SCOM in the development and execution of corporate strategy. The effectiveness of corporate strategy is also influenced by the integration and alignment of various functional strategies. The creation of new SCOME positions can ensure that relationships of SCOM strategies with other functional strategies are discussed, and adjustments are made to ensure integration and alignment of various functional strategies. Thus, newly created SCOME positions have the power to influence corporate decisions as they relate to SCOM, and they can make the business case for investments and resources to build capabilities that increase the effectiveness of SCOM.

Although academic literature related to SCOM or any other functional area is sparse in linking the executive appointments to specific performance metrics in the functional area to which that executive belongs, there is anecdotal evidence that suggests the benefits of appointing a SCOME. For example, in 2008, Starbucks Corporation promoted Peter Gibbons to the position of executive vice president of global supply chain operations. Gibbons identified cost inefficiencies in the supply chain and saw that less than half of the goods were being delivered to its stores on time (Cooke 2010) because of the nature of outsourcing agreements with contract manufacturers and third-party logistics. Reorganizing the supply chain under Gibbons' direction helped to reduce transportation costs and lead times. Another example is Home Depot's appointment of Mark Holifield as senior vice president of supply chain in 2006. He identified poor forecasting, delayed shipments, and high inventories contributing to inefficiencies in the supply chain. He transformed some of these aspects of the supply chain specifically, transitioning from "a direct store delivery from suppliers to a model that moved most products first through Home Depot distribution centers" to improve inventory levels (*Supply Chain Digest* 2008). An additional example is Tim Cook, the chief operating officer of Apple from 2007 to 2011, who during this tenure was also responsible for its supply chain. His priority of delivering operational excellence is often cited as one of the main reasons for cost reductions and improved margins at Apple (Satariano and Burrows 2011).

Alternatively, one could argue that the creation of a new SCOME position may be an indication that the firm is possibly having performance issues in its supply chain and that the firm is creating a new SCOME position to overcome these issues. If the market is unaware of the performance issues, then by announcing the creation of a new SCOME position, the firm is acknowledging these performance issues, which could potentially lead to a negative market reaction. However, given that the importance and prominence of SCOM has increased in recent years, along with the above discussion on newly created SCOME positions, our first hypothesis is as follows.

Hypothesis 1 (H1). *The stock market will react positively to announcements of newly created SCOME positions.*

Our second hypothesis examines whether the stock market reacts differently to hiring outsider or insider SCOMEs. To the best of our knowledge, there does not exist any literature that provides theory and evidence directly related to SCOMEs that we could use to develop this hypothesis. However, there is literature on executive appointments, successions, and turnover that we can use to build our hypothesis.

There are several benefits of hiring an outsider SCOME. An outsider brings new experience, knowledge, and perspective of how SCOM is managed in other firms and industries, which could provide new insights and best practices about managing the SCOM function (Boeker 1997, Guthrie and Datta 1997). An outsider can assess the situation more objectively, not having a stake in the decisions made in the past. Moreover, an outsider is not likely to be obligated or committed to follow the past policies and investment

decisions and may be more willing to challenge the status quo and change existing strategies and practices (Finkelstein and Hambrick 1996, Peteraf and Shanley 1997). Being new to the firm, an outsider SCOME can also start fresh in building relationships with other senior executives without any burden of past conflicts and disagreements. Additionally, hiring an outsider may send a strong signal to investors and other internal and external stakeholders that the firm is serious about SCOM functions and activities (Friedman and Singh 1989).

Alternatively, there are a number of benefits of hiring an insider. These benefits are associated with SCOMEs having firm-specific knowledge about markets, technology, systems, and internal networks (Vancil 1987, Harris and Helfat 1997). Internal promotions can also facilitate loyalty and boost employee morale (Howard 2001) because existing employees may view internal promotions as rewards for good performance and opportunities for advancing in the firm. Firms have better information about the capabilities and performances of their internal candidates (Zajac 1990, Harris and Helfat 1997), which reduces the chances of hiring an individual not suited for the position. Internal promotions may also be better if the value of continuity and stability of existing strategies is high and if the value of existing social networks is high (Ocasio 1999).

The empirical evidence on the stock market reaction to outsider or insider executive successions is somewhat mixed. Kind and Schläpfer (2010) summarize the results of 10 studies that examine the stock market reaction to CEO successions. In 7 of these 10 studies, the stock market reaction is more positive (or less negative) for outsiders than insiders. Mian (2001) in his study of CFOs and Chatterjee et al. (2001) in their study of CIOs also find that the stock market reacts more positively when the new appointee is an outsider than an insider.

Considering the above discussion and the competing empirical evidence on the stock market reaction to top management changes, we hypothesize as follows.

Hypothesis 2 (H2). *The stock market will react differently when the new SCOME is an outsider than an insider.*

2.2. Hypotheses on the Likelihood of Appointing an Insider or Outsider SCOME

Next we develop our hypotheses on the effects of firm size, industry homogeneity, industry concentration, and prior performance of the firm on the choice of appointing an insider or outsider SCOME.

Larger firms are more likely to have more global, dispersed, and complex supply chains than smaller firms. To coordinate these supply chains, larger firms are also more likely to have midlevel and junior executives who have experience in managing various aspects of supply chains. For example, larger firms may have directors or vice presidents managing different parts of the supply chains such as manufacturing, distribution, sourcing, purchasing, and warehousing. These executives provide a pool of potential candidates for the top-level SCOME position, and some of them may have the qualifications and experience to be appointed as SCOMEs. Given this internal pool, the benefits of hiring an outsider must be balanced with the search costs involved in scouting for an outsider as well as the risk that the outsider may not mesh well with the culture of the firm. Any outside appointee must acquire firm-specific human capital. This will be more challenging and time consuming in larger firms, given the greater scope complexity, and idiosyncrasy of supply chains in larger firms. Furthermore, when a qualified pool of internal candidates is available within a firm (more likely in the case of larger firms than smaller firms), hiring an insider not only ensures a smooth transition to the new role but also sends a signal to midlevel and junior executives that opportunities for advancement and promotion exist within the firm. This signal can motivate and encourage junior executives to stay with the firm, thereby reducing the cost and risk associated with turnovers. Finally, larger firms are more likely to pay attention to succession planning (Shen and Cannella 2003). They may have designated a group of candidates as potential heirs to be appointed as the top SCOME in the future or to serve as backups in case an incumbent SCOME needs to be replaced. Thus, larger firms are likely to give preference to an insider over an outsider. Research on the appointments of CEOs provides evidence that larger firms select a greater proportion of insider CEOs than smaller firms (Furtado and Rozeff 1987, Warner et al. 1988). We hypothesize as follows.

Hypothesis 3 (H3). *The likelihood of hiring outsider SCOMEs will be negatively related to firm size.*

Although a firm has pool of potential inside candidates for appointments as SCOMEs, it is likely to consider potential outside candidates before appointing a SCOME. However, outsiders are likely to have less firm-specific human capital than insiders. Firms can better judge how well insiders, compared to outsiders, have performed in their careers because firms have more reliable information to judge the performance of insiders. Given these considerations, firms may be more inclined to hire insiders.

However, Parrino (1997) argues that the importance of firm-specific human capital and the performance measurement issues in deciding to hire outsiders will vary significantly across industries and can depend on the homogeneity of an industry. Parrino argues that industry homogeneity applies to hiring an outsider from within the same industry. Firms operating in a more homogeneous industry are likely to compete in

similar product markets, using similar inputs, technologies, and supply chain structures. Thus, hiring outsiders in more homogeneous industries can mitigate the concern about the lack of firm-specific human capital associated with outsiders. Performance evaluation of outsiders in a more homogeneous industry can be more reliable because changes in factors such as input prices, technology, and competitive environment are likely to have similar effect on majority of the firms in a more homogeneous industry. Thus, the errors in judging relative performance of outsiders are likely to be less of a concern. The above discussion leads to the following hypothesis.

Hypothesis 4 (H4). *The likelihood of hiring outsider SCOMEs will be positively related to industry homogeneity.*

A firm can hire an outsider SCOME either from its own industry or from some other industry. This choice is likely to be influenced by the level of industry concentration. A highly concentrated industry is one where a single firm or few firms dominate and account for a significant portion of the industry sales. To augment the internal pool of candidates, a dominant firm in a highly concentrated industry is likely to consider candidates from other dominant firms in the same industry, because such firms are often similar in terms of structure and operating environment. Since the number of such firms may be few in a highly concentrated industry, the pool of potential applicants from the same industry will be quite limited. Given this challenge, a dominant firm may broaden its pool by considering candidates outside its industry.

In a highly concentrated industry, SCOM expertise of an industry is likely to reside among the few firms that dominate their industry. This may pose a hiring challenge for nondominant firms if they plan to appoint a SCOME from their own industry. This challenge for a nondominant firm in the industry to hire from a dominant firm in the same industry arises because of the prestige, visibility, and perks associated with being part of a dominant firm in an industry. Thus, similar to dominant firms, nondominant firms may also broaden the pool by considering candidates outside their own industry. Based on the above discussion, our hypothesis is as follows.

Hypothesis 5 (H5). *The likelihood of hiring outsider SCOMEs will be positively related to industry concentration.*

The choice of hiring an insider or outsider SCOME can be affected by the performance of the firm in the period prior to hiring the new SCOME. Poor prior performance could suggest that existing strategies and policies in SCOM are not delivering the expected performance, and continuation with the status quo may not help. Reversing the trend in poor performance may require a change in SCOME leadership. Although a firm has a pool of internal candidates who may be capable of assuming this leadership role, a firm may not want to appoint any of these insiders because they may have helped to develop and implement strategies and policies that contributed to the poor performance. In such cases, hiring an outsider might be more attractive. An outsider can bring new and fresh perspectives on running the SCOM function and will have no vested interest in continuing the past strategies and policies; an outsider SCOME can be more objective in evaluating the value of past strategies and policies. On the other hand, good prior performance indicates that existing strategies and policies are working well and the firm should not change its course. Hiring an insider will ensure the continuation of existing strategies and policies. Our next hypothesis is as follows.

Hypothesis 6 (H6). *The likelihood of hiring outsider SCOMEs will be negatively related to performance in the period prior to hiring.*

3. Sample

Our sample consists of firms that appoint SCOMEs to existing or new positions. Sample firms are collected from announcements made in business publications and newswires. To generate the sample, we use a preliminary set of keywords to collect a small sample of announcements about SCOME appointments. We read these announcements to identify additional phrases and words that are commonly used to announce SCOME appointments and the proximity of the keywords to each other. The final set of keywords includes "chief" or "president" or "director" or "head" within 10 words of "supply" or "procurement" or "sourcing" or "manufacturing" or "logistics" or "distribution" or "purchasing." We search the headlines and lead paragraphs of all announcements in the *Wall Street Journal*, *Dow Jones News Service* (*DJNS*), *PR Newswire* (*PRN*), and *Business Wires* (*BW*) during 2000–2011, and we download announcements that meet the search criteria. For an announcement to be included in the sample, we use the following criteria:

1. The appointment in the announcement is related to some aspects of a SCOM function such as manufacturing, operations, supply chain, procurement, logistics, or distribution.

2. If an announcement includes two or more simultaneous personnel changes, then the SCOME appointment in the announcement is not included in the sample. For example, if an announcement mentions that in addition to a SCOME appointment the firm is also appointing a new CIO, this SCOME appointment is not included in our sample. The reason for this exclusion is to reduce the possibility of conflicting events driving the stock market reaction.

3. To be included in the sample, a firm must have stock returns information available on the University of Chicago's Center for Research in Security Prices (CRSP).

Our sample consists of 681 SCOME appointments. Examples of some appointments include the following:

- "The Talbots, Inc., named Gregory Poole Executive Vice President and Chief Supply Chain Officer. In this newly created position, Mr. Poole will oversee the global manufacturing, sourcing, transportation and distribution centers for the Talbots and J. Jill brands, reporting directly to Talbots President and Chief Executive Officer, Trudy F. Sullivan" (*Business Wire* 2008).
- "Under Armour, Inc., appointed James Calo as the company's first Chief Supply Chain Officer. In this new position, Mr. Calo will report to Kevin Plank, Chairman and Chief Executive Officer. Mr. Calo will be responsible for managing the global functions of production planning, sourcing, development, logistics and the distribution house" (*Business Wire* 2006).
- "Dean Foods Company announced today the appointment of Gregg A. Tanner, Executive Vice President and Chief Supply Chain Officer, effective November 5. Reporting directly to Gregg Engles, Chairman and Chief Executive Officer, Tanner will lead the effort to optimize Dean Foods manufacturing and other supply chain systems" (*PR Newswire* 2007).

The title of chief supply chain Officer (CSCO) is sometimes used in the practitioner literature to generically refer to the executive responsible for all or nearly all of SCOM functions. Although some SCOMEs in our sample have the title of CSCO, many have other titles, such as senior vice president, executive vice president, vice president, and president. Some also hold the additional title of chief procurement officer or chief purchasing officer.

The contents of most announcements discuss the nature of the appointment and the responsibilities of the SCOME, and the discussion of the appointment is generally in positive terms. This is also the case for other C-level appointments, because it is unlikely that firms will announce such appointments without making some positive statements about the appointments. However, some announcements provide additional specific information. An example is the above-cited October 26, 2007 announcement by Dean Foods that mentioned that the new SCOME's responsibilities included leading a supply chain transformation that is expected to deliver over $190 million in savings while increasing customer service levels and reducing inventory. Such specific information may cause a market reaction irrespective of the SCOME announcement. We reviewed each of the 681 announcements to see how many mention such specific details. Only 17 of the 681 announcements have some specific details; the rest were general statements. Our results indicate that the stock market reaction to these 17 announcements is not different from the remaining announcements.

Panel A of Table 1 presents statistics on size and financial performance of sample firms and compares it with the industry medians, where industry medians are based on all firms in CRSP/Compustat that have the same three-digit Standard Industrial Classification (SIC) code as the sample firm. Sample firms are larger than their industry medians and have better return on assets (ROA). ROA is estimated as operating income before tax (sales less the cost of goods sold (CGS) and selling, general, and administration expenses (SGA)) divided by total assets. Panel B gives the number of appointments by year and the distribution by eight broad industry groups. Approximately 30% of the sample is from food, textiles, furniture, paper, chemicals, and pharmaceuticals (process industry); 19% from the wholesaling and retailing industry; and 18% from rubber, leather, stone, metals, machinery, and equipment (batch manufacturing).

Announcements in our sample often provide background information about the SCOME position and the background of the SCOMEs. Panel C of Table 1 summarizes this information. Approximately 81% of SCOMEs in our sample are part of TMTs or report to a TMT member in their firm. For the remaining 19%, no information was available on whether the SCOME was part of the TMT or reported to it. A TMT consists of executives whose names appear under leadership team, top management team, corporate officers, or executive officers on the firm's website or in its annual report or Form 10-K. Some announcements clearly indicate that an appointee is part of a TMT or reports to a TMT member. In cases where such information is not available from the announcement, we examine 10-K filings, annual report, and other filings with the Securities and Exchange Commission (SEC) to determine whether appointees are part of TMTs or report to a member of TMTs.

The evidence indicates that firms have a strong preference to appoint outsiders as SCOMEs. In our sample 67% of SCOMEs are outsiders. The preference for outsider SCOMEs is much greater than that for outside CEOs. Based on CEO turnover studies, the percentage of outside CEOs ranges from 11% to 36% with an average of 22% (see Table 1 of Kind and Schläpher 2010). Preference for outsider SCOMEs is also greater than that for outside CFOs but similar to the preference for outside CMOs. In his study of 2,227 CFO successions during 1984–1997, Mian (2001) finds that 50% of the new CFOs are outsiders. Based on a study of 88 CMO successions during 1996–2005, Boyd et al. (2010) find that 73% of the new CMOs are outsiders.

In nearly 29% of the sample, SCOMEs are appointed to newly created positions. Mian (2001) reports that

Table 1 Sample Description for the 681 SCOME Appointments

Panel A: Descriptive statistics based on the most recent fiscal year completed before the date of appointment

	Sample		Industry	
Measure	Mean	Median	Mean	Median
Market value of equity (million $)	7,378.6	1,042.9	991.1	282.3
Total assets (million $)	8,260.5	1,235.9	958.4	186.3
Sales (million $)	7,909.7	1,434.0	1,074.8	207.4
Net income (million $)	263.3	22.7	36.0	1.8
ROA (%)	4.1	11.2	5.7	9.6

Panel B: Distribution of the announcement year and industry

Year	No. of obs.	% of sample
2000	114	16.74
2001	69	10.13
2002	56	8.22
2003	58	8.52
2004	55	8.08
2005	57	8.37
2006	84	12.33
2007	59	8.66
2008	46	6.75
2009	21	3.08
2010	33	4.85
2011	29	4.26

Industry distribution	SIC codes	No. of obs.	% of sample
Agriculture and natural resources	0001–1999	9	1.32
Food, textiles, furniture, paper, and chemicals	2000–2999	204	29.96
Rubber, leather, stone, metals, machinery, and equipment	3000–3569, 3580–3659, and 3800–3999	120	17.62
Computers, electronics, communications, and defense	3570–3579, 3660–3699, and 3760–3789	100	14.68
Automobile, aircraft, and transportation	3700–3759 and 3790–3799	52	7.64
Logistics and supply	4000–4999	24	3.52
Wholesaling and retailing	5000–5999	131	19.24
Services and financial services	6000–9999	41	6.02

Panel C: SCOME position and background of SCOMEs

SCOME position	
Part of the TMT	66%
Report to a member of the TMT	15%
No information on part of or reporting to TMT	19%
Outsider	67%
Insider	33%
Appointed to newly created position	29%
Appointed to existing position	71%
Background of SCOMEs	
Female (male)	7% (93%)
Bachelor's degree as the highest degree	38%
Master's degree as the highest degree	53%
Ph.D. degree as the highest degree	9%
Have MBA	46%
Have a science, math, and/or engineering degree	64%
Mean (median) years of experience	23 (22)

12% of the CFO positions are newly created in the sample of 2,227 CFO successions during 1984–1997, whereas Boyd et al. (2010) report that 66% of the CMO positions are newly created in the sample of 88 CMO successions during 1996–2005.

In 93% of the appointments, the SCOME is a male. For 69% of the sample, information about the educational background of the appointed SCOME is available. The highest education degree for 38% of the SCOMEs is a bachelor's degree, for 53% it is a master's degree, and for 9% it is a Ph.D.; 46% have an MBA and 64% have a science, math, and/or engineering degree. The mean (median) prior work experience of a SCOME at the time of appointment is 23 years (22 years).

4. Stock Market Reaction to SCOME Appointments

This section describes the methods used to estimate the market reaction to SCOME appointments, presents the results of the market reaction, compares the results to appointments of senior executives in other functional areas, and presents the stock price performance results before and after the appointment of SCOMEs.

4.1. Methods for Estimating the Stock Market Reaction: Abnormal Returns

We use event study methodology to estimate the stock market reaction to announcements of SCOME appointments. The market reaction is referred to as abnormal returns. Event study methodology offers a rigorous approach to estimate abnormal returns associated with specific events by controlling for marketwide factors and others that influence stock returns (see Brown and Warner 1985 for a review of this methodology). The abnormal returns are an estimate of the percent change in stock price associated with an event.

All announcements in our sample first appear in *DJNS*, *PRN*, or *BW* and indicate the time when the information is publicly released. We use the time of release of information to determine a one-day event period. If a SCOME announcement is released after 4:00 P.M. EST, then the announcement date is set to the next trading day to account for the fact that investors cannot act until the next trading day on the information contained in the announcement. If the announcement is made before 4:00 P.M. EST, then no adjustment is necessary to the announcement date. The announcement day is the one-day event period that we use for measuring abnormal returns. Calendar days are translated into event days when the announcement date is day 0, the next trading day is day 1, the trading day before the announcement is day −1, etc.

We estimate abnormal returns using the four-factor model based on the three factors identified by Fama and French (1993) and the momentum factor identified

by Carhart (1997). We refer readers to recent papers by Kalaignanam et al. (2013) and Thirumalai and Sinha (2011) for a description on estimating abnormal returns using the four-factor model. Appendix A provides a summary of the four-factor model.

4.2. Event Period Abnormal Returns

Panel A of Table 2 presents the abnormal returns using the four-factor model for the announcement day (day 0 or the event period). We use parametric t-tests to determine the statistical significance of the mean abnormal return as well as nonparametric Wilcoxon signed-rank tests on the median abnormal return. All p-values reported in the paper are two-tailed. We are unable to compute the abnormal returns for 57 of the 681 firms because these firms do not have the minimum 40 days of stock returns data during the estimation period and/or did not have stock returns on the day of the announcement.

The mean abnormal return for the full sample of SCOME appointments is 0.24%, significantly different from zero at the 2.5% level. The median abnormal return is 0.09%, significantly different from zero at the 10% level. The stock market seems to react positively to the appointment of new SCOMEs.

The mean (median) abnormal return for the newly created position is 0.63% (0.28%), significantly different from zero at the 1% (5%) level. This is consistent with our hypothesis that the stock market will react positively to newly created positions. In contrast, when the new SCOME is appointed to an existing position, the mean (median) abnormal return is 0.07% (0.05%), insignificantly different from zero.

The mean (median) abnormal return for outsider SCOMEs is 0.45% (0.16%), significantly different from zero at the 1% (2.5%) level. In the case of insider SCOMEs, the mean (median) abnormal return is −0.18% (−0.02%), insignificantly different from zero.

Panel A of Table 2 also presents the results for the splitting of new and existing positions into outsiders and insiders. In terms of magnitude, newly created SCOME positions staffed by outsiders have the most positive reaction with a mean abnormal return of 0.82%. This result in terms of magnitude is followed by existing position and outsider with a mean abnormal return of 0.29%, new position and insider with a mean abnormal return of 0.25%, and existing position and insider with a mean abnormal return of −0.37%. Except for the subsample of existing position and insider, the mean abnormal returns of the other three subsamples are significant at the 10% level, and two of the three medians in these three subsamples are also significant at the 10% level. That the stock market reacts most positively to the subsample of newly created positions staffed by outsiders could be due to the value of creating new positions as well as hiring an outsider, as we have argued in developing H1 and H2.

To test the robustness of our results, we examine the abnormal stock price performance for five trading days before and after the announcement dates. The mean and median abnormal returns on these days are not significant. We also estimate the abnormal returns using 100 and 150 days as the preevent estimation period, and these results are very similar to the results from using 200 days as the preevent estimation period (presented in panel A of Table 2). We also estimate abnormal returns using the market model and mean-adjusted model (Brown and Warner 1985). The results from these models are very similar to those from the four-factor model. Moreover, the correlation between the abnormal returns estimated from these three models is approximately 0.90.

Panel B of Table 2 summarizes the stock market reaction results for SCOMEs, CFOs, CMOs, and CIOs. The mean abnormal return for SCOME appointments is 0.24%, for CFO appointments is −0.05%, and for CMO appointments is 0.003%. In the case of CFOs, the mean abnormal return for newly created (existing) positions is 0.41% (−0.11%). Chatterjee et al. (2001) study the stock market reaction for only newly created CIOs. They find that the mean abnormal return is 1.16%. Boyd et al. (2010) do not report results for newly created or existing CMO positions separately. In comparison, the mean abnormal return for newly created (existing) SCOME positions is 0.63% (0.07%). The mean abnormal return for outsider (insider) SCOMEs is 0.45% (−0.18%). This is similar to the results for CFO appointments.

4.3. Dealing with Self-Selection Bias

This section presents a series of tests to ensure that our results from the four-factor model are robust by using alternative methods that account for potential sample-selection bias. Our study is based on a self-selected sample because the firms in our sample have chosen to appoint a new SCOME. Thus, our sample is nonrandom. This raises the issue of whether the abnormal returns presented in panel A of Table 2 could be due to sample-selection bias. To address this issue, we use propensity score matching (PSM) methods, first introduced by Rosenbaum and Rubin (1983), as an alternative approach to estimating abnormal returns. The basic idea in this method is to use a model of the propensity to appoint a new SCOME to select portfolios of propensity-matched firms—that is, firms that were not in our sample but were equally likely to appoint a new SCOME. To implement PSM, we use the nearest-neighbor matching procedure with replacement (Abadie and Imbens 2002) to identify matched firms that are nearest to our sample firm based on the propensity scores. We use two approaches to identify the matched firms, one without trajectories and the other with trajectories (Haviland and Nagin 2005).

To calculate propensity scores without trajectories, we use six observable covariates that may explain

Table 2 Summary of Abnormal Returns for Announcement of SCOME Appointments and Comparison with Announcements of Appointments of CFOs, CMOs, and CIOs

Panel A: Abnormal returns for the full sample and various subsamples on the day of the announcement of the SCOME appointment

		Announcement day abnormal return using the four-factor model			
Sample	Size	Mean (%)	*t*-statistic	Median (%)	*Z*-statistic
All firms	624	0.24	2.68***	0.09	1.70†
New positions	188	0.63	2.83***	0.28	2.08*
Existing positions	436	0.07	1.35	0.05	0.66
Outsider	419	0.45	3.30***	0.16	2.26**
Insider	205	−0.18	−0.05	−0.02	−0.27
New position and outsider	126	0.82	2.15*	0.22	1.41
New position and insider	62	0.25	1.85†	0.36	1.64†
Existing position and outsider	293	0.29	2.53**	0.15	1.80†
Existing position and insider	143	−0.37	−1.27	−0.19	−1.32

Panel B: Comparison of the stock market reaction to appointments of SCOMEs, CFOs, CMOs, and CIOs

	Mean abnormal returns			
Sample	SCOME	CFO	CMO	CIO
Sample size	681	2,227	88	96
All firms	0.24% (624)	−0.05% (1,530)	0.003% (88)	NA
New positions	0.63% (188)	0.41% (164)	NA	1.16% (96)
Existing positions	0.07% (436)	−0.11% (1,366)	NA	NA
Outsider	0.45% (419)	0.40 (736)	NA	NA
Insider	−0.18% (205)	−0.23% (648)	NA	NA

Notes. Information about the stock market reaction to appointments of CFO is from Mian (2001), of CMO is from Boyd et al. (2010), and of CIO is from Chatterjee et al. (2001). Sample sizes of individual segments are in parentheses. NA, information about this sample or subsample is not available in the cited literature.

***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

the choice to appoint a new SCOME and that previous research has shown are correlated with stock returns. These covariates are (1) firm size (natural log of market value of equity), (2) industry (two-digit SIC code), (3) the ratio of market value of equity to book value of equity (a proxy for a firm's growth potential), (4) financial leverage (ratio of total debt to market value of equity), (5) prior performance as proxied by ROA, and (6) inventory performance (days of inventory calculated as 365 × (Inventory/CGS) after converting all inventory and CGS data to a first-in-first-out (FIFO) basis by using the last-in-first-out (LIFO) reserves). The selected covariates are shown to influence stock returns. Specifically, the four-factor model includes the covariates that are widely accepted in the literature as covariates that influence stock price. The covariates that we use in PSM attempt to capture these covariates. For example, ROA and inventory turnover are measures of prior performance, industry and financial leverage captures risk, market-to-book measures growth, and market value of equity measures size. Moreover, some of these covariates have been used to explain executive turnovers in top management teams, such as CEO turnover (Warner et al. 1988, Parrino et al. 2003). The universe for matching firms along these covariates consists of all firms that had common stocks traded on NYSE/AMEX/NASDAQ exchanges with the required data available in both the CRSP and Compustat databases for the six covariates in the fiscal year prior to the announcement fiscal year, as well as the daily stock returns in the announcement year.

To calculate propensity scores with trajectories, we use the above-mentioned six covariates together with trajectory groups that are based on the history of each firm's ROA over three years prior to the SCOME announcement fiscal year. Let year 0 denote the fiscal year of the SCOME announcement, and let year −1, year −2, and year −3 denote the fiscal years of one year, two years, and three years before the announcement fiscal year, respectively. Following Gopal et al. (2013), we define trajectory groups using ROA as follows:

$T1 = 1$ if ROA in year −2 is greater than the ROA in year −3, and 0 otherwise;

$T2 = 1$ if ROA in year −1 is greater than the ROA in year −2, and 0 otherwise.

T1 and T2 categorize each firm into one of four groups where one group shows upward trajectory (T1 = 1 and T2= 1), another group shows downward trajectory (T1 = 0 and T2 = 0), and the other two groups show no clear trajectories. We create dummy variables

for each of these four groups and use these variables to identify the matched firms with trajectories.

We estimate propensity scores using probit/logit regressions for each calendar year in our sample. For each sample firm, we identify the five closest matches based on the propensity scores. We use the market model (Brown and Warner 1985) to risk adjust the raw returns of the sample firm and the matched firms. For each sample firm, we estimate the equally weighted risk-adjusted return of the five propensity-score-matched firms as the benchmark return on day 0. Abnormal returns is the difference between the risk-adjusted return of the sample firm on day 0 and the equally weighted risk-adjusted return of its five propensity-score-matched firms on day 0.

The mean and median propensity scores of sample firms are insignificantly different from the mean and median of the matched firms. Table 3 gives the abnormal returns using the PSM method with and without trajectories. The correlation between these two sets of abnormal returns is 0.87. These results are also similar to the four-factor model. The correlation between results of the four-factor model and the PSM method with trajectories (without trajectories) is 0.90 (0.91). We also note that the PSM results without risk adjustment are very similar to the results presented in Tables 2 and 3. Given the similarity of the results in Tables 2 and 3, the rest of the stock market results reported in the paper are based on the four-factor model. In addition to using the PSM method for dealing with self-selection bias in our univariate analysis, we also use the Heckman (1979) two-step procedure as an alternative method to deal with potential self-selection bias in the multivariate analysis of covariance.

4.4. Additional Analyses on the Stock Market Reaction to SCOME Appointments

We conduct additional analyses to test for the robustness of the market reaction to SCOME announcements. Another way to test for the stock market reaction is to estimate abnormal trading volume. Abnormal trading volume can be useful in detecting the market reaction when the announcement has "new information," but investors have different and heterogeneous beliefs about the value of the new information. In such cases, stock prices may not move much but the trading volume of the stock may change significantly, which can provide insights into whether or not the stock market reacted to the new information.

We estimate the change in trading volume using the comparison period method. In this method we use the average trading volume of the firm from days −210 to −11 as the benchmark. We compare the trading volume on day 0 to this benchmark to estimate the abnormal change in trading volume. We find that the announcement day trading volume is 8.7% higher than the average of trading volume over days −210 to −11. This finding provides additional support that the stock market reacts to the announcements of SCOME appointments.

We also analyze whether firms time the announcement of SCOME appointments. The reason for examining this issue is that firms have a choice of when to announce the appointment, and they can time the announcement to get the most favorable market reaction. It is unclear from the event study literature whether managers are consistently and systematically able to time announcements to get the best response from the market. Nonetheless, we address this issue by examining whether there is a concentration of announcements during certain time periods by following two approaches.

First, similar to prior studies, we examine whether SCOME appointment dates are timed to be announced in any particular fiscal quarter (e.g., see Francis et al. 1996). Our sample announcements are nearly equally distributed across the four fiscal quarters, with 26.73%, 26.58%, 23.64%, and 23.20% in the first, second, third, and fourth fiscal quarters, respectively. A chi-square test shows no significant difference between expected (25% of the announcements in each fiscal quarter) and observed frequencies of announcements by fiscal quarters. Therefore, it seems that SCOME appointments are not timed to be announced in a particular fiscal quarter.

Second, we examine whether there is a concentration of SCOME announcements around certain other types of announcements. Callaghan et al. (2004) and Yermack (1997) study whether the repricing of executive stock options and awarding of CEO stock options are timed by examining whether they precede or follow quarterly earnings announcements. We follow this approach and examine whether SCOME appointment announcements are timed around quarterly earnings announcements. Figure 1 gives the frequency distribution of SCOME appointment announcement dates relative to the nearest quarterly earnings announcement date. The figure plots the frequency over 45 calendar days before and after the nearest quarterly earnings announcement date. We are able to get earnings announcement dates around the SCOME appointment date for 648 of 681 announcements. Of these 648 announcements, 601 are made within 45 calendar days before and after the nearest quarterly earnings announcement date. Figure 1 indicates that there is no concentration of SCOME appointments around the nearest quarterly earnings announcement date and no concentration over 45 calendar days before or after the nearest quarterly earnings announcement date.

4.5. Tests for Hypotheses 1 and 2

We use both univariate and multivariate tests to test Hypotheses 1 and 2. With respect to univariate tests,

Table 3 Abnormal Returns for the Full Sample and Various Subsamples on the Day of the Announcement of the SCOME Appointment Using PSM Methods, With and Without Trajectories

		Panel A: Announcement day abnormal return using PSM with trajectories and risk adjustment					Panel B: Announcement day abnormal return using PSM without trajectories and risk adjustment			
Sample	Size	Mean (%)	*t*-statistic	Median (%)	*Z*-statistic	Size	Mean (%)	*t*-statistic	Median (%)	*Z*-statistic
All firms	603	0.31	1.78†	0.27	1.98*	614	0.32	1.76†	0.20	1.86†
New positions	181	0.69	1.99*	0.36	2.03*	185	0.57	1.59	0.21	1.51
Existing positions	422	0.14	0.73	0.24	0.96	429	0.21	1.01	0.19	1.24
Outsider	407	0.45	1.99*	0.32	2.15*	412	0.46	1.93†	0.34	2.03*
Insider	196	0.01	0.04	0.13	0.36	202	0.03	0.11	0.01	0.31
New position and outsider	123	0.93	1.95†	0.46	2.00*	125	0.69	1.38	0.40	1.36
New position and insider	58	0.19	0.48	0.24	0.63	60	0.34	0.80	0.03	0.67
Existing position and outsider	284	0.25	0.97	0.28	1.19	287	0.36	1.36	0.30	1.53
Existing position and insider	138	−0.07	−0.21	0.13	0.01	142	−0.10	−0.33	−0.03	−0.02

***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

the results in panel A of Table 2 indicate that the mean abnormal returns for the newly created position are positive and significantly different from zero at the 1% level. To test H2, we run a two-sample *t*-test and find that the mean abnormal returns for outsider and insider SCOMEs are significantly different at the 10% level. The results indicate that the stock market reacts more positively to appointment of outsider SCOMEs when compared with the appointment of insider SCOMEs.

To test H1 and H2 in a multivariate setting, we perform both analysis of variance (ANOVA) and analysis of covariance (ANCOVA) followed by linear contrast tests. We use the following equation for the ANOVA:

$$AR_i = \beta_1 Existing\_Insider_i + \beta_2 Existing\_Outsider_i + \beta_3 New\_Insider_i + \beta_4 New\_Outsider_i + \varepsilon_i, \quad (1)$$

where the four explanatory variables are indicator variables that represent the four combinations of new/existing and outsider/insider SCOME positions.

For the ANCOVA, we use the following equation:

$$AR_i = \beta_1 Existing\_Insider_i + \beta_2 Existing\_Outsider_i + \beta_3 New\_Insider_i + \beta_4 New\_Outsider_i + \beta_5 Firm\_Size_i + \beta_6 Financial\_Leverage_i + \beta_7 Median\_Industry\_ROA_i + \beta_8 Industry\_Adjusted\_ROA_i + \varepsilon_i, \quad (2)$$

which includes the four indicator variables used in ANOVA and the following covariates: $Firm\_Size_i$ (measured as log of market value of equity), $Financial\_Leverage_i$ (total debt over market value of equity), $Median\_Industry\_ROA_i$ to capture industry specific effects ("industry" here includes all firms that have the same three-digit SIC code as the sample firm), and $Industry\_Adjusted\_ROA_i$ to capture firm prior performance measured as the difference between the ROA of a firm and its median industry ROA.

Table 4 presents the results from ANOVA (panel A) and ANCOVA (panel B). We use linear contrast tests after ANOVA and ANCOVA to test H1 and H2 and run them in two ways. First, we apply equal weights to the relevant indicator variable coefficients. Second, since the number of observations are unequal in new/old and insider/outsider SCOME positions, we apply weights to these indicator variable coefficients based on the ratio of their respective number of observations to the total number of observations in the relevant sample under consideration (Buckless and Ravenscroft 1990). *F*-values and the two-tailed *p*-values are reported for the contrast tests.

Figure 1 Timing of SCOME Appointment Announcements Within ±45 Calendar Days of the Nearest Quarterly Earnings Announcement Date

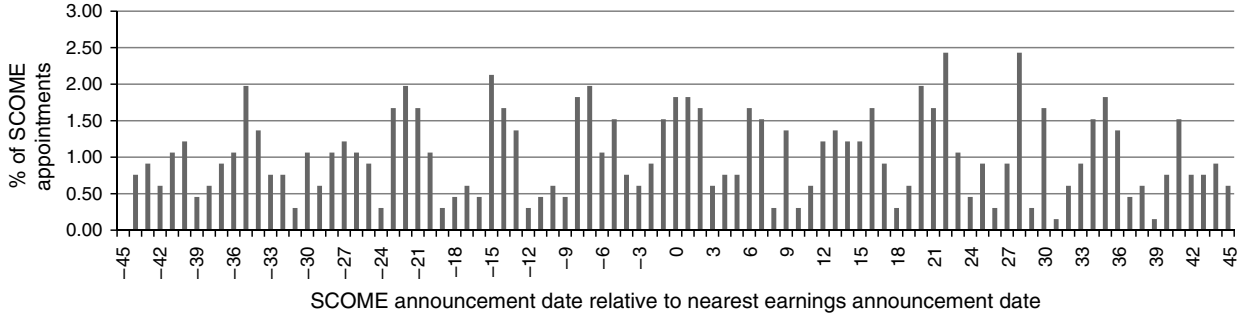

Table 4 ANOVA and ANCOVA Results and Contrast Tests

Panel A: ANOVA results (number of observations = 624)			
Explanatory variables	df	MS	*F* (*p*-values)
Existing_Insider	1	0.001	1.07 (0.30)
Existing_Outsider	1	0.002	1.34 (0.25)
New_Insider	1	0.000	0.22 (0.64)
New_Outsider	1	0.008	4.67 (0.03)
Residual	620	0.001	
Model			1.82 (0.12)
Contrast tests	df	MS	*F* (*p*-values)
H1: New (*New_Insider* + *New_Outsider*) greater than 0			
Equal weights	1	0.005	2.64 (0.10)
Weighted	1	0.007	4.16 (0.04)
H2: Outsider (*Existing_Outsider* + *New_Outsider*) − *Insider* (*Existing_Insider* + *New_Insider*) greater than 0			
Equal weights	1	0.004	2.39 (0.12)
Weighted	1	0.005	2.99 (0.08)
Panel B: ANCOVA results (number of observations = 607)			
Explanatory variables	df	MS	*F* (*p*-values)
Existing_Insider	1	0.000	0.18 (0.67)
Existing_Outsider	1	0.003	1.84 (0.18)
New_Insider	1	0.002	1.31 (0.25)
New_Outsider	1	0.008	4.30 (0.04)
Firm_Size	1	0.005	2.93 (0.08)
Financial_Leverage	1	0.002	1.40 (0.24)
Median_Industry_ROA	1	0.000	0.47 (0.49)
Industry_Adjusted_ROA	1	0.000	3.92 (0.05)
Residual	599	0.002	
Model			1.85 (0.06)
Contrast tests	df	MS	*F* (*p*-values)
H1: New (*New_Insider* + *New_Outsider*) greater than 0			
Equal weights	1	0.005	2.98 (0.08)
Weighted	1	0.006	3.60 (0.05)
H2: Outsider (*Existing_Outsider* + *New_Outsider*) − *Insider* (*Existing_Insider* + *New_Insider*) greater than 0			
Equal weights	1	0.003	2.09 (0.15)
Weighted	1	0.004	2.64 (0.10)

Note. MS, mean square.

With respect to H1, the contrast tests indicate that the stock market reaction to new positions is positive and significantly different from zero at the 10% level. The results of the contrast tests support our hypotheses that the stock market reacts positively to newly created positions. With respect to H2, the contrast tests indicate that the stock market reacts more positively to the appointment of outsider SCOMEs when compared to insider SCOMEs. The results are significantly different from zero at the 10% level or better for the weighted contrast tests for both ANOVA and ANCOVA. For the equally weighted contrast tests, results are significantly different from zero at the 15% level or better.

As discussed earlier, firms in our sample have self-selected to announce the appointment of a SCOME. This may in turn induce an omitted-variables bias, implying that the above ANCOVA results that we use to test our hypotheses may themselves be biased. We use the Heckman two-step procedure to account for self-selection bias (Heckman 1979, Maddala 1983). The first step is to estimate a selection model to predict the likelihood of announcing the appointment of a new SCOME and estimate the inverse Mills ratio (IMR). The second step is to estimate the ANCOVA model including the IMR as an additional explanatory variable to test our hypotheses.

To implement the Heckman two-step procedure, we follow Kalaignanam et al. (2013) and identify a sample of firms that did not appoint or did not announce the appointment of a new SCOME. For each firm in our sample, we attempt to find a matching firm that has the same three-digit SIC code as the sample firm and is closest to the sample firm on market value of equity at the end of the fiscal year prior to the announcement fiscal year. We are able to find matches for 632 firms for a total of 1,264 sample and matching firms.

To the best of our knowledge, there is no literature that has identified variables that can predict the propensity to announce the appointment of SCOMEs. Given this, some of the variables that we use are from the CEO turnover literature. Firm size and prior performance are two commonly used variables in predicting CEO turnover (Warner et al. 1988, Parrino et al. 2003). We use these two variables in our selection model where firm size (*Firm_Size*) is measured as the natural logarithm of market value of equity and prior performance is measured by return on assets (*ROA*). We also use two inventory-related measures that could affect the propensity to appoint a new SCOME. These are days of inventory (*Inventory_Days*), measured as 365 × (Total inventory/CGS), and importance of inventory (*Inventory_Importance*), measured as the ratio of total inventory to total assets. We also include variables to control for industry at the three-digit SIC code level (*Ind*) and time (*Year*). The first-stage selection model is

$$\begin{aligned}&\Pr(SCOME\_Ann = 1)\\&= \Phi(\beta_0 + \beta_1 Firm\_Size_i + \beta_2 ROA_i + \beta_3 Inventory\_Days_i\\&\quad + \beta_4 Inventory\_Importance_i + \beta_5 Ind_i + \beta_6 Year_i + \varepsilon_i),\end{aligned} \quad (3)$$

where the probability that firm i will make a SCOME appointment announcement is represented by 1 and no appointment or no appointment announcement is represented by 0. The first-stage selection model is estimated by using 1,245 observations as some sample firms do not have information on all explanatory variables in Equation (3).

Panel A of Table 5 shows the results from the selection model. Firm size, prior performance, days of inventory, and importance of inventory are significant predictors of the propensity to appoint a SCOME. Industry and calendar year variables are not statistically significant. We use the estimates from the probit model to calculate the IMR (IMR_i) and include this in the second-stage ANCOVA model:

$$\begin{aligned} AR_i = {} & \beta_1 Existing\_Insider_i + \beta_2 Existing\_Outsider_i \\ & + \beta_3 New\_Insider_i + \beta_4 New\_Outsider_i \\ & + \beta_5 Firm\_Size_i + \beta_6 Financial\_Leverage_i \\ & + \beta_7 Median\_Industry\_ROA_i \\ & + \beta_8 Industry\_Adjusted\_ROA_i + \beta_9 IMR_i + \varepsilon_i. \quad (4) \end{aligned}$$

Panel B of Table 5 shows the results from the ANCOVA model. The results are similar to panel B of Table 4, which does not incorporate the IMR. The coefficient for the IMR is not significant, suggesting that our sample does not exhibit self-selection bias.

For robustness, we also test in our ANCOVAs whether the following three variables influence the stock market reaction:

- *SCOME announcement when there is CEO turnover prior to the SCOME appointment*: We review annual reports, SEC filings, and company press releases during the year of and the year before the year of the SCOME appointments to check whether the CEO changed. In 137 of the 681 SCOME appointments (approximately 20% of the sample), a new CEO was appointed within 12 months before the SCOME appointment.
- *SCOME reports to CEO or COO*: In 242 of the 681 announcements, the SCOME reports to the CEO or COO. In the remaining announcements where such information is available, the SCOME reports to the CFO, senior or executive vice presidents, presidents, and other individuals who are not CEO or COO.
- *Announcements with some specific details about the appointment*: As discussed in §3, 17 of the 681 announcements have some specific details about the appointment, whereas the rest of the announcements are general statements.

We represent each of the above three variables as an indicator variable in our ANCOVAs, where CEO_Turn_i is coded as 1 if a new CEO was appointed within 12 months before the new SCOME appointment and 0 otherwise; $SCOME\_Report_i$ is coded as 1 if the SCOME reports to a CEO or COO and 0 otherwise; and $Specific\_Announcement_i$ is coded as 1 for the 17 announcements that have specific information and 0 otherwise. The results indicate that none of the three variables influences the stock market reaction associated with SCOME appointments. These results are available on request from the authors.

Table 5 ANCOVA Results and Contrast Tests with IMR

Panel A: Probit estimates from Heckman first-stage sample selection model on propensity to announce SCOME appointment

Explanatory variables	Coefficient estimates	*z*-stat.	Sig.
INTERCEPT	−0.826	(−0.726)	
Firm_Size (natural log of MVE)	0.100	(4.229)	***
ROA	−0.807	(−3.315)	***
Inventory_Days	−0.002	(−2.295)	**
Inventory_Importance	2.084	(4.185)	***
Industry dummies	Yes		
Year dummies	Yes		
Number of observations	1,245		
Log likelihood	−846.76		
p-value of chi-square test	0.000		***

Panel B: ANCOVA results and contrast tests with IMR (number of observations = 593)

Explanatory variables	df	MS	*F* (*p*-values)
Existing_Insider	1	0.002	1.30 (0.26)
Existing_Outsider	1	0.004	2.37 (0.12)
New_Insider	1	0.003	2.14 (0.14)
New_Outsider	1	0.005	3.45 (0.06)
Firm_Size	1	0.006	3.72 (0.05)
Financial_Leverage	1	0.002	1.28 (0.26)
Median_Industry_ROA	1	0.000	0.21 (0.65)
ROA	1	0.000	0.33 (0.57)
IMR	1	0.001	0.85 (0.36)
Residual	584	0.002	
Model			1.67 (0.09)
Contrast tests	**df**	**MS**	***F* (*p*-values)**
H1: New (*New_Insider* + *New_Outsider*) greater than 0			
Equal weights	1	0.005	2.86 (0.09)
Weighted	1	0.005	3.09 (0.08)
H2: Outsider (*Existing_Outsider* + *New_Outsider*) − *Insider* (*Existing_Insider* + *New_Insider*) greater than 0			
Equal weights	1	0.003	2.28 (0.13)
Weighted	1	0.005	2.94 (0.09)

Note. MS, mean square; MVE, market value of equity.
***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

To summarize, the stock market reacts positively overall to appointments of SCOMEs. Consistent with our hypothesis, the market reaction is positive for newly created SCOME positions, and the stock market reacts more positively to appointments of outsiders rather than insiders.

4.6. Preannouncement Abnormal Stock Returns

To develop additional insights into the association between stock price performance and SCOME appointments, we analyze stock price performance in the period prior to SCOME appointments. Approximately 71% of the SCOMEs in our sample are appointed to existing positions and 29% to newly created positions.

The need to replace a SCOME could be caused by the existing SCOME's retirement, promotion, being fired for poor performance, leaving for personal and family reasons, or joining another firm, etc. The creation of a new SCOME position could be because of reorganization, promotion, the need to improve performance, or the need to attract a SCOME from another firm, among others. Of the announcements in our sample, 88% do not give information about the reasons for replacing existing SCOMEs or creating new positions. Given this lack of information, we explore the more general issue of whether appointments of new SCOMEs are preceded by poor stock price performance.

Our measure of prior stock price performance is the cumulative abnormal return (CAR) over a 250-day preannouncement period that starts on day −270 and ends on day −21. Since a month typically has 21 trading days, day −270 to day −21 spans a year that starts 13 months before the announcement and ends one month before the announcement. The reason we end one month before the announcement is to reflect the possibility that firms are likely to have made the decision to find a new SCOME sometime before the announcement. We use day −480 to day −281 as the estimation period to compute the CAR from day −270 to day −21. The results are based on 589 firms because 92 firms did not have sufficient data during the estimation period and/or the preannouncement period to compute CARs. Panel A of Table 6 presents these results.

The results suggest that poor stock price performance precedes new SCOME appointments. The abnormal returns for the full sample are negative during the 250-day preannouncement period. The mean (median) abnormal return is −5.64% (−1.98%), significantly different from zero at the 1% (2.5%) level. Much of this negative performance is driven by the subsample of existing positions. The mean (median) abnormal return for this subsample is −6.84% (−2.93%), significantly different from zero at the 1% (2.5%) level. For newly created SCOME positions, the abnormal returns are insignificantly different from zero. The evidence suggests that poor stock price performance precedes replacement of existing SCOMEs.

The mean (median) abnormal return for outsider SCOMEs is −9.67% (−8.20%), both significantly different from zero at the 1% level. However, the abnormal returns for insider SCOMEs are insignificantly different from zero. This result provides preliminary evidence to support our hypothesis that the likelihood of hiring outsider SCOMEs is negatively related to prior performance.

Although the overall prior performance for existing positions is negative, much of the negative performance is observed in the subsample where an outsider is appointed to an existing position. The mean (median) abnormal return for this subsample is −11.97% (−11.75%), both significantly different from zero at the 1% level. The prior performance for the subsample where an insider is appointed to an existing position is insignificantly different from zero. The prior performance for the subsamples of new position and outsider and new position and insider are also insignificantly different from zero.

We also estimate the correlation between the abnormal return on the announcement day and the CAR over the 250-day preannouncement period. The Pearson (Spearman) correlation coefficient is −0.07 (−0.03) and is insignificantly different from zero, suggesting that the stock market reaction on announcement day is not influenced by the stock price performance during the preannouncement period.

4.7. Postannouncement Abnormal Stock Returns

We also analyze the abnormal stock price performance in the period after the SCOME appointments to see whether such appointments are associated with subsequent improvement in stock price performance. We estimate CARs over a 250-day postannouncement period that starts on day 21 and ends on day 272, which spans a year that starts one month after the announcement and ends 13 months after the announcement. The reason we start one month after the announcement is to reflect the possibility that the new SCOME may join sometime after the announcement. We use day 282 to day 481 as the estimation period to compute the CAR. The reason for using a forward estimation period is that the appointment of a SCOME may cause a shift in the parameter estimates, and the forward estimation period will better reflect any such shift. The results are based on 582 firms because 99 firms did not have sufficient data during the estimation period and/or the postannouncement period to compute CARs. Panel B of Table 6 presents these results.

An important observation of the postannouncement stock price analyses is that there is no further decline in performance, suggesting that the declines in stock price performance observed in the preannouncement period do not continue following the appointment of a new SCOME. The results indicate that new SCOME appointments are followed by positive stock price performance in some subsamples. The mean (median) abnormal return for the full sample is 2.98% (5.74%), significantly different from zero at the 1% (2.5%) level. Much of this positive performance is driven by the subsample of appointing insiders as SCOMEs. The mean (median) abnormal return for insider subsample is 12.41% (9.91%), both significantly different from zero at the 1% level. We have no obvious explanation for the postannouncement positive stock price performance for the insider subsample. This issue merits future research.

Table 6 Cumulative Abnormal Returns for the Full Sample and Various Subsamples of SCOME Appointments for the Preannouncement Period (Days −272 to −21) and Postannouncement Period (Days 21 to 272)

		Panel A: Cumulative abnormal returns from days −270 to −21 using the four-factor model					Panel B: Cumulative abnormal returns from days 21 to 272 using the four-factor model			
Sample	Size	Mean (%)	*t*-statistic	Median (%)	*Z*-statistic	Size	Mean (%)	*t*-statistic	Median (%)	*Z*-statistic
All firms	589	−5.64	−4.83***	−1.98	−2.33**	582	2.98	4.32***	5.74	2.27**
New positions	174	−2.80	−1.60	0.92	−0.66	178	0.09	2.99***	5.31	1.21
Existing positions	415	−6.84	−4.72***	−2.93	−2.29**	404	4.25	3.20***	5.84	1.91†
Outsider	393	−9.67	−5.19***	−8.20	−3.08***	393	−1.56	1.42	4.09	0.66
Insider	196	2.42	−1.02	6.53	0.47	189	12.41	5.53***	9.91	2.89***
New position and outsider	116	−4.18	−1.62	−2.80	−0.87	122	−9.14	0.32	−3.51	−0.53
New position and insider	58	−0.04	−0.47	5.01	0.06	56	20.20	4.86***	15.22	2.88***
Existing position and outsider	277	−11.97	−5.13***	−11.75	−3.03***	271	1.85	1.51	5.52	1.16
Existing position and insider	138	3.46	−0.91	6.52	0.52	133	9.14	3.44***	7.15	1.57

***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

5. Pre- and Postappointment Operating Performance

In developing our hypotheses on the stock market reaction to SCOME appointments, we based some of our supporting arguments on the potential impact of SCOMEs on operating performance. A natural extension of the stock market reaction analysis is whether the appointment of the new SCOME affects operating performance and in what manner.

We measure operating performance as ROA. In addition to ROA, we also analyze how the SCOME appointment is linked to sales and costs. Specifically, we examine SOA as measured by sales/total assets, and total costs as measured by (CGS + SGA)/sales and CGS/sales. We use annual accounting data to estimate the operating performance effects.

To provide a perspective on the effect of the SCOME appointment, we estimate operating performance effects before and after the appointment. More specifically, we examine operating performance over a four-year period starting two years before the year of the appointment and ending two years after the year of the appointment. We translate fiscal years to event years as follows. The fiscal year of the new SCOME appointment is denoted as year 0. The next (previous) fiscal year is year 1 (year −1), and the fiscal year two years after (before) is year 2 (year −2).

We use year 0 as the anchor year for measuring the performance before and after the appointment. The reason is that the analysis of the new SCOME announcement dates indicates that new SCOME announcements are made on average 6.2 months (median is 6 months) into year 0. Some announcements also indicate that the new SCOME will join the firm in the near future. Furthermore, it can take the new SCOME some time to get familiar with the firm and its operations before implementing new approaches and strategies. Given this, it seems that the new SCOME would have limited impact on the operating performance in year 0. Thus, we use year 0 as the base year and the time period before (after) year 0 to judge the preappointment (postappointment) performance. We estimate operating performance on an annual basis starting from year −2 and ending in year 2 and also two other time periods, a two-year preappointment period (year −2 to year 0) and a two-year postappointment period (year 0 to year 2).

We estimate abnormal operating performance by comparing a sample firm's performance against a set of benchmark firms. Barber and Lyon (1996) advocate selecting comparison groups based on a combination of three factors: prior performance, size, and industry. We follow their approach to estimate abnormal performance (see Hendricks and Singhal 2008 for a detailed description of the approach). Appendix B provides a brief description of the approach used.

Table 7 reports the abnormal operating performance results for the full sample and the subsamples of new and existing positions as well as outsider and insider hires. Results are over a two-year preappointment period (year −2 to year 0) and a two-year postappointment period (year 0 to year 2). Results for annual changes from year −2 to year 2 are available on request from the authors. All results report changes in the level of operating performance. For example, if ROA changes from 10% to 12%, it is reported as 2%. To control for outliers, particularly when accounting measures are used, we report the median abnormal performance and use the Wilcoxon signed-rank test to test whether the median is significantly different from zero.

Panel A of Table 7 indicates that sample firms perform poorly relative to their benchmarks in the preappointment period. The median abnormal ROA from year −2 to year 0 for the full sample is −0.33%, significantly different from zero at the 10% level. Two subsamples exhibit significant declines in ROA from year −2 to year 0: existing positions (−0.55%) and outsider (−0.66%). The decline in ROA is partly driven by a decline in sales and partly by an increase in costs. The abnormal change in SOA for the full sample is

Table 7 Median Abnormal Operating Performance for the Preappointment Period (Year −2 to Year 0) and Postappointment Period (Year 0 to Year 2)

	Panel A: Median abnormal changes from years −2 to 0				Panel B: Median abnormal changes from years 0 to 2			
Sample	ROA	SOA	(CGS + SGA)/sales	CGS/sales	ROA	SOA	(CGS + SGA)/sales	CGS/sales
All firms	−0.33% (−1.81)†	−0.57% (−0.63)	0.14% (2.07)*	0.54% (3.79)***	−0.13% (0.26)	0.71% (1.33)	−0.17% (−0.68)	−0.35% (−1.40)
New positions	0.14% (−0.28)	−3.48% (−1.88)†	0.01% (0.67)	0.17% (1.13)	0.01% (−0.09)	0.51% (0.40)	−0.11% (−0.10)	−0.39% (−1.09)
Existing positions	−0.55% (−2.01)*	−0.32% (0.52)	0.47% (2.06)*	0.74% (4.17)***	−0.20% (0.32)	0.84% (1.35)	−0.17% (−0.34)	−0.21% (−0.97)
Outsider	−0.66% (−2.67)***	−1.67% (−1.75)†	0.25% (2.05)*	0.68% (3.79)***	−0.20% (0.24)	0.76% (0.82)	−0.29% (−0.76)	−0.14% (−0.85)
Insider	0.44% (0.81)	0.43% (0.81)	0.10% (0.62)	0.42% (1.61)	−0.06% (−0.23)	0.40% (1.15)	−0.15% (−0.47)	−0.39% (−1.10)
New positions and insider	1.62% (1.68)†	−0.16% (0.44)	−0.21% (−0.41)	−0.16% (−0.63)	−0.01% (−0.07)	−0.29% (0.30)	0.33% (−0.02)	−0.64% (−0.94)
New positions and outsider	−0.46% (−1.35)	−5.68% (−2.35)**	0.02% (1.03)	0.46% (1.74)†	0.05% (0.09)	0.62% (0.25)	−0.30% (−0.16)	−0.39% (−0.66)
Existing positions and insider	−0.01% (−0.15)	2.38% (1.36)	0.24% (1.05)	0.64% (2.35)**	−0.11% (0.36)	0.88% (1.12)	−0.17% (−0.61)	−0.08% (−0.44)
Existing positions and outsider	−1.00% (−2.30)**	−0.57% (0.43)	0.61% (1.78)†	0.79% (3.41)***	−0.21% (0.26)	0.81% (0.82)	−0.20% (−0.81)	−0.36% (−0.89)

Note. Wilcoxon signed-rank test *Z*-statistics for the median are reported in parentheses.
***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

negative but is not statistically significant. However, the subsamples of new positions and that of outsider show significant declines in SOA from year −2 to year 0. The evidence indicates that costs increased (or margins decreased) during the preappointment period. (CGS + SGA)/sales exhibit a significant increase from year −2 to year 0 for the full sample (0.14%), existing positions (0.47%), and outsider (0.25%). The results are stronger when we focus on CGS/sales. The abnormal change is 0.54% for the full sample, 0.74% for existing positions, and 0.68% for outsider, all significantly different from zero at the 1% level. The evidence suggests that sample firms experience a performance decline prior to new SCOME appointments.

Panel B of Table 7 presents the operating performance results for the postappointment period. For the full sample as well as for all subsamples, the abnormal ROAs from year 0 to year 2 are insignificantly different from zero. Overall, the evidence suggests that new SCOME appointments are not followed by an immediate improvement in operating performance. However, there is no further decline in operating performance, suggesting that the decline in operating performance observed in the preappointment period under the existing SCOME does not appear to continue under the new SCOME.

6. Results on Factors That Affect the Choice of an Insider or Outsider as the New SCOME

This section tests our hypotheses on whether factors such as firm size, industry homogeneity, industry concentration, and prior performance affect the likelihood of SCOMEs being outsiders or insiders. We first describe how these explanatory variables are measured and then present the results from the probit regression analysis. Unless stated otherwise, the explanatory variables are based on the most recent fiscal year completed before the date of the announcement of appointment of the new SCOME and are measured as follows:

- Firm size ($Firm\_Size_i$): We measure firm size as the natural logarithm of market value of equity.
- Industry homogeneity (Ind_Hom_i): Recall that we posited that firms operating in a more homogeneous industry are likely to compete in similar product markets, using similar inputs and technologies, and similar supply chain structures. Therefore, changes in factors such as input prices, technology, and competitive environment are likely to have similar effects on firms in a more homogeneous industry. This observation also suggests that the cash flows and therefore the stock prices of firms in a more homogeneous industry are likely to be more positively correlated. We adopt a stock price-based proxy for measuring industry homogeneity following the model of Parrino (1997). This measure has been more recently used by Agarwal et al. (2006), Kale et al. (2009), and Gillian et al. (2009). We use the industry homogeneity in the month before the announcement of the new SCOME in our probit analysis. Appendix C provides a description of the calculation of industry homogeneity.
- Industry concentration (Ind_Conc_i): We use the Herfindahl index to measure industry concentration. The Herfindahl index for an industry is defined as the sum of the squared fraction of industry sales of each

firm that is in the industry. For each sample firm, we compute the Herfindahl index of its industry using sales of all firms with the same primary three-digit SIC code as that of the firm sample. A higher (lower) value of the Herfindahl index implies a more concentrated (fragmented) industry.

• Prior performance ($Prior\_Perf_i$): We measure prior performance in several ways: (1) CAR from day −270 to day −21, (2) ROA, (3) median industry ROA, (4) industry-adjusted ROA of the firm, and (5) industry-adjusted days of inventory of the firm (measured as the difference in a sample firm's days of inventory and its industry median days of inventory divided by its industry median days of inventory).

6.1. Results from the Probit Regression Analyses

Since the dependent variable (hiring insider or outsider) is binary, we use the following probit regression:

$$\Pr(Outsider = 1) = \Phi\big(\beta_0 + \beta_1 Firm\_Size_i + \beta_2 Ind\_Hom_i + \beta_3 Ind\_Conc_i + \beta_4 Prior\_Perf_i + \beta_5 Ind_i + \varepsilon_i\big). \quad (5)$$

The probability that the hired SCOME will be an outsider is represented by 1 and that of an insider by 0. To control for possible common trends among firms in the same industry, Ind_i is an indicator variable that denotes the industry group to which firm i belongs. These industry groups are described in panel B of Table 1.

The results with and without the industry controls are very similar. We also run logit regressions with and without industry controls. These results are also very similar to those obtained from the probit regressions. Since different specifications give similar results, we only report the probit results with the industry controls. Table 8 presents the results from four different probit regression models. Firm size, industry homogeneity, and industry concentrations are included in all four models. Where the models differ from each other is in the proxy used for prior performance. In Model 1, prior performance is measured as the CAR from day −270 to day −21. Model 2 uses the ROA of the sample firm as the performance measure. Model 3 breaks down the sample firm's ROA into two components: industry-adjusted ROA of the firm and the median industry ROA. Model 4 augments the ROA measures in Model 3 to include industry-adjusted days of inventory of the firm.

Table 8 reports the regression coefficients as well as the Z-statistics in parentheses. To provide the magnitude of the effect, Table 8 also reports the estimated effect that each variable has on the likelihood of hiring an outsider. For each variable, this magnitude is the derivative of the probability of hiring an outsider calculated at the mean values of all variables times one standard deviation in the variable. In estimating the likelihood, we are assuming that the derivative for each variable remains constant over one standard deviation from the mean.

The results provide support for three of the four factors that we hypothesized as affecting the likelihood of whether the new SCOME is an insider or outsider. The evidence is consistent with our hypothesis that larger firms are less likely to hire an outsider as the new SCOME. In all four models, the regression coefficient of firm size is negative and significantly different from zero at 2.5% level or better. The estimates of the effect on likelihood suggest that for a firm with a natural log of market value of equity one standard deviation more than the sample average, the likelihood of hiring an outsider decreases by −5.16% in Model 2 to −7.49% in Model 1.

We had predicted that the more homogeneous the industry, the higher the likelihood of hiring an outsider SCOME. The industry homogeneity coefficients in all four models are positive. However, none of the coefficients is significantly different from zero. The evidence does not support our hypothesis on the relationship between industry homogeneity and the likelihood of hiring an outsider.

As predicted, the more concentrated the industry, the higher the likelihood of hiring an outsider SCOME. The coefficients of industry concentration are positive, and ranges from 0.843 to 1.159 are significantly different from zero at the 5% level or better. A one-standard-deviation increase in industry concentration from the mean of the sample increases the likelihood of hiring an outsider from 4.76% in Model 1 to 6.73% in Model 4.

Our results indicate that poor prior performance increases the likelihood of hiring an outsider SCOME. Model 1 uses the CAR from day −270 to day −21 as the proxy for prior performance. The coefficient of the CAR is −0.160, significantly different from zero at the 2.5% level. Thus, poor stock performance increases the likelihood of hiring an outsider SCOME. For a firm with a CAR one standard deviation above the mean (better performance than the average firm), the likelihood of hiring an outsider drops by 4.59%.

For Model 2, we use an accounting measure of performance instead of a stock return measure. We use the ROA of the sample firm for the most recent fiscal year completed before the date of the announcement of the SCOME appointment. The coefficient of the ROA is −1.129, significantly different from zero at the 1% level. For a firm with an ROA one standard deviation above the mean ROA (better performance than the average firm), the likelihood of hiring an outsider drops by −13.94%.

A firm's ROA is a function of the ROA of its industry as well as the performance of the firm relative to its industry. Model 3 reflects this by replacing the ROA

Table 8 Coefficient Estimates for Probit Regressions Using the Sample of SCOME Appointments

	Model 1		Model 2		Model 3		Model 4	
Independent variables	Coefficient estimates	Effect on likelihood (%)	Coefficient estimates	Effect on likelihood (%)	Coefficient estimates	Effect on likelihood (%)	Coefficient estimates	Effect on likelihood (%)
INTERCEPT	0.801 (2.756)***		0.676 (2.330)**		0.700 (2.403)**		0.546 (1.629)	
Firm_Size (market cap)	−0.099 (−3.614)***	−7.49	−0.066 (−2.401)**	−5.16	−0.071 (−2.551)**	−5.56	−0.073 (−2.543)**	−5.86
Ind_Hom	−0.246 (−0.551)	−1.14	−0.073 (−0.169)	−0.33	−0.047 (−0.108)	−0.21	−0.153 (−0.344)	−0.73
Ind_Conc	0.843 (2.139)*	4.76	0.952 (2.407)**	5.25	1.100 (2.631)***	6.07	1.159 (2.744)***	6.73
CARs (Fama–French four-factor model)	−0.160 (−2.259)**	−4.59						
ROA			−1.129 (−3.363)***	−13.94				
Industry_Adjusted_ROA					−0.925 (−2.524)**	−10.73	−0.665 (−1.501)	−3.80
Median_Industry_ROA					−1.707 (−2.939)***	−7.02	−1.332 (−1.967)*	−4.87
Inventory_Days							0.024 (0.373)	0.81
Industry dummies	Yes		Yes		Yes		Yes	
Number of observations	580		619		619		573	
Pseudo R^2	0.042		0.053		0.055		0.038	
Log likelihood	−352.970		−371.070		−370.310		−350.407	
p-value of chi-square test	0.000***		0.000***		0.000***		0.004***	

Notes. The dependent variable equals 1 if a SCOME is an outsider and 0 if a SCOME is an insider. Effect on the likelihood of hiring an outsider is the derivative of the probability of hiring an outsider calculated at the mean values of all variables times one standard deviation of the variable of interest.

***Significant at the 1% level; **significant at the 2.5% level; *significant at the 5% level; †significant at the 10% level (all tests two-tailed).

of the firm with the industry-adjusted ROA of the firm and median industry ROA. The coefficient of the industry-adjusted ROA is −0.925, significantly different from zero at the 5% level. An increase of one standard deviation in the industry-adjusted ROA decreases the likelihood of hiring an outsider by −10.73%.

Model 4 extends Model 3 by including industry-adjusted days of inventory to the variables included in Model 3. Industry-adjusted days of inventory is a nonfinancial measure of performance and captures a firm's inventory performance relative to its industry. The coefficient of this variable is not significant.

7. Discussion and Summary

This paper uses a sample of 681 public announcements of SCOME appointments to empirically examine three issues. First, we examine the stock market reaction to announcements of appointments of SCOMEs. Second, we provide evidence on the stock price and operating performance before and after the appointment of SCOMEs. Third, we examine the factors that affect the likelihood of whether a SCOME is appointed from inside or outside a firm.

Our analysis indicates that the stock market reacts positively to appointments of SCOMEs and, in particular, most positively to outsider appointments in newly created positions. Creating new TMT positions can be risky because it raises issues of realignment of decision-making rights, governance structure, and power among members of the TMT. The positive stock market reaction to such appointments underscores the increasing importance of SCOM activities in a firm. The positive reaction should also be reassuring to a CEO and other members of the TMT as they contemplate giving the SCOME a seat on the TMT.

The positive stock market reaction to newly created SCOME positions could be due to one of three possible reasons. First, the past performance is poor and the market may now believe that the performance will improve with the creation of the new SCOME position. Second, the past performance is good and the market may expect that the creation of the new SCOME will enable the firm to do even better. Third, the past performance was normal (no evidence of positive or negative abnormal performance) and the market may expect that the creation of the new SCOME will enable the firm to do better in the future. The results support the third reason, because we do not find evidence of positive or negative stock price performance in the year prior to the creation of a new SCOME position. The prior-period operating performance results are also consistent with the prior stock price performance results.

Additional analysis of the prior stock price performance for the subsamples where the new SCOME positions are given to insiders or outsiders indicates that prior performance is normal (no evidence of positive or negative abnormal performance). Thus, the positive stock market reaction suggests that the market expects the firm to do better in the future with the newly created SCOME position.

The stock market reaction is insignificantly different from zero when a new SCOME is appointed to an existing position. When we segment these results by insider or outsider, we see differences in the stock market reaction. The reaction to appointing an outsider in an existing SCOME position is positive and significantly different from zero. However, the reaction to appointing an insider in an existing SCOME position is negative but insignificantly different from zero.

Firms that appoint a new SCOME to an existing position experience statistically significant negative stock price performance in the period prior to the new SCOME appointment. Much of this negative performance is observed in the subsample where an outsider is appointed to an existing position. The prior stock price performance for the subsample where an insider is appointed to an existing position is insignificantly different from zero. The operating performance results are consistent with the prior stock price performance results. Given that only the subsample of existing positions where an outsider is appointed had poor prior performance, appointing an outsider signals to the market that these performance issues may be addressed, and hence the market reaction for this subsample is positive.

The evidence that replacement of existing SCOMEs with outsiders is preceded by poor stock market performance suggests that performance-related disciplinary mechanisms may play a role in the selection of SCOMEs. This result also suggests that firms not only believe that SCOM function is an important contributor to the overall performance of a firm but that SCOMEs are under pressure to deliver.

Stock price analyses in the postannouncement period indicate that there is no further decline in performance, suggesting that the declines in stock price performance observed in the preannouncement period do not continue following the appointment of the new SCOME. The results indicate that new SCOME appointments are followed by positive stock price stock performance in the subsample of appointing insiders as SCOMEs.

There is no further decline in operating performance following the appointment of new SCOMEs. Recall that before the appointments of new SCOMEs, the rate of improvement in performance of the sample firms was lower than the benchmark firms in some subsamples. However, after the appointments of new SCOMEs, the rate of improvement in performance of the sample firms is the same as that of the benchmark firms in these subsamples. This could be viewed as a relative improvement in performance.

We also provide evidence on the factors that affect the likelihood of whether a SCOME is appointed from inside or outside a firm. The evidence is consistent with our hypothesis that larger firms are less likely to hire an outsider as the new SCOME. As predicted, the more concentrated the industry, the higher the likelihood of hiring an outsider SCOME. Poor prior performance increases the likelihood of hiring an outsider SCOME. Industry homogeneity does not affect the likelihood of hiring an outsider. These results suggest practices that firms have followed in appointing SCOMEs from inside or outside the firm, which could serve as guidelines for firms in their search for SCOMEs.

There are a number of directions for future research. An interesting extension would be to track the firms that have appointed new SCOMEs to identify the changes they have made in SCOM strategies and practices and when these changes are made, and to link these changes to performance. Another interesting research issue would be to link the characteristics of the individual SCOME to performance. Such characteristics may include firms where a SCOME had prior experience, diversity of experience, the number of years of experience, education, and other relevant factors. This research would help firms to identify the profile of a SCOME who is likely to deliver improved performance. Finally, given that we have evidence from different empirical studies of functional appointments (such as CFO, CIO, CMO, and SCOME) that creating new positions is associated with positive stock market reaction, developing a theory on why this phenomenon occurs could be an interesting issue for future research.

Acknowledgments

The authors thank the Social Sciences and Humanities Research Council of Canada for supporting this study. The authors thank Serguei Netessine, the associate editor, and three anonymous reviewers for their extremely helpful feedback. The authors are also grateful to Brian Jacobs and seminar participants at the Indian School of Business, London Business School, National University of Singapore, University of North Carolina at Chapel Hill, University of Illinois at Urbana–Champaign, and Western University for helpful comments on this work.

Appendix A. Estimating Abnormal Returns

The four-factor model posits a linear relationship between the stock return and four factors over a given time period as

$$R_{it} = \alpha_i + R_{ft} + \beta_{i1}[R_{mt} - R_{ft}] + \beta_{i2}SMB_t + \beta_{i3}HML_t + \beta_{i4}UMD_t + \varepsilon_{it}, \quad \text{(A1)}$$

where R_{it} is the return of stock i on day t, α_i is the intercept of the relationship for stock i, R_{ft} is the risk-free return on day t, R_{mt} is the return on the market portfolio on day t,

SMB_t is the small-minus-big size portfolio return on day t, HML_t is the high-minus-low book-to-market portfolio return on day t, UMD_t is the past-one-year winners-minus-losers stock portfolio return on day t, and ε_{it} is the error term.

We estimate the expected return for each sample firm using data from a 200-day estimation period that begins on day −210 and ends on day −11. We end the estimation period two weeks (10 trading days) prior to the event day to shield the estimates from the effects of the announcement and to ensure that any nonstationarity in the estimates is not an issue. We require that a firm have a minimum of 40 stock returns during the estimation period of 200 trading days. Similar estimation periods are common in the literature (e.g., Hendricks and Singhal 2003, 2009). Using ordinary least squares regression over the estimation period of 200 trading days, we estimate the parameters of the four-factor model (Equation (1)) denoted by $\hat{\alpha}_i$, $\hat{\beta}_{i1}$, $\hat{\beta}_{i2}$, $\hat{\beta}_{i3}$, $\hat{\beta}_{i4}$, and $\hat{S}^2_{\varepsilon_i}$ (the variance of the error term ε_{it}).

The abnormal return A_{it} for firm i on day t is the difference between the actual and the expected return. The abnormal return from the four-factor model is

$$A_{it} = R_{it} - \big(\hat{\alpha}_i + R_{ft} + \hat{\beta}_{i1}[R_{mt} - R_{ft}] + \hat{\beta}_{i2}SMB_t + \hat{\beta}_{i3}HML_t + \hat{\beta}_{i4}UMD_t\big). \quad \text{(A2)}$$

The mean abnormal return for day t is given by

$$\bar{A}_t = \sum_{i=1}^{N} \frac{A_{it}}{N}, \quad \text{(A3)}$$

where N is the number of announcements in the sample. To test the statistical significance of the mean abnormal return in Equation (3), each abnormal return A_{it} is divided by its estimated standard deviation $\hat{S}_{\varepsilon_i}$ to yield a standardized abnormal return. Since the abnormal returns are assumed to be independent across events, we have from the central limit theorem that the sum of the N standardized abnormal returns is approximately normal with mean 0 and variance N. Thus, the test statistic TS_t for day t is calculated as

$$TS_t = \sum_{i=1}^{N} \frac{A_{it}/\hat{S}_{\varepsilon_i}}{\sqrt{N}}. \quad \text{(A4)}$$

The CAR for a given time period $[t_1, t_2]$ is

$$CAR[t_1, t_2] = \sum_{t=t_1}^{t_2} \bar{A}_t. \quad \text{(A5)}$$

The test statistic TS_e for a multiple-day period is derived in a manner similar to that for a single day:

$$TS_e = \sum_{i=1}^{N} \frac{(\sum_{t=t_1}^{t_2} A_{it})/\sqrt{\sum_{t=t_1}^{t_2} \hat{S}^2_{\varepsilon_i}}}{\sqrt{N}}. \quad \text{(A6)}$$

Appendix B. Estimating Abnormal Operating Performance

Abnormal operating performance is defined as actual performance with the new SCOME appointment (expected performance if the new SCOME had not been appointed).

The performance effects as a result of the new SCOME appointment are reflected in the financial performance reported by the firms. However, the expected performance had a new SCOME not been appointed is unobservable and has to be estimated. The most commonly used and recommended approach in studies that estimate operating performance effects is to first estimate the expected performance by using benchmark firms that are similar to the sample firms and then using the performance of these benchmark firms as an estimate of the expected performance.

Our approach is based on the matching principles advocated by Barber and Lyon (1996). Sample firms are excluded from the set of benchmark firms used to generate the benchmark groups. We identify benchmark firms using the following steps.

Step 1. For each sample firm we identify all firms that have the same two-digit SIC code as that of the sample firm and whose ROA in the starting year of the measurement period is within 90% to 110% of the sample firm. All firms that meet these criteria form the benchmark group for the sample firm. The 90% to 110% range on performance is used because this range provides a tight match on performance that yields well-specified test statistics (Barber and Lyon 1996).

Step 2. If no firms are found in Step 1, then we attempt to match performance within the 90% to 110% performance range using all firms in the same one-digit SIC code.

Step 3. If no firms are found in Step 2, then we attempt to match performance within the 90% to 110% performance range without regard to SIC code. The basic idea in Steps 2 and 3 is to try to match most of the firms without compromising on the tightness of the matches on performance.

Step 4. If no firms are found in Step 3, then we choose the matching firm that is closest in performance without regard to SIC code. The idea here is to compromise on the tightness of the performance matching to avoid losing sample firms.

Step 5. To control for size, we take a sample firm's benchmark group, generated in Steps 1–4, and include only those firms that are within a factor of 50 of the total assets of the sample firms. This removes some firms identified in Steps 1–4 that are very poor matches on size when compared with the size of the sample firm.

Since outliers can unduly influence the mean values, particularly when accounting measures are used, we use the median performance of the firms in the comparison group to estimate the performance of the benchmark (Barber and Lyon 1996). Consistent with the literature on operating performance studies, we first estimate a sample firm's expected performance if the new SCOME had not been appointed as the performance of the sample firm in the base period plus the change in median performance level of the benchmark firms over the period of interest.

The basic idea is that change in the median performance level of the benchmark is the expected or normal change in the sample firm's performance in the absence of a SCOME appointment. The abnormal performance for a sample firm is defined as the sample firm's actual performance minus the sample firm's expected performance.

Appendix C. Calculating Industry Homogeneity

For a given month X, the proxy for industry homogeneity is calculated by using the following three steps:

Step 1. We identify all firms that belong to a particular three-digit SIC code in month X. For each firm in a three-digit

SIC code, we estimate the monthly abnormal returns using the market model for 60 months. This 60-month period includes month X and 59 months before month X. For a firm to be included in this estimation, it must have at least 30 months of data over the 60-month period. The monthly abnormal returns are the residuals from the following regression equation:

$$R_{iM} = \alpha_i + \beta_i R_{mM} + \varepsilon_{iM}, \quad \text{(C1)}$$

where R_{iM} is the return of stock i in month M, α_i is the intercept of the relationship for stock i, β_i is the slope of the relationship for stock i with respect to the market return, R_{mM} is the market return in month M, and the error term ε_{it} is the portion of the return that cannot be explained by the market and is the abnormal return of stock i in month M.

Step 2. For each firm Y in a three-digit SIC code, we correlate Y's monthly abnormal returns, which are estimated in Step 1, with an equally weighted portfolio of monthly "industry" abnormal returns of all other firms that are in the same three-digit SIC code as Y. This gives one value of the correlation coefficient. We exclude Y's abnormal returns in computing the equally weighted portfolio of monthly "industry" abnormal returns to prevent any bias if the number of firms in the industry is small. If there are N firms in the industry, we repeat this for each firm in the industry and estimate N correlation coefficients, one for each firm.

Step 3. The average of the N correlation coefficients estimated in Step 2 is our proxy of industry homogeneity. This average can be interpreted as the average correlation between the firm and its industry after the effect of the overall stock market movements is removed. The higher the average correlation, the more homogeneous the industry.

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