



Paper to be presented at the DRUID Academy Conference 2016 in Bordeaux, France on January 13-15, 2016

## **Impact of Top Management Replacement on Employees' Mental Health and Turnover**

**Juan Martin Carriquiry**  
AAU  
Business and Management  
jmc@business.aau.dk

**Michael S. Dahl**  
Aarhus University  
Department of Management  
msd@mgmt.au.dk

### **Abstract**

Incumbent Firms frequently replace top management team member (TMT-member) through internal or external recruitments. Studies have found that these replacements have effects on the strategy and organization, which changes as the new members add their stamp on the firm. Empirically, this has been found to affect the performance of firms, but less is known about the impact on employees. This paper takes a point of departure in this literature and studies the effect of top management team changes on the mental health and turnover of employees. Following the argument that new top management team members alter the organization, we hypothesize that internally recruited new TMT-members are likely to have the smallest effect on employees. On the other hand, we argue that externally recruited new TMT-members are more likely to change the strategy and organization leading to disruptions for employees, leading these to leave the firms or suffer from mental health problems, such as insomnia, anxiety and depression. Using unique data for Denmark linking TMT-member recruitment of all Danish firms with the prescription drug and career histories of their employees, we test these two hypotheses in a panel study. We find that recruiting new TMT-member from within the firm increases the probability that employees will leave the firm. The impact of external recruitment, on the other hand, increases both the probability of employees leaving the firm and their risk of receiving stress-related prescription drugs for insomnia, anxiety and depression. This study calls for increased attention on the TMT recruitment processes and their effects on the evolution of firms.

# Impact of Executive Succession on Employees' Mental Health and Attrition\*

JUAN MARTIN CARRIQUIRY  
†Aalborg University

MICHAEL S. DAHL  
Aarhus University

December 19, 2015

**Abstract:** Incumbent firms frequently replace top management team member (TMT-member) through internal or external recruitments. Studies have found that these replacements have effects on the strategy and organization, which changes as the new members adds their stamp on the firm. Empirically, this has been found to affect the performance of firms, but less is known about the impact on employees. This paper takes a point of departure in this literature and studies the effect of top management team changes on the mental health and turnover of employees. Following the argument that new top management team members alter the organization, we hypothesize that internally recruited new TMT-members are likely to have the smallest effect on employees. On the other hand, we argue that externally recruited new TMT-members are more likely to change the strategy and organization leading to disruptions for employees, causing employees to leave the firms or suffer from mental health problems, such as insomnia, anxiety and depression. Using unique data for Denmark linking TMT-member recruitment of all Danish firms with the prescription drug and career histories of their employees, we test these two hypotheses in a panel study. We find that recruiting a new TMT-member from within the firm increases the probability that employees will leave the firm. The impact of external recruitment, on the other hand, increases both the probability of employees leaving the firm and their risk of receiving stress-related prescription drugs for insomnia, anxiety and depression. This study calls for increased attention on the TMT recruitment processes and their effects on the evolution of firms.

---

\*This project was funded by the Danish Social Science Research Council at the Danish Agency for Science, Technology and Innovation (Grant 09-065803). We are indebted to Jimmi Nielsen, Aalborg Psychiatric Hospital, Aarhus University Hospital, for advice and help with the identification of symptoms of stress and their related prescription drugs. We thank Olav Sorenson and Pernille Gjerløv-Juel for their comments on earlier versions of this paper. The usual disclaimer applies.

†Corresponding author. Fibigerstræde 4, DK-9220 Aalborg Ø, Denmark, md@business.aau.dk

## Introduction

Executive succession has been a major topic in management research for decades. In particular, the consequences of changes at the top of the organization has been an especially fruitful field (Beatty and Zajac 1987; Haveman 1993; Tushman and Rosenkopf 1996; Khurana and Nohria 2000; Leker and Salomo 2000; Shen and Cannella Jr 2002). There is a broad recognition among these authors that something changes in the organization when TMT members are replaced, and that performance is subsequently affected, whether we consider stock prices, hazard rates or accounting variables. These variations in post-succession performance have been attributed to the strategic organizational changes that ensue the succession event (Tushman and Romanelli 1985; Virany et al. 1992; Wiersema 1992; Weisbach 1995; Miller 1993). Others, however, have found that only certain types of succession lead to major organizational changes (Shen and Cannella Jr 2002; Barron et al. 2011; Quigley and Hambrick 2012).

The organizational changes that follow executive succession may have profound effects on the rest of the organization. In particular, organizational behaviour theories argue that change can harm the emotional and psychological well-being of employees (ref. needed). Moreover, the satisfaction and productivity of employees has recently been found to be affected by their mental health (Harter et al. 2002; Adler et al. 2006; Brenninkmeijer et al. 2008). Impoverished employee psychological well-being and working environment may increase workplace conflicts and unrest, which can decrease labor productivity and translate into significant financial losses (Krueger and Mas 2003; Mas 2008). In addition, depression decreases the focus and productivity of employees while also increasing absenteeism Wang et al. (2004); Stewart et al. (2003). Likewise, employee turnover has been associated with lower level of business unit and firm performance (Kacmar et al. 2006; Shaw et al. 2005; Waldman et al. 2004).

Despite the growing interest in the well-being effects of organizational change (Dahl 2011; Ferrie et al. 1998; Bordia et al. 2004), the effect of TMT recruitment in particular has not yet been studied. Studying the effect of this organizational decision is relevant since management scholars should be

aware of the implications of different TMT replacement choices. Externally recruited top managers may have a significantly different impact on the rest of the organization than internally recruited top managers. External recruiting might be associated with stronger mandates for change, or might simply bring along diverse cognitive frameworks into the organization. Internally recruited top managers might have been socialized into organizational routines and cognitive frameworks, and may thus signal continuity. Lastly, recruiting several TMT members simultaneously may signal a stronger commitment pursuing major organizational changes. Given the potential impact of different types of TMT recruitment on employee attrition and well-being, it becomes relevant to empirically study the phenomenon.

In this paper, we study the effect of new TMT recruitment on employee attrition and stress. To this end, we make use a unique database product of the merger between the Integrated Database for Labor Market Research (referred to by its Danish acronym, IDA) and the Danish Medical Database, both maintained by Statistics Denmark. The IDA provides demographic and work-related information on all individuals legally residing in Denmark, allowing us to track individuals' employment histories. The medical database provide information on drug prescriptions for all individuals. This dataset, which has been previously used in Dahl (2011); Pierce et al. (2013), provides complete and objective data on employee mobility and mental health. Through a Difference-in-Differences logistic regression model, we find that both internal and externally recruited new TMT members have a significant and positive effect in terms of employee attrition. Hiring more than one new TMT member does not have an additional effect. Only externally recruited TMT members, however, have a significant effect on employee stress.

These findings contribute to the literature on executive succession in several ways. It shows that there is effectively a link between succession and employee attrition. It also confirms that the type of succession matters significantly for both turnover and stress. External succession is associated with higher employee attrition and stress probabilities, indicating that outsiders may have a destabilizing effect on employees' mental well-being.

The rest of the paper is structured in the following way. Firstly, we discuss the relation between

TMT recruitment and organizational change. After that we delve into the effect of organizational change and employee stress and attrition. We then present the methods and data used in the empirical study in detail, followed by the regression results. Lastly, we discuss the results in light of the extant literature and derive further implications.

## **Succession and change**

Executive succession events are often generational successions with routine passing-the-baton, whereby the former executives retire and are replaced by younger members of the organization. Other times, however, some members of the team, such as the CEO, presidents or vice-presidents, are suddenly replaced. The latter case, known as non-routine succession, has attracted more attention in recent years, since it has often been associated with the need for firms to change course of action (ref. needed). According to the upper echelon theory, strategic decisions are shaped by the entire management team, and not only by the CEO (Hambrick and Fukutomi 1991; Shen and Cannella Jr 2002). Thus, events of top executives' succession, and not only that of the CEO, may in theory have effects both for the firm and its employees. Studies have found that changes in top management have profound consequences on the strategy, structure, competencies, and processes in the firm (Miller 1993; Wiersema 1995; Virany et al. 1992). New managers often have little incentive to keep the status quo at the company, and are therefore more likely to promote change than their predecessor (Miller 1993; Tushman and Rosenkopf 1996). Redistribution of power, redesign of control systems, revision of practices, and new information systems are likely to be introduced following succession (Miller 1993).

There are a number of reasons why new executives may change the organization. One line of arguments suggests that the cognitive bases on which executives operate are largely based on their previous experience, and therefore altering the composition of the TMT will affect the cognitive capabilities of management. Past experience influences the mental schemas and models on which executives operate, and thus replacing executives may shape their abilities to identify issues, search

for information, specify alternatives and select appropriate courses of action (Hambrick and Fukutomi 1991), Wiersema (1992). Managerial decisions based on new cognitive schemas are less likely perpetuate previous strategies and policies, and more inclined to introducing change than the old ones.

Alternatively, it is possible that future strategies will be moulded not only by the "newness", but also by the degree of diversity that new members bring into the TMT. Experience at the organization generates a common set of codes, values and interpretations of reality that will influence future decisions. In general, prolonged exposure of executives to the organizational culture will lead to higher relative homogeneity among its members. Succession increases the relative heterogeneity of the top management team, which makes more likely the diversion from past courses of action (Wiersema 1992, 1995). New executives that have not been part of the organization before are most likely to bring significant diversity, since they do not share a set of common experiences with the rest of the TMT.

Yet another source of change might be explained by the tendency of some managers to escalate investment in projects despite the negative feedback. Brockner (1992) argues that sometimes managers have a tendency to reinforce commitment to their past decisions, to the point that they might get locked-into trajectories. He offers two possible explanation for that: first, from expectancy theory, he suggests that the decision-maker calculates the probability of goal attainment if future investment takes place, relative to the value of the goal, to estimate a utility of further investments. The second one is that people simply do not like to admit that they are wrong, and thus show strong commitment to past actions. In either case, this unwillingness to accept that resources have been allocated incorrectly will lead to escalating the investment in projects where feedback has not been positive (Brockner 1992). New executives do not feel such commitment to past decisions, and so succession may provide the opportunity to break away from these trajectories.

Lastly, successors might often be expected to exert change and thus be given large autonomy for deciding and implementing such change. This is a crucial aspect of succession, since organizations tend to develop a set of values and norms over time that are increasingly difficult to change (Han-

nan et al. 2003). Executives often become embedded in this organizational inertia, which serves to legitimize and institutionalize current practices, hardly carrying out significant organizational changes (Wiersema 1992). Succession may provide the opportunity to overcome these inertial forces and redirect the organization (Tushman and Romanelli 1985; Tushman and Rosenkopf 1996), particularly if the new executives come from outside the organization. This might be the case because executives with no experience in the organization will have more discretionary power to alter current practices and challenge existing power basis to which they have no ties. Executives that have climbed their way up the hierarchical structure have probably learn to manage the power structures of the organization, and might thus be less keen on challenging the *status quo*.

### **Change, stress and turnover**

The fundamental and wide-spread organizational changes that follow executive succession are likely to have disruptive effects on employees' emotional and psychological state. There are several reasons why this might be the case. A line of argument proposed by some scholars, notably organizational ecologists (Hannan et al. 2003), argues that organizations are inherently resilient to change. Altering well established routines and behavioral patterns is a destabilizing process that has uncertain (stochastic) outcomes. According to Hannan et al. (2003), decision-makers have a tendency to underestimate the true costs of change and the time needed to complete it. Since the feedback effects of change are largely unpredictable, further (unexpected) changes are often needed to correct the deficiencies of prior changes, thus setting a stage of instability and uncertainty within the organization.

Employees often respond emotionally to the uncertainty that surrounds the changes taking place at the firm, and these responses can be so strong as to be considered traumatic experiences (Vakola and Nikolaou 2005). These responses can manifest in increased levels of stress and depression (Bordia et al. 2004; Hellgren and Sverke 2003; Dahl 2011; Ferrie et al. 1998). Challenging "the way things are done in here" increases the fear and uncertainty of employees on their ability to cope with new methods and situations (Vakola and Nikolaou 2005). According to Bordia et al.

(2004), it is the uncertainty (i.e. lack of knowledge about current and future events) caused by organizational change that leads to employee stress. Uncertainty about future direction of the company is likely to cause uncertainty at the structural level, which will ultimately translate into job-related uncertainty. The latter, according to Bordia et al. (2004), is the most damaging for the psychological well-being of employees. Uncertainty about the new role of employees is likely to generate frustration, stress, depression, and burn-out on the individuals during and following strategic changes in the organization.

A second line of argument suggests that emotional responses to change can be caused by the breach of an implicit psychological contract between employees and employers. Employees implicitly form a set of expectations regarding the mutual obligations with their employers, which might be violated in the process of change (Morrison and Robinson 1997). Violation can lead to reduced efforts or exiting the organization, or manifest in more emotional terms, such as expressions of anger and distress, or even physical disturbances, e.g. increased blood pressure and stress (Morrison and Robinson 1997).

Dahl (2011); Ferrie et al. (1998) provide probably the only large-scale empirical studies on the effects of organizational change on employee well-being. Ferrie et al. (1998) found that individuals in organizations that undergo major changes are more likely to experience an increase in long-standing illness, adverse sleep patterns, and minor psychiatric morbidity. Similarly, Dahl (2011) found that organizational change has significant effects on the level of stress and depression of employees, especially if they work in firms that undergo broad change simultaneously in several dimensions. We thus predict that employees working in organizations undergoing succession will have a relatively higher probability of becoming stressed after the succession than before the succession.

*Hypothesis 1: The probability of employees becoming stressed will be higher following executive succession.*

Not all types of succession are the same though. Successions may differ in several dimensions, but the most often identified in literature are the number of TMT members replaced (Virany et al.



1992; Barron et al. 2011) and the previous exposure of new executives members to the organization (Barron et al. 2011; Shen and Cannella Jr 2002; Wiersema 1995). When multiple members of the TMT are replaced in a short period, the more accentuated the organizational changes will be, since it is likely that the variation of cognitive basis will be stronger and commitment to past action will be weaker. Moreover, it is also likely that the replacement of several top executives signals a desire for change, and thus new managers will be given greater discretion to change the course of action, strategies and operating procedures (ref. needed). Therefore, we expect that the more executives are replaced within the same year, the stronger will the organizational changes be, and thus the strongest the impact on employees too.

*Hypothesis 2: The higher the number of new TMT members, the higher the probability of employees becoming stressed will be.*

To the extent that they determine the magnitude of organizational change, the demographic characteristics of new TMT members are expected to influence the impact of succession on employees. In particular, research indicates that organizational background, i.e. whether the new executive comes from inside or outside the organization, is the most relevant factor for determining the extent of the ensuing organizational change (Barron et al. 2011; Shen and Cannella Jr 2002; Wiersema 1995). Internally recruited executives will therefore be expected to engage in relatively less organizational change than externally recruited executives. We thus predict that external succession will have a stronger positive effect on the probability of employee stress than internal succession.

*Hypothesis 3: Employees at firms that experience succession by an external individual will be more likely to become stressed than employees in general.*

It is possible, however, that the selection of executives from inside the firm would cause internal power struggles that might instead lead to higher levels of stress (Expand).

The executive succession and the ensuing uncertainty surrounding organizational changes are

likely trigger different reactions among employees. While some workers may develop stress symptoms, succession is also likely to translate into higher levels of employee turnover, both voluntary and involuntary. Redistributing resources will almost invariably result in the redundancy of some skills and operations, which means that some employees will be let go by the organization. The uncertainty that ensues organizational change may also erode organizational commitment and increase levels of stress, dissatisfaction, conflict and burn out. Although there is a multitude of factors that might affect voluntary turnover by employees (for a review see Cotton and Tuttle (1986); Griffeth et al. (2000)), it is expected that at least some employees will look for alternative employment options. We therefore expect executive succession to reflect subsequently on employee turnover rates, so that:

*Hypothesis 4: The probability of employees leaving the firm will be higher after succession than before succession.*

## Methods and Data

Tracking employee mobility patterns across multiple organizations simultaneously can be hard to achieve. Yet measuring the mental health effects of organizational events is even a more challenging endeavour. Widely-used techniques, such as surveys and interviews, can suffer from severe limitations in the study of such sensitive matter, since individuals may avoid revealing information regarding their mental health condition. Moreover, publicly available, objective data on the mental health of individuals is hardly available.

This paper overcomes these limitations, by means of a unique matched dataset that provides information on employee mobility patterns, on the one hand, and the prescriptions of stress-related medication on the other. This dataset has been previously used in Dahl (2011); Pierce et al. (2013). It is the product of the merger between the Danish Integrated Database for Labour Market Research (IDA) and a Danish database on medical prescriptions for all individuals in Denmark.

In this way, we are able to observe a) employee mobility patterns to measure employee attrition, and b) the number of prescriptions for medicines related to stress and depression, for measuring negative employee stress. The individual data on mobility and medical prescriptions is additionally matched with firm-level datasets, to identify TMT recruitment. Descriptive statistics of the sample can be found on Table 1.

Table 1: Descriptive Statistic

Variable name	Overall		New TMT		New ext. TMT		No new TMT	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>Employees variables</i>								
Leaves	0.141	0.348	0.140	0.347	0.138	0.345	0.179	0.383
Stress	0.052	0.223	0.052	0.223	0.054	0.225	0.046	0.209
Female empl	0.313	0.464	0.313	0.464	0.326	0.469	0.315	0.465
Empl age	39.14	11.35	39.14	11.35	39.28	11.21	37.08	12.00
Ln (Empl labor market exp)	2.488	0.694	2.488	0.694	2.494	0.691	2.327	0.746
Ln (Empl firm tenure)	1.426	0.989	1.427	0.989	1.416	0.987	1.086	0.994
Full time empl	0.870	0.336	0.870	0.336	0.877	0.329	0.801	0.399
Blue collar empl	0.754	0.431	0.754	0.431	0.733	0.442	0.809	0.393
Empl 1st gen immigrant	0.050	0.217	0.050	0.217	0.052	0.222	0.031	0.173
Empl 2st gen immigrant	0.004	0.065	0.004	0.065	0.004	0.067	0.006	0.075
Empl # of kids (0-5 yrs)	0.270	0.577	0.270	0.577	0.274	0.581	0.245	0.552
Empl # of kids (6-12 yrs)	0.288	0.608	0.289	0.608	0.292	0.611	0.250	0.566
Empl # of kids (13-17 yrs)	0.166	0.441	0.166	0.441	0.166	0.441	0.134	0.393
Employee-year obs	4,133,619		4,124,054		3,288,549		9,565	
<i>Firm variables</i>								
Leave (firm-level average)	0.151	0.121	0.151	0.121	0.153	0.119	0.175	0.142
Stress (firm-level average)	0.050	0.049	0.050	0.049	0.051	0.045	0.046	0.049
New TMT member	0.925	0.263	0.929	0.250	0.946	0.227		
Time since new TMT	0.379	1.119	0.380	1.121	0.324	0.995		
New external TMT member	0.449	0.497	0.451	0.498	0.757	0.429		
Time since new external TMT	0.759	1.591	0.762	1.594	1.278	1.898		
Average TMT age	48.03	7.606	48.03	7.606	46.78	7.135	50.26	7.524
Average TMT tenure	9.621	6.200	9.621	6.200	7.825	5.560	9.972	6.335
TMT size	3.150	3.143	3.151	3.144	3.971	3.639	1.222	0.732
# of new TMT members (t)	3.041	3.066	3.042	3.066	3.828	3.551		
Firm age	13.70	7.783	13.71	7.780	13.65	7.904	10.55	7.884
Firm founded before 1980	0.306	0.461	0.306	0.461	0.312	0.463	0.204	0.403
Firm size	57.45	116.9	57.57	117.1	76.83	146.9	29.55	18.62
Firm-year obs	58,742		58,724		36,293		18	

## Variables

**Treatments** There are two types of possible treatments that employees can be exposed to in this study: they can face the replacement of a TMT member by someone from inside the organization (*New TMT member*), or by someone from outside the organization (*New External TMT member*). Both of the treatments take the value 1 if the individual is treated, and zero otherwise. Data for the treatment comes from the IDA database, and TMT membership is defined according to ILO ISCO classification.

**Stress** The first dependent variable in this study is a measure of negative employee stress. Data on stress comes from the Danish Medical Database, which is maintained by Statistics Denmark. The prescriptions of medicines typically used to treat stress-related symptoms (insomnia, anxiety, and depression) were traced before and after the treatment. These drugs are selected according to their codes provided by the Anatomic Therapeutic Chemical (ATC) classification system, provided by the World Health Organization Collaborating Center for Drug Statistics Methodology. In particular, we identify drugs related to shorter-term insomnia (benzodiazepine-related medication -ATC: N05CF) and longer term insomnia (benzodiazepine derivatives -ATC: N05BA), on the one hand, and anxiety and depression (selective serotonin re-uptake inhibitors- ATC: N06AB) on the other. The variable *Stress* is a dummy variable, taking the value 1 if the individual was prescribed with stress-related medication that year, and zero otherwise.

**Turnover** The second dependent variable in this study is employee turnover. The data in this case comes from Danish Integrated Database for Labour Market Research (IDA), also maintained by Statistics Denmark. Employee turnover is a dummy variable, taking the value 1 if the employee leave the firm, and zero otherwise.

**Independent variables** At the individual level, a number of demographic variables were controlled for. These include years of age, gender (1 female, 0 male), number of kids (age 0-5, 6-12,

13-17), first and generation immigrant. Job-related individual-level variables include lagged gross income (log, Danish Kroner), lagged years of job tenure, and lagged labour market experience. At firm level, firm size, age, and industry (2-digit NACE code) are controlled for. We also control the size, age and tenure of the Top Management Team.

**Endogeneity** Methodological concerns that fall under the term *endogeneity* permeate social science research. In the case of this study, the main concern is that of simultaneous causality: that a third variable is causing both the treatment (TMT recruitment) and the consequences (stress and attrition). The most evident variable in this case would be the performance of the firm prior to the recruitment of new TMT members. In other words, employees may be under stress or leaving the firm due to poor organizational performance, which also causes the replacement of top executives. This methodological concern can often be minimized by of means randomized controlled trials or natural experiments. Since none of these alternatives are available, we must utilize other imperfect yet reliable tool to reduce endogeneity.

In this paper, we will deal with endogeneity in two different ways. First, since prior firm performance is the most salient factor that might influence both treatment and effect in this case, we will control for firm performance in the periods before the new TMT members are recruited. This should capture at least in part the effect of previous firm performance on the outcome (attrition and stress). Second, we will apply Propensity Score Matching (PSM) to form the sample, where prior firm performance will be included in the matching model. This matching method allows to basically randomize the sample according to observed variables. It is imperfect because it cannot randomized what is not observed. Assuming that all the main variables determining the treatment are either observed or highly correlated to those observed (conditional ignorability), PSM approximates random assignment.

It is important to notice, however, that none of the two approaches to deal with endogeneity have been implemented yet in this version of the paper.

## Results

### Employee Turnover

Table 2 is a logistic regression on the probability of employees leaving the firm following the addition of new members to the TMT. In Model 1, we find that there is no general effect of a *New TMT member* on employee attrition. Model 2, on the other hand, shows that *new external TMT members* do increase the probability that an employee leaves the firm by about 14 percent ( $e^{0.13}=1.138$  odds). In addition, this model shows that the longer since the *Time since new external TMT*, the smaller the effect on the probability of leaving the firms. This means that employees are more likely to leave the firm when a new external TMT-member is appointed, yet this effects decreases in the years after. Model (3) adds Model (1) and Model (2) together and confirms the previous findings. Model (4) includes two additional variables: *No. of new TMT members (t)* and *No. of new external TMT members (t)*. These are count variables for the number of new TMT members and of external TMT members, respectively. None of the two variables have a significant effect on employee attrition. This set of model, therefore, confirms only the correlation between new external TMT members and attrition.

Table 2: Probability of Employee Leaving: Logistic Regression

	(1)	(2)	(3)	(4)
New TMT member	0.066		0.019	0.011
	[0.090]		[0.092]	[0.093]
Time since new TMT	0.034		0.042	0.047
	[0.032]		[0.035]	[0.035]
New external TMT member		0.130***	0.132***	0.131***
		[0.021]	[0.021]	[0.022]
Time since new external TMT		-0.015***	-0.015***	-0.015**
		[0.005]	[0.005]	[0.006]
No. of new TMT members (t)				0.007
				[0.006]
No. of new external TMT members (t)				0.001
				[0.011]
Average TMT age	-0.003***	-0.003**	-0.003**	-0.003**
	[0.001]	[0.001]	[0.001]	[0.001]
Average TMT tenure	-0.003**	-0.001	-0.001	-0.001
	[0.001]	[0.002]	[0.002]	[0.002]
TMT size	-0.003*	-0.005**	-0.005**	-0.011*
	[0.002]	[0.002]	[0.002]	[0.006]
Firm age	0.007***	0.008***	0.008***	0.008***
	[0.002]	[0.002]	[0.002]	[0.002]
Firm founded before 1980	-0.090***	-0.094***	-0.094***	-0.094***
	[0.023]	[0.025]	[0.025]	[0.025]
Firm size	0.000	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Female empl	-0.146***	-0.146***	-0.146***	-0.146***
	[0.009]	[0.009]	[0.009]	[0.009]
Empl age	-0.032***	-0.032***	-0.032***	-0.032***
	[0.000]	[0.000]	[0.000]	[0.000]
Ln (Empl labor market exp)	0.033***	0.022***	0.022***	0.022***
	[0.007]	[0.007]	[0.007]	[0.007]
Ln (Empl firm tenure)	-0.502***	-0.494***	-0.494***	-0.494***
	[0.007]	[0.007]	[0.007]	[0.007]
Full time empl	0.134***	0.121***	0.120***	0.120***
	[0.010]	[0.010]	[0.010]	[0.010]
Blue collar empl	0.021	0.025*	0.025*	0.025*
	[0.013]	[0.014]	[0.014]	[0.014]
Empl 1st gen immigrant	-0.259***	-0.262***	-0.262***	-0.262***
	[0.015]	[0.016]	[0.016]	[0.016]
Empl 2st gen immigrant	-0.021	-0.019	-0.019	-0.019
	[0.023]	[0.024]	[0.024]	[0.024]
Empl no. of kids (0-5 yrs)	0.019***	0.018***	0.018***	0.018***
	[0.003]	[0.004]	[0.004]	[0.004]
Empl no. of kids (6-12 yrs)	0.005*	0.005*	0.005*	0.005*
	[0.003]	[0.003]	[0.003]	[0.003]
Empl no. of kids (13-17 yrs)	0.013***	0.015***	0.015***	0.015***
	[0.005]	[0.005]	[0.005]	[0.005]
Constant	-0.136	-0.241***	-0.263**	-0.256**
	[0.108]	[0.067]	[0.113]	[0.113]
Industry dummies, 2-digit	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.07	0.07	0.07	0.07
Log-likelihood	-1,325,747	-1,236,287	-1,234,687	-1,234,679
Observations	3,477,624	3,347,178	3,345,053	3,345,053

Standard errors are clustered at the level of the firm and reported in brackets.

Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Yet Table 2 only mapped the correlation between new TMT members and employee attrition. This study, however, aims at uncovering the *change* in probabilities. To that end, we then run a set of Difference-in-Differences logistic regression. The results are shown in Table 3. The outcome variable here is also the probability of employee departure. The main difference with the previous models from Table 2, is that now we incorporate a *Post* variable, which indicates the period following the treatment (i.e. new TMT member). The interaction effect *Post x New ...* are the key variable to study here. They estimate whether the probability of employees leaving the firm changes in the years after the event -in this case, new TMT member- with respect to the control group. Table 3 shows that the probability that employees leave the firm will increase after a new TMT member is hired when compared to the control group, both in general (Model (5)) and if recruited from outside the firm (Model (6)). In either case, employees are less likely to leave in the period before the TMT replacement than in the period after. Yet the *post* effect seems to be even stronger in the case of new *external* TMT members. The results of Models (5) and (6) are further confirmed in Models (7), which merges them together. This is evidence that the replacement of TMT members leads to higher probability of employee turnover, supporting H4.

Table 3: Probability of Employee Leaving: Differences-in-Differences, Logistic Regression

	(5)	(6)	(7)	(8)
New TMT member (all years)	-0.618*** [0.205]		-0.638*** [0.203]	-0.637*** [0.203]
Post x New TMT member	0.186** [0.088]		0.214** [0.091]	0.206** [0.092]
New external TMT member (all years)		-0.413*** [0.027]	-0.409*** [0.027]	-0.410*** [0.027]
Post x New external TMT member		0.381*** [0.026]	0.379*** [0.026]	0.380*** [0.027]
No. of new TMT members (t)				0.006 [0.006]
No. of new external TMT members (t)				-0.002 [0.010]
Average TMT age	-0.003*** [0.001]	-0.003*** [0.001]	-0.003*** [0.001]	-0.003*** [0.001]
Average TMT tenure	-0.003** [0.001]	-0.004** [0.002]	-0.004** [0.002]	-0.004** [0.002]
TMT size	-0.003* [0.002]	-0.003 [0.002]	-0.003 [0.002]	-0.008 [0.006]
Firm age	0.007*** [0.002]	0.008*** [0.002]	0.008*** [0.002]	0.008*** [0.002]
Firm founded before 1980	-0.090*** [0.023]	-0.089*** [0.024]	-0.090*** [0.024]	-0.090*** [0.024]
Firm size	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Female empl	-0.146*** [0.009]	-0.145*** [0.009]	-0.145*** [0.009]	-0.145*** [0.009]
Empl age	-0.032*** [0.000]	-0.032*** [0.000]	-0.032*** [0.000]	-0.032*** [0.000]
Ln (Empl labor market exp)	0.033*** [0.007]	0.024*** [0.007]	0.023*** [0.007]	0.023*** [0.007]
Ln (Empl firm tenure)	-0.502*** [0.007]	-0.496*** [0.007]	-0.495*** [0.007]	-0.496*** [0.007]
Full time empl	0.134*** [0.010]	0.125*** [0.010]	0.124*** [0.010]	0.124*** [0.010]
Blue collar empl	0.021 [0.013]	0.021 [0.014]	0.021 [0.014]	0.021 [0.014]
Empl 1st gen immigrant	-0.259*** [0.015]	-0.261*** [0.016]	-0.261*** [0.016]	-0.261*** [0.016]
Empl 2st gen immigrant	-0.020 [0.023]	-0.014 [0.024]	-0.014 [0.024]	-0.014 [0.024]
Empl no. of kids (0-5 yrs)	0.019*** [0.003]	0.018*** [0.004]	0.018*** [0.004]	0.018*** [0.004]
Empl no. of kids (6-12 yrs)	0.005* [0.003]	0.005* [0.003]	0.005* [0.003]	0.005* [0.003]
Empl no. of kids (13-17 yrs)	0.013*** [0.005]	0.015*** [0.005]	0.015*** [0.005]	0.015*** [0.005]
Constant	0.361* [0.195]	-0.028 [0.066]	0.391** [0.193]	0.396** [0.193]
Industry dummies, 2-digit	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.07	0.07	0.07	0.07
Log-likelihood	-1,325,746	-1,234,593	-1,233,028	-1,233,022
Observations	3,477,624	3,347,178	3,345,053	3,345,053

Standard errors are clustered at the level of the firm and reported in brackets.

Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

In Model (8), we further included two additional variables for the number of new TMT member and for the number of new *external* TMT members. Neither of these two additional variables is significant, indicating that the number of new members does not have an additional marginal effect. Thus, the effect on employee attrition is the same whether only one member is replace or more than one.

### **Employee Stress**

Table 4 estimates the role of TMT change on the likelihood that employees receive prescription drugs associated with stress and depression. We do not find a significant correlation between stress for employees working in firms which are exposed to new TMT-members in general (Model (9)). In Model (10) we do, however, find that the likelihood of employee stress correlates with the recruitment of external TMT-members. This result is further confirmed by Model (11), which add both Models ((9) and (10)) together. Model (12) adds also two variables for the number of new TMT members and new external TMT members. There is no correlation between employee stress and the number new TMT members in general, and there is a small and negative correlation between the number of new *external* TMT members and employee stress.

Table 4: Probability of Stress: Logistic Regression

	(9)	(10)	(11)	(12)
New TMT member	0.053 [0.109]		0.071 [0.115]	0.071 [0.115]
Time since new TMT	-0.014 [0.012]		-0.014 [0.013]	-0.014 [0.013]
New external TMT member		0.032*** [0.012]	0.032*** [0.012]	0.038*** [0.012]
Time since new external TMT		-0.001 [0.003]	-0.001 [0.003]	-0.004 [0.003]
No. of new TMT members (t)				-0.001 [0.003]
No. of new external TMT members (t)				-0.009*** [0.003]
Average TMT age	-0.000 [0.001]	-0.000 [0.001]	-0.000 [0.001]	-0.000 [0.001]
Average TMT tenure	0.000 [0.001]	0.001 [0.001]	0.001 [0.001]	0.000 [0.001]
TMT size	0.001* [0.001]	0.001 [0.001]	0.001 [0.001]	0.003 [0.003]
Firm age	0.002* [0.001]	0.002* [0.001]	0.002* [0.001]	0.002* [0.001]
Firm founded before 1980	0.002 [0.016]	0.002 [0.016]	0.002 [0.016]	0.002 [0.016]
Firm size	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]
Female empl	0.622*** [0.010]	0.622*** [0.010]	0.623*** [0.010]	0.623*** [0.010]
Empl age	0.045*** [0.001]	0.045*** [0.001]	0.045*** [0.001]	0.045*** [0.001]
Ln (Empl labor market exp)	-0.018* [0.009]	-0.021** [0.010]	-0.021** [0.010]	-0.020** [0.010]
Ln (Empl firm tenure)	-0.146*** [0.005]	-0.142*** [0.005]	-0.142*** [0.005]	-0.143*** [0.005]
Full time empl	0.018 [0.015]	0.014 [0.016]	0.014 [0.016]	0.014 [0.016]
Blue collar empl	0.083*** [0.012]	0.079*** [0.013]	0.079*** [0.013]	0.080*** [0.013]
Empl 1st gen immigrant	-0.038* [0.022]	-0.035 [0.022]	-0.035 [0.022]	-0.034 [0.022]
Empl 2st gen immigrant	-0.100 [0.066]	-0.105 [0.070]	-0.105 [0.070]	-0.105 [0.070]
Empl no. of kids (0-5 yrs)	-0.256*** [0.008]	-0.257*** [0.008]	-0.257*** [0.008]	-0.257*** [0.008]
Empl no. of kids (6-12 yrs)	-0.024*** [0.006]	-0.025*** [0.006]	-0.025*** [0.006]	-0.025*** [0.006]
Empl no. of kids (13-17 yrs)	-0.032*** [0.008]	-0.034*** [0.008]	-0.034*** [0.008]	-0.034*** [0.008]
Constant	-4.960*** [0.119]	-4.925*** [0.049]	-4.996*** [0.125]	-4.997*** [0.125]
Industry dummies, 2-digit	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.04	0.04	0.04	0.04
Log-likelihood	-678,438	-651,244	-650,813	-650,803
Observations	3,477,624	3,347,178	3,345,053	3,345,053

Standard errors are clustered at the level of the firm and reported in brackets.

Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Lasly, in Table 5 we show the results of the Differences-in-differences logistic regression for employee stress. Model (13) shows that there is no effect of hiring a new TMT member on an increase in the intake of stress and depression related medication compared to the control group. Model (14), however, reveals that this probability is indeed higher after the recruitment of *external* TMT-members in particular. This is further confirmed in Models (15), which merge Models (13) and (14). We can thus reject H1, and affirm that there is no observed effect overall of TMT replacement and employee stress. Similarly, we can confirm that this effect is present in the case of new *external* TMT members, supporting H3.

Model (16) also includes a variable for the number of new TMT members and a variable for the number of new external TMT members. Interestingly, there is no marginal effect on stress of recruiting more than one new member into the TMT, and the marginal effect is even negative (though very small) if more than one *external* TMT member is recruited.

Table 5: Probability of Stress: Logistic Regression - Differences-in-differences estimates

	(13)	(14)	(15)	(16)
New TMT member (all years)	0.215 [0.247]		0.174 [0.252]	0.174 [0.251]
Post x New TMT member	0.022 [0.122]		0.046 [0.129]	0.047 [0.129]
New external TMT member (all years)		-0.017 [0.017]	-0.016 [0.017]	-0.020 [0.017]
Post x New external TMT member		0.040*** [0.014]	0.039*** [0.014]	0.043*** [0.014]
No. of new TMT members (t)				-0.001 [0.003]
No. of new external TMT members (t)				-0.009*** [0.003]
Average TMT age	-0.000 [0.001]	-0.000 [0.001]	-0.000 [0.001]	-0.000 [0.001]
Average TMT tenure	0.000 [0.001]	0.001 [0.001]	0.001 [0.001]	-0.000 [0.001]
TMT size	0.001* [0.001]	0.001 [0.001]	0.001 [0.001]	0.003 [0.003]
Firm age	0.002* [0.001]	0.002* [0.001]	0.002* [0.001]	0.002* [0.001]
Firm founded before 1980	0.002 [0.016]	0.003 [0.016]	0.003 [0.016]	0.003 [0.016]
Firm size	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]	0.000*** [0.000]
Female empl	0.622*** [0.010]	0.622*** [0.010]	0.623*** [0.010]	0.623*** [0.010]
Empl age	0.045*** [0.001]	0.045*** [0.001]	0.045*** [0.001]	0.045*** [0.001]
Ln (Empl labor market exp)	-0.018* [0.009]	-0.021** [0.010]	-0.021** [0.010]	-0.020** [0.010]
Ln (Empl firm tenure)	-0.146*** [0.005]	-0.143*** [0.005]	-0.143*** [0.005]	-0.144*** [0.005]
Full time empl	0.018 [0.015]	0.014 [0.016]	0.014 [0.016]	0.014 [0.016]
Blue collar empl	0.083*** [0.012]	0.079*** [0.013]	0.079*** [0.013]	0.079*** [0.013]
Empl 1st gen immigrant	-0.038* [0.022]	-0.035 [0.022]	-0.035 [0.022]	-0.034 [0.022]
Empl 2st gen immigrant	-0.100 [0.066]	-0.105 [0.070]	-0.105 [0.070]	-0.105 [0.070]
Empl no. of kids (0-5 yrs)	-0.256*** [0.008]	-0.257*** [0.008]	-0.257*** [0.008]	-0.257*** [0.008]
Empl no. of kids (6-12 yrs)	-0.024*** [0.006]	-0.025*** [0.006]	-0.025*** [0.006]	-0.025*** [0.006]
Empl no. of kids (13-17 yrs)	-0.032*** [0.008]	-0.034*** [0.008]	-0.034*** [0.008]	-0.034*** [0.008]
Constant	-5.143*** [0.221]	-4.914*** [0.050]	-5.134*** [0.222]	-5.130*** [0.221]
Industry dummies, 2-digit	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.04	0.04	0.04	0.04
Log-likelihood	-678,438	-651,243	-650,813	-650,804
Observations	3,477,624	3,347,178	3,345,053	3,345,053

Standard errors are clustered at the level of the firm and reported in brackets.

Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## Discussion

In this paper, we develop a set of predictions on how executive succession affects employee stress and attrition. We argue that the organizational and strategic changes that ensue executive succession will have generate stressful situations for employees, and that stress in turn will increase employee attrition and the intake of stress- and depression-related medication. Our data enables us to overcome common methodological limitations, by allow us to consistently and objectively track individual mobility patterns and the prescription of medicines related to stress for the entire Danish population. We have found that executive succession is indeed a destabilizing event for employees, increasing employee attrition. External succession, in particular, increases also employee stress.

This study informs us about executive succession in a number of ways. Firstly, succession has a significant impact on employees across the organization. Although we are not able to show the exact mechanism by which employee attrition and stress levels are increased, we are actually able to demonstrate that this is indeed the case. Thus, firms thinking of hiring new executives should account for increased levels of employee attrition as a consequence. The potential costs of this outcomes shall be considered part of the executive hiring process.

Secondly, we also show that different types of succession have heterogeneous effects. Hiring new TMT from inside the organization has an impact on employee attrition, yet not on employee stress. Externally recruited executives, on the other hand, have an even stronger impact on attrition, and a significant effect on stress. This means that the price to pay in terms of employee well-being and attrition will be higher in the case of new external executives. Again, this should feature highly on the outcomes of executive hiring decisions.

Lastly, we analyse whether the number of new executives hired in the same period makes a difference for employee mental health and attrition. We are unable to show any marginal impact of new additional TMT members after the first. A derived recommendation from this finding, is that if firms want to minimize the impact of executive succession on employees, they should attempt to make all necessary changes at the top as swiftly as possible.

There are several limitations to the current study, some of which have been discussed in the methods section. First, although we empirically demonstrate the phenomenon, we are unable to disentangle the exact mechanisms behind it. We propose a series of possible mechanisms behind the effect of TMT succession on employee turnover and stress, yet we are not able to favour one explanation over others. Second, endogeneity remains a methodological concern in this study. As outlined in the methods section, steps will be taken to increase the reliability of the causal relationships under study. Third, these study addresses just two of the possible coping mechanisms for individuals -namely stress and attrition. We cannot measure, for example, individuals abuse alcohol or other substances to cope with the stress derived from executive succession. Likewise, we cannot observe other manifestations of organizational citizenship that might affected, such as absenteeism or organizational commitment.

We are confident that, despite its limitations, this study provides reliable evidence of the micro-level consequence of macro-level strategic decisions. In particular, the link between succession and employee well-being had not been studied before. We hope to spark further studies in this area, which are needed to show the exact mechanisms behind the phenomenon demonstrated here.

## References

- Adler, D., T. McLaughlin, W. Rogers, H. Chang, L. Lapitsky, D. Lerner. 2006. Job performance deficits due to depression. *American Journal of Psychiatry* **163**(9) 1569–1576.
- Barron, J.M., D.V. Chulkov, G.R. Waddell. 2011. Top management team turnover, ceo succession type, and strategic change. *Journal of Business Research* **64**(8) 904–910.
- Beatty, R.P., E.J. Zajac. 1987. Ceo change and firm performance in large corporations: Succession effects and manager effects. *Strategic Management Journal* **8**(4) 305–317.
- Bordia, P., E. Hobman, E. Jones, C. Gallois, V.J. Callan. 2004. Uncertainty during organizational



- change: Types, consequences, and management strategies. *Journal of Business and Psychology* **18**(4) 507–532.
- Brenninkmeijer, V., I. Houtman, R. Blonk. 2008. Depressed and absent from work: predicting prolonged depressive symptomatology among employees. *Occupational medicine* **58**(4) 295–301.
- Brockner, J. 1992. The escalation of commitment to a failing course of action: Toward theoretical progress. *Academy of Management Review* **17**(1) 39–61.
- Cotton, J.L., J.M. Tuttle. 1986. Employee turnover: A meta-analysis and review with implications for research. *Academy of management Review* **11**(1) 55–70.
- Dahl, M. S. 2011. Organizational change and employee stress. *Management Science* **53**(2) 240–256.
- Ferrie, J.E., M.J. Shipley, M.G. Marmot, S. Stansfeld, G.D. Smith. 1998. The health effects of major organisational change and job insecurity. *Social Science & Medicine* **46**(2) 243–254.
- Griffeth, R.W., P.W. Hom, S. Gaertner. 2000. A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of management* **26**(3) 463–488.
- Hambrick, D.C., G.D.S. Fukutomi. 1991. The seasons of a ceo's tenure. *Academy of Management Review* **16**(4) 719–742.
- Hannan, M.T., L. Polos, G.R. Carroll. 2003. The fog of change: Opacity and asperity in organizations. *Administrative Science Quarterly* **48** 399–432.
- Harter, J.K., F.L. Schmidt, T.L. Hayes. 2002. Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology* **87**(2) 268.
- Haveman, H.A. 1993. Ghosts of managers past: Managerial succession and organizational mortality. *Academy of Management Journal* **36**(4) 864–881.

- Hellgren, J., M. Sverke. 2003. Does job insecurity lead to impaired well-being or vice versa? estimation of cross-lagged effects using latent variable modelling. *Journal of Organizational Behavior* **24**(2) 215–236.
- Kacmar, K.M., M.C. Andrews, D.L.V.A.N. ROOY, R.C. Steilberg, S. Cerrone. 2006. Sure everyone can be replaced... but at what cost? turnover as a predictor of unit-level performance. *The Academy of Management Journal ARCHIVE* **49**(1) 133–144.
- Khurana, R., N. Nohria. 2000. The performance consequences of ceo turnover. *SSRN Working Paper Series* .
- Krueger, A.B., A. Mas. 2003. Strikes, scabs and tread separations: labor strife and the production of defective bridgestone/firestone tires. Tech. rep., National Bureau of Economic Research.
- Leker, J., S. Salomo. 2000. Ceo turnover and corporate performance. *Scandinavian Journal of Management* **16**(3) 287–303.
- Mas, A. 2008. Labour unrest and the quality of production: Evidence from the construction equipment resale market. *Review of Economic Studies* **75**(1) 229–258.
- Miller, D. 1993. Some organizational consequences ceo succession. *Academy of Management Journal* **36**(3) 644–659.
- Morrison, E.W., S.L. Robinson. 1997. When employees feel betrayed: A model of how psychological contract violation develops. *Academy of Management Review* **22**(1) 226–256.
- Pierce, Lamar, Michael S Dahl, Jimmi Nielsen. 2013. In sickness and in wealth psychological and sexual costs of income comparison in marriage. *Personality and Social Psychology Bulletin* **39**(3) 359–374.
- Quigley, T.J., D.C. Hambrick. 2012. When the former ceo stays on as board chair: effects on successor discretion, strategic change, and performance. *Strategic Management Journal* .

- Shaw, Jason D, Michelle K Duffy, Jonathan L Johnson, Daniel E Lockhart. 2005. Turnover, social capital losses, and performance. *Academy of Management Journal* **48**(4) 594–606.
- Shen, W., A.A. Cannella Jr. 2002. Revisiting the performance consequences of ceo succession: The impacts of successor type, postsuccession senior executive turnover, and departing ceo tenure. *Academy of Management Journal* **45**(4) 717–733.
- Stewart, W.F., J.A. Ricci, E. Chee, S.R. Hahn, D. Morganstein. 2003. Cost of lost productive work time among us workers with depression. *JAMA: the journal of the American Medical Association* **289**(23) 3135–3144.
- Tushman, M.L., E. Romanelli. 1985. Organizational evolution: A metamorphosis model of convergence and reorientation. *Research in organizational behavior* **7** 171–222.
- Tushman, M.L., L. Rosenkopf. 1996. Executive succession, strategic reorientation and performance growth: A longitudinal study in the us cement industry. *Management Science* **42** 939–953.
- Vakola, M., I. Nikolaou. 2005. Attitudes towards organizational change: What is the role of employees stress and commitment? *Employee Relations* **27**(2) 160–174.
- Virany, B., M.L. Tushman, E. Romanelli. 1992. Executive succession and organization outcomes in turbulent environments: An organization learning approach. *Organization Science* **3**(1) 72–91.
- Waldman, J.D., F. Kelly, S. Aurora, H.L. Smith. 2004. The shocking cost of turnover in health care. *Health Care Management Review* **29**(1) 2.
- Wang, P.S., A.L. Beck, P. Berglund, D.K. McKenas, N.P. Pronk, G.E. Simon, R.C. Kessler. 2004. Effects of major depression on moment-in-time work performance. *American Journal of Psychiatry* **161**(10) 1885–1891.
- Weisbach, M.S. 1995. Ceo turnover and the firm's investment decisions. *Journal of Financial Economics* **37**(2) 159–188.

Wiersema, M.F. 1992. Strategic consequences of executive succession within diversified firms. *Journal of Management Studies* **29**(1) 73–94.

Wiersema, M.F. 1995. Executive succession as an antecedent to corporate restructuring. *Human Resource Management* **34**(1) 185–202.