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Psychopathic Traits of Corporate Leadership as Predictors of Future Stock Returns

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Abstract

This paper examines whether it is possible to forecast one-year-ahead returns of individual companies based on the observed ‘psychopathic’ characteristics of their top management team. We find that language characteristic of psychopaths present in annual report narratives, questionable integrity, excessive risk-taking and failure to contribute to charitable undertakings tend to reduce future shareholder wealth. These findings imply that firms could benefit from incorporating psychological evaluation in their recruitment processes, especially when seeking to fill senior management posts. While the return predictability described in this paper supports the upper echelons perspective, it simultaneously challenges the notion of informationally efficient stock prices.

JEL classification: D22; G02; G12; G14; G34

Keywords: Corporate Psychopaths; Stock Market Returns; Shareholders’ Wealth; Behavioral Finance

I. Introduction

Psychopathy is a personality disorder that may manifest itself as a result of abnormal brain connectivity, genetic or environmental factors (Marshall and Cooke, 1999; Taylor *et al.*, 2003; Finger *et al.*, 2011). A range of characteristics has been typically ascribed to psychopaths, amongst which parasitic and irresponsible behavior, pathological lying, emotional insensitivity, impairment of behavioral controls, elevated sense of self-worth and stimulation seeking feature prominently (Hare, 2003). As noted by Boddy (2005, 2006), these people are often able to rise swiftly through the ranks of corporate hierarchy. Their insincere charm is sometimes mistaken for charisma, their ruthlessness may be viewed by some as the ability to make calculated business decisions, and their mastery of deception helps them to cover up their counterproductive and fraudulent activities. The implications of hiring psychopaths are potentially devastating for the companies involved. They bully and exploit junior co-workers, create conflict within the workforce, undermine the reputation of the company, and promote a chaotic and unaccountable working environment in order to avoid scrutiny (Boddy, 2011a). While a fair amount of research has been conducted on the actions of psychopathic individuals within companies, actual estimation of the extent of shareholder value destruction arising from ‘psychopathic-like’ behavior of the senior management team has not been attempted to date.

The idea on which this paper is built is closely linked to the upper echelons perspective put forward by Hambrick and Mason (1984). This theoretical framework emphasizes that top executives perceive the situation in which the organization finds itself through the lens of their cognitive base and values. Their decisions and choices made under conditions of bounded rationality will consequently reflect this fact. The dominant coalition (Cyert and March, 1963) that molds corporate aims, values and actions may exhibit certain psychological traits which become a strong driving force for the company. Interestingly, Babiak *et al.* (2010) and Boddy (2011b) note that the proportion of psychopaths in managerial positions is higher than that in general population. As a consequence, this may have a tangible influence on corporate decision-making, with important ramifications for shareholders and broader society. This paper focuses specifically on the issue of whether psychopathic-like characteristics are able to predict future changes in shareholder wealth. Using UK data, we construct a

number of corporate psychopathy indicators and link them to the returns that ensue over the next 250 trading days - a period roughly equivalent to one calendar year.

Even if clear guidance exists on how to diagnose psychopathic personality disorder in humans (Hare 1991, 2003), the practical difficulty is that executives will be generally unwilling to participate in time consuming surveys, particularly those that are likely to expose the dark side of their character. We choose to follow a more pragmatic approach and, similarly to Chatterjee and Hambrick (2007), collect information in an unobtrusive way by going through company-related archives and data. Firstly, using automated content analysis we assess to what extent the language in annual report narratives is symptomatic of psychopathy. This is done by counting the frequency of words that are aggressive, characteristic of speakers who are self-absorbed and who have the tendency to assign blame to others. Secondly, we look at likely correlates of managerial integrity. More specifically, we try to identify companies whose auditors have expressed reservations in the *Emphasis of Matter* section of the annual report and those that have experienced a publicized Financial Reporting Council (FRC) intervention. Thirdly, we consider a measure that derives from the observation that psychopaths require stronger external stimuli to experience emotions and, therefore, have the tendency to take high risks. We assume that excessive exposure in a corporation will result in a high degree of idiosyncratic risk. This type of risk, which is entirely company-specific and unrelated to the broader economy, is measured in our empirical inquiry. Lastly, we construct a variable to capture the reluctance of a company to donate to charitable causes.

Our empirical investigation confirms conclusions of the earlier literature arguing that dark personalities are ineffective as corporate leaders (see for instance Boddy, 2011a; Stein, 2013; Kaiser *et al.*, 2015). More specifically, we document a negative association between the presence of managerial psychopathic traits and future return on common equity. With the exception of FRC interventions, all psychopathy measures correlate with returns in a statistically significant way. Since the commonly stated objective of companies is to maximize shareholder wealth, obvious precautions need to be taken. In their recruitment and promotion process, human resource departments need to recognize the importance of psychological screening. Such screening needs to integrate information provided by past employers and colleagues, as well as verification of academic degrees and criminal record checks.

The remainder of the paper is organized as follows. The next section describes the behavioral tendencies of people with psychopathic personality disorder and the impact that these people have in their workplace. Section III elaborates on the theoretical underpinnings of our research and develops a testable hypothesis, while Section IV endeavors to develop quantitative measures capturing the degree of psychopathic behavior. Section V describes our data sources and key sample characteristics. Our empirical results and their interpretation are presented in Section VI. The following section presents robustness checks and considers additional tests germane to our story. The paper ends with conclusions and a set of practical recommendations.

II. Psychopaths and Psychopathic Companies

Pinel (1806) was the first author to consider cases of psychopathy, which were labeled by him as ‘mania without delirium’. Further insights came from Cleckley (1941), whose book titled *The Mask of Sanity* remains, to date, one of the most important textbooks in the field. Whilst observing his patients confined within an institution, he realized that some of them were manipulative pathological liars who disregarded the feelings of others and were prone to outbursts of violence and antisocial behavior. At the same time, they appeared to be charming, had unimpaired intellectual capacity and did not exhibit any of the more usual symptoms of mental illness. Additional traits of psychopaths include a lack of conscience and empathy, a strong sense of entitlement and self-importance, thrill seeking, parasitic and promiscuous behavior, as well as failure to take responsibility for their actions.

Hare (1991, 2003) designed a diagnostic tool called the Psychopathy Checklist-Revised (PCL-R) comprising 20 items characterizing a typical psychopath. Each item could be scored as 0 (the characteristic is not present), 1 (the characteristic applies only partially) or 2 (the characteristic is clearly observed). Individuals who obtained 75% or more of the maximum score would be deemed certifiably psychopathic. Less frequently utilized alternatives to PCL-R are the Psychopathic Personality Inventory, a self-reported measure based on a questionnaire developed for adult non-criminal population (Lilienfeld and Andrews, 1996; Lilienfeld and Widows, 2005) and the Comprehensive Assessment of Psychopathic Personality (Hoff *et al.*, 2012). Several researchers, who recognized the devastating effects of psychopaths in corporations, designed additional diagnostic instruments suitable for the business context (B-Scan 360 (Mathieu *et al.*, 2013) and the Psychopathy Measure –

Management Research Version (PM-MRV) (Boddy *et al.*, 2010)).² It is important to stress that psychopathy is classified as a personality disorder and not a mental illness. This means that insanity defense of an individual scoring over 30 on the PCL-R scale would be ineffective in a court of law (Boddy, 2011a: 170). Such individual would be unable to claim diminished responsibility under Anglo-Saxon law (Shuman, 2003).

An important discussion in the literature relates to whether the incidence of psychopathy is due to nature or nurture. In their study of male twins, Taylor *et al.* (2003) found that psychopathic traits were primarily associated with genetic factors. Further interesting results regarding brain connectivity have been obtained from functional magnetic resonance imaging (fMRI) that measures the activity of the central nervous system by focusing on changes in blood flow. When making moral judgments, psychopaths exhibited abnormal activity in the moral and emotional neural circuit, particularly in the amygdala and orbitofrontal cortex regions (see for instance Glenn *et al.*, 2009; Finger *et al.*, 2011; Marsh *et al.*, 2011). While psychopathy may arise from genetic factors and atypical brain connectivity, environmental factors such as poor parenting, child abuse and use of drugs could also be considered as contributing factors in the manifestation and expression of the disorder (Weiler and Widom, 1996; Bernstein *et al.*, 1998; Marshall and Cooke, 1999; Gao *et al.*, 2010). Regrettably, efficacious treatments for psychopathy are not available at present (Harris and Rice, 2006). There appears to be a consensus among experts that psychopaths should be carefully monitored and managed rather than treated.

Survey studies indicate that the prevalence of psychopathic personality disorder in the general population is roughly 1% (Neumann and Hare, 2008; Coid *et al.*, 2009). This proportion is significantly higher among prison populations, reaching 15% for male offenders and 10% for female offenders (Babiak and Hare, 2006: 28). Interestingly, people with psychopathic tendencies who are not incarcerated and who choose to study at university level have a preference for business and commerce degrees (Wilson and McCarthy, 2011; Hassall *et al.*, 2015). Driven by their insatiable appetite for money, power and prestige, these individuals are attracted to the corporate world and often end up in

² The discussion on the suitability of different scales continues in the literature. One of the issues raised by Skeem and Cooke (2010) is that criminality may be a correlate rather than a component of psychopathy, which poses some conceptual difficulties for the PCL-R scale. For this reason, it is of central importance to focus also on other components of psychopathy, such as grandiosity, which is also a component of other diagnostic tools such as PM-MRV and the Comprehensive Assessment of Psychopathic Personality.

positions of power. Board and Fritzon (2005) found significant incidence of the emotional components of psychopathic personality disorder in a sample of senior managers. Babiak *et al.* (2010) examined 203 individuals who were selected by their employers to participate in management development programs and noted that 3.9% of them met or exceeded the psychopathy threshold. Results reported by Boddy (2011b), who examined a large sample of Australian senior white-collar workers, revealed that 5.75% of respondents were supervised by a psychopath at the time of the survey and nearly one third had worked with a psychopathic manager at least once throughout their career. Overall, the reading of the literature reveals that the concentration of psychopaths tends to be particularly high in prisons and boardrooms.

An important question arises at this stage. How do psychopaths, despite their serious character flaws and their general unwillingness to do an honest day of work, succeed in having spectacular corporate careers? Starting from the recruitment phase, such individuals tend to submit impressive CVs, although much of the supporting documentation may be forged (Babiak and Hare, 2006). Since they experience a rather limited range of emotions, they do not get stressed during interviews, appearing calm and collected. By propagating fiction, psychopaths create a false mask and hide behind a façade of exemplary employee and friend (Babiak and O’Toole, 2012). They try to ingratiate themselves with their superiors, whilst simultaneously exploiting junior colleagues and taking credit for their work (Boddy, 2005). Their superficial charm may oftentimes be mistaken for charisma, a quality possessed by great leaders. Their lack of empathy and innate callousness allow them to make difficult business decisions, such as those about mass dismissals, swiftly and without any moral qualms. Being accomplished manipulators of people and their environment, they may find gaining promotion relatively easy.

The illusion of a motivated worker is eclipsed by the myriad of devastating effects that psychopaths have on their corporations. Being both impulsive and parasitic, psychopaths often treat those who are lower in the organizational hierarchy unfavorably, for example by shouting at them and getting into rude arguments. Boddy (2011b, 2014) estimates that around 26% to 35% of bullying in

corporations is accounted for by the behavior of psychopaths.³ These individuals create chaos deliberately, in order to deflect the blame for failure or to hide their unlawful activities. On reaching supervisory positions, they refuse to share information, provide inadequate training to others, give confusing instructions and introduce self-serving rules and procedures (Boddy, 2011a). Such actions result in reduced employee job satisfaction (Mathieu *et al.*, 2014), make it difficult to retain good staff, and undermine productivity (Boddy, 2010). A recent paper by Boddy and Taplin (2016) argues that the presence of workplace psychopathy is the ‘dominant predictor’ of job satisfaction. Furthermore, psychopaths are antisocial and self-centered individuals, who have complete disregard for corporate social responsibility concerns (Boddy, 2011a), exhibit propensity to commit economic crimes (Babiak and O’Toole, 2012) and destroy the reputation of their employer (Boddy, 2012). Their constant need for stimulation may induce excessive risk-taking, putting the entire company in jeopardy.

III. Theoretical Model and Hypothesis

In its approach, our paper adopts the upper echelons perspective developed by Hambrick and Mason (1984). This particular theory rests on the idea that the situation faced by top management teams is usually informationally complex and subject to many uncertainties (Hambrick, 2007). As such, it invites individualized interpretations which give prominence to behavioral factors in decision-making. More specifically, stimuli received by senior managers will be filtered through their cognitive base and value system, thereby shaping their perceptions, strategic choices and, in turn, organizational outcomes. The notion of bounded rationality (Cyert and March, 1963; March and Simon, 1958) underpins the upper echelons perspective in that the information is subject to interpretation and the decision-making process is influenced by cognitive biases of the top management team. One practical difficulty that arises in empirical investigations is the lack of psychometric data on executives. Hambrick and Mason (1984) encourage the use of observable proxies for the differences in managerial cognitions and values. In their reviews, Carpenter *et al.* (2004) and Plöckinger *et al.* (2016) note that the body of literature

³ In a follow-up paper Boddy and Taplin (2017) argue that these estimates may understate the psychopathic bullying problem due to the peculiarities of scales used in the research.

produced thus far in this field has, to a large extent, supported the baseline Hambrick and Mason (1984) model, although extensions of the original framework have been proposed.

This paper investigates whether a specific leadership personality trait impacts on arguably the most important corporate outcomes - shareholder wealth and economic efficiency. Our empirical inquiry could thus be viewed as a test of the upper echelons theory. Prior research provided some indication that leadership characteristics can be linked to firm performance. Collins and Clarke (2003) documented that size, strength and range of top management's social networks positively affect sales growth and stock returns. In the M&A context, Krishnan, Miller and Judge (1997) show that post-acquisition ROA depends on the complementarity of the management teams in both companies. Although our study also focuses on performance, we concentrate on different characteristics of the executives. More specifically, we investigate how the correlates of managerial psychopathy influence shareholder wealth.

There could be two possible channels through which boardroom psychopathy could affect stock prices. First, the profitability of companies could be negatively affected by psychopathic leaders. Counterproductive work behavior in response to bullying and exploitation, inability to retain key staff members, fraudulent activities and deliberate chaos created by psychopaths, as well as their parasitic behavior (Boddy, 2011a) can all contribute to a reduction in profitability. Since cash flows to equity and dividends, the key inputs into the cash flow valuation (Fisher, 1930; Williams, 1938) and the dividend discount (Gordon and Shapiro, 1956) models, hinge upon profitability, psychopathic leaders can cause a drop in stock market valuations. Second, psychopathic attributes of decision making may potentially lead to reputational damage. Media controversies, audit problems, lack of involvement in charitable giving and corporate social responsibility activities can put the company into disrepute and lower the value of its intangible assets. This will be reflected in negative stock market returns, as was the case with reduced profitability.

From a theoretical perspective, it is also important to elaborate on the meaning of the term 'psychopathy', as used in our paper. We are not using this term in the strictly medical sense, as the task of diagnosing psychopathic personality disorder is incredibly complex. A medical professional cannot

simply rely on an interview with the subject, as psychopaths will almost certainly provide untruthful responses. Very careful background checks need to be performed and co-workers or people who frequently interact with the subject need to be interviewed to corroborate the evidence. Some of the information that needs to be collected is highly sensitive in nature and relates, for instance, to the subject's sexual behavior. Due to time constraints, top management would be unwilling to voluntarily participate in such invasive probing and, should they agree to take part, their responses would be affected by social desirability bias (Chatterjee and Hambrick, 2007). These problems are compounded by the fact that it is practically impossible to carry out any evaluation of past executives of the company. Realistically, an average investor would never have the opportunity to collect all the particulars required for a reliable psychological diagnostic check.

We therefore adopt a more pragmatic approach. Instead of focusing on each manager separately, we focus on the senior management team as a whole and reflect on what company characteristics are likely to be highly correlated with the presence of psychopaths in its decision-making structures. In doing so, we focus on what Chatterjee and Hambrick (2007) refer to as 'unobtrusive measures'. The psychopathic tendencies of the corporate leadership are proxied here by several indicators, which are based on information available from archives and financial datasets. These indicators can be constructed by market participants and are described in detail in the following section. As they reflect company-level decisions and strategies, they pertain to the entire top management team and their collective decision making. Hambrick and Mason (1984) clearly state that the unit of analysis in the context of upper echelons theory should be the entire top management team. This is because a typical CEO shares power with other executives and directors, delegating some of the decision-making.⁴

An interesting question that arises at this stage is how psychopathic tendencies of one individual may be propagated within a group. Hypothetical channels could be considered here. Prior research has shown that employees respond to abusive supervision with workplace deviance and reduced effort to further corporate goals (Zellars *et al.* 2002; Mitchell and Ambrose, 2007). Psychopaths are often aggressive towards their subordinates, exploit them and take credit for their achievements. This may

⁴ We note in passing that some of the prior research focused on CEOs alone (e.g. Fanelli *et al.*, 2009; Kaplan *et al.*, 2012)

provoke negative reciprocity and, as the retributions spiral out of control, the behavior of co-workers may start resembling that of the psychopath. Moreover, a psychopath who is a senior executive may incentivize others to behave in ways that he or she considers appropriate and create a culture of ignoble behavior. Treviño, Brown and Hartman (2003) pointed out that top executives set the ethical climate and culture within their companies. This is confirmed by two case studies (Boddy and Croft, 2016; Boddy, 2017) evidencing swift changes in organizational ethics and ethos following appointment of new psychopathic CEOs.

Ashforth (1994) theorizes how the leadership style of ‘petty tyrants’ can introduce a culture of fear within the organization. ‘Petty tyrants’ were defined by Ashforth as small-minded, inconsiderate, brutal leaders who have a penchant for self-aggrandizement, bullying and belittling those of lower rank in the corporate hierarchy. This definition largely overlaps with the characteristics of psychopathic work behavior. Ashforth (1994) presents evidence that the outcomes of the culture of fear are destructive to the corporation. Workers feel helpless and alienated, which inhibits their motivation and performance. Their frustrations may be vented through misplaced aggression against their co-workers rather than the tyrannical leader. The cohesiveness of the work unit suffers as a result of the hostilities experienced. Erosion of work ethic and cultural downfall are likely to cause distress amongst all employees, with the notable exception of those who are characterized by shallow affect. Hurst *et al.* (in press) show empirically that employees with high psychopathy scores on the interpersonal and affective dimensions react less adversely to abusive supervision, allowing them to stay in that workplace for longer. This, in turn, enables a culture of mistreatment to become more persistent.⁵

Our discussion in Sections II and III indicated that the presence of psychopaths in the workplace could be detrimental to the company employing them. Combining this with the predictions of the upper echelons theory, one could argue that the manifestations of psychopathic personality disorder are particularly destructive to the firm’s value when the individuals exhibiting such tendencies have large influence over corporate decisions. This leads us to the development of the following hypothesis:

⁵ Since managers have a tendency to hire applicants with similar attitudes (Orpen, 1984), one could suspect that psychopathic managers would prioritize other like-minded individuals in the recruitment process. Unfortunately, to the best of our knowledge, there is no empirical evidence in the literature regarding this particular issue.

Hypothesis: *Psychopathic behavior of top management team causes significant losses in shareholder wealth.*

Several words of clarification are in order. We use the word “causes” in the Granger (1969) sense. Our dependent variable represented by *future* returns on the stocks of a given company is linked to the *current* level of leadership psychopathic traits. This temporal difference permits us to make inferences about causality. It also eliminates the problem of reverse causality, as it is unlikely that current managerial personality characteristics will be influenced by the unknown future returns. Furthermore, failure to reject our hypothesis would be equivalent to challenging the idealistic notion of market efficiency – a situation in which stock prices instantly reflect all available information (Fama, 1970).

The mechanism of action behind any return predictability merits further reflection. According to the upper echelons theory, the personality characteristics of top managers are important for the evolution of stock prices. However, they are not easily observable by investors and some degree of imprecision and subjectivity will be inherent in their evaluations. The degree of imprecision may decrease over time, as more information becomes available. Making inferences about psychological tendencies of managers from the publicly available data, however, is a very complex and formidable task. If one adopts the bounded rationality perspective (Simon, 1957), one will argue that, due to the cognitive limitations of their minds, investors will require time to process such complex information and their inferences will be to some degree inefficient. What we are presenting in this paper is a formalized process facilitating the task of managerial personality assessment. If our empirical model offers improvement over the intuition of an average trader, traces of return predictability will be observed.

To the best knowledge of the authors, the hypothesis specified above has not been previously tested in the literature. One may be tempted to draw parallels to studies focusing on how managerial hubris and narcissism affect different organizational outcomes (Roll, 1986; Hayward and Hambrick, 1997; Hiller and Hambrick, 2005; Higgs, 2009; Chatterjee and Hambrick, 2007; Stein, 2013; Grijalva and Harms, 2014; Zhu and Chen, 2015). Narcissists are individuals with great self-confidence and an

unjustified sense of omniscience and omnipotence. More extreme manifestations of this disorder could entail impulses to belittle others or vengefulness (Stein, 2013). Psychopaths, however, are more inclined to get involved in anti-social and criminal activities, therefore posing a much greater danger to their employers. One may also argue that leadership effectiveness has been previously linked to the Big Five personality traits (see for instance Peterson *et al.*, 2003; Smith and Canger, 2004; Nadkarni and Herrmann, 2010) and that psychopathy is merely an extreme constellation of these traits. However, this view is overly simplistic, as Ashton *et al.* (2000) show that more than the five basic factors may be needed to capture such a complex personality disorder. Consequently, the concept of ‘psychopathy’ in the context of corporate leadership requires separate investigation.

IV. Empirical Proxies for the Existence of Corporate Psychopaths

Psychopathic tendencies of top management could potentially be detected by examining the manner in which a company communicates with the external world, by the veracity of its reporting, as well as its attitudes towards philanthropy and risk-taking. This section provides a detailed description of the empirical instruments used to capture the extent of psychopathic behavior.

4.1. Presence of psychopathic language in corporate communications

A paper in the *FBI Law Enforcement Bulletin* by Woodworth *et al.* (2012) presents persuasive arguments attesting to the fact that psychopathic personality profiles can be recognized by word usage. The recommendation of the authors to enforcement officers is that automatic linguistic analysis software should be utilized to accomplish this task. In a similar vein, Hancock *et al.* (2013) argued that, although psychopaths have an unparalleled ability to fake emotions to further their selfish goals, the operation of language is non-conscious and much more difficult to alter. By employing linguistic analysis tools, they demonstrate that the language of psychopathic and non-psychopathic murderers differs markedly. Another study by Intrator *et al.* (1997) applied computer tomography to map cerebral blood flow during a lexical task. This brain imaging approach revealed that psychopaths exhibit abnormalities in the processing of semantic content. Taken together, this literature suggests that the language used by people with psychopathic personality disorder has its own unique features and could potentially be recognized using linguistic analysis tools.

By employing computerized content analysis, we try to measure the frequency of linguistic expressions present in company communications that are characteristic of psychopaths. While there are many types of news items and announcements, we decided to concentrate on annual report narratives. By narrative, we mean the contents of an annual report with the financial statements and the notes to the accounts removed. The documents analyzed are primarily qualitative in nature, of sufficient length to permit reliable content analysis⁶ and, perhaps most importantly, include statements from the most senior people in a company. A typical annual report will contain non-audited statements from the Chairman and CEO, as well as a directors' report. We want to note that the structure of narratives is relatively similar across different UK non-financial companies, as the Companies Act 2006 and the amendments to this Act introduced in 2013 mandate inclusion of specific sections in the document. While there may be structural similarity, which allows valid comparisons to be made, the managerial teams can still exercise a great deal of discretion over how information is phrased, expressed and presented.

The narratives are analyzed using text analysis software called *Diction*. By now, this computer program has become an integral part of the content analysis landscape and, according to the latest count, was used by the authors of 16 books, 61 book chapters and 162 refereed journal articles.⁷ *Diction* includes 31 thesauruses (word lists) capturing certain characteristics of language. For instance, the word list labeled 'Praise' includes many words such as 'admirable', 'magnificent' or 'brilliant'. The software computes the frequency with which words from a given thesaurus appear in a text and reports the number of occurrences for an average 500-word text segment. In our opinion, four of the *Diction*'s word lists could be particularly useful for our empirical investigation.

Firstly, according to the PCL-R diagnostic tool, a psychopath would typically have a 'grandiose sense of self-worth'. Such individuals would be self-centered, convinced of their own superiority and would always attempt to take credit for any positive developments. One would expect that, in their communications, psychopaths would frequently refer to themselves and their factual or imaginary

⁶ As has been noted by Grimmer and Stewart (2013: 272), the reliability of linguistic style identification increases with word count.

⁷ These publications are catalogued on the manufacturer's web page: www.dictionsoftware.com/published-studies/.

achievements. Interestingly, *Diction* has a *Self-Reference* dictionary, which includes, amongst others, words such as ‘I’, ‘myself’, ‘my’ or ‘mine’. Egoists would have a tendency to use these words more often. Secondly, psychopaths show complete disregard for the feelings and well-being of others. As a result, they may use the words listed in *Diction*’s *Human Interest* dictionary less frequently. This particular word stock includes personal pronouns (e.g. ‘them’, ‘he’, ‘she’), family members and relations (e.g. ‘mother’, ‘uncle’, ‘parent’) and other terms describing individuals or groups of people (e.g. ‘gentlemen’, ‘friend’, ‘ladies’). Thirdly, psychopaths have weak behavioral controls and can exhibit impulsivity. They are often aggressive and many of them end up convicted for committing violent crimes. One could reasonably expect that a corporate psychopath will often articulate ideas using words included in the *Diction*’s *Aggression* corpus, such as ‘demolish’, ‘conquer’, or ‘attacking’. Lastly, people diagnosed with psychopathic personality disorder refuse to take responsibility for their own actions and have the propensity to blame others for poor outcomes. *Diction*’s *Blame* thesaurus, that can be useful here, includes words associated with faulting the circumstances or other individuals (e.g. ‘undependable’, ‘terrible’, ‘stupid’).

We calculate the frequencies with which words from these four *Diction* thesauruses appear in annual report narratives. These frequencies are subsequently converted into z -scores. For instance, if aggressive words in a given annual report i appear with frequency $Aggression_i$ we will scale it by deducting sample average and dividing by sample standard deviation as follows:

$$Z(Aggression_i) = (Aggression_i - E(Aggression_i)) / \sigma(Aggression_i) \quad [1]$$

We construct our measure of corporate psychopathic language as follows:

$$Psychopathic_language_i = Z(Self\ Reference_i) - Z(Human\ Interest_i) + Z(Aggression_i) + Z(Blame_i) \quad [2]$$

Converting frequencies into z -scores ensures that each of the four components is of equal importance when they are aggregated into a single construct. Standardization of frequencies is applied routinely in the *Diction* software, whenever subaltern variables are amalgamated into broader constructs.

One of the criticism of our language measure could be that, even if the corporate leaders contribute to annual report narratives, their contribution may be reviewed by accountants, lawyers and

PR specialists. There are, however, several practical considerations that may attenuate the impact of such critique. First, as long as investors believe that the text has been produced by those in charge, its characteristics will have the capacity to influence stock returns. In fact, market participants may have no reason to be suspicious, as many of the sections in the annual report are undersigned by the directors. Second, even if corrections to the narrative are introduced by moderators, these corrections are likely to pertain to facts and figures. However, our methodological approach does not assess what the directors are saying, but rather how they are saying it. In other words, it is the linguistic characteristics and their writing style that is being assessed here and these features are unlikely to be significantly modified in any revision process. Thirdly, employees may not have the courage to correct a superior with psychopathic tendencies, as such individuals are renowned for being vindictive (Smith *et al.*, 2012). Maibom (2008) reports that the leading cause of murder among homicidal psychopaths is revenge or retribution. Although corporate psychopaths may have greater ability to control their dark urges, their interpersonal and affective tendencies will be similar to those of their incarcerated counterparts. In his case study, Boddy (2017) vividly illustrated that, in the face of criticism and dissent, psychopathic corporate leaders can indeed respond with bullying and intimidation.

4.2. Proxies for questionable integrity

Pathological lying and propensity to commit fraud are hallmarks of a psychopath. Surrendering to these compulsions could be problematic for employees in companies subject to regular audits. This point is stressed by Klarskov Jeppsen and Leder (2016) who performed a survey of Danish auditors. According to their findings, 69 percent of their respondents had encountered at least one psychopathic manager and 43 percent of these managers had committed fraud. It would be interesting to examine the opinion of auditors regarding the veracity of corporate reporting in our sample.

We have read audit reports in all of the narratives included in our sample and none was qualified. This may not be particularly surprising, as managers are aware of the detrimental impact that a qualified report could have on reputation, pricing and cost of capital. With this awareness, they typically negotiate with auditors the changes that are required in order for the report to be unqualified. Although the reports do not explicitly modify financial statements, on occasions auditors express their

reservations regarding specific figures or statements in the *Emphasis of Matter* section. They may, for instance, emphasize that certain entries in the financial statements may be impossible to verify or that they are subject to substantial uncertainty. Such situations suggest that auditors do not have full confidence in the reported figures and we create a dummy variable labeled *Audit_Problems* to indicate these cases.

In an attempt to measure the veracity of the top management team, we also collected data on the actions of the Financial Reporting Council (FRC) - a regulator empowered to investigate accounting and reporting irregularities in the UK. We searched FRC's news archive to check whether any formal investigation was launched, or disciplinary action taken in relation to our sample companies. A publicized intervention constitutes a significant signal, as corrections of minor misstatements are typically consulted between FRC and the issuer in confidence. It is important to note that the jurisdiction of FRC is not limited to financial statements, but also extends to narrative reporting where exaggerated and misleading statements could easily be made. We constructed a dummy variable *FRC_Action* to indicate company-years in which an intervention of the regulator has taken place.

4.3. Excessive risk taking

The emotional range of psychopaths is somewhat limited, which is likely due to their brain connectivity. They need much stronger external stimulus to feel excitement and exhilaration. To avoid boredom, they are involved in a constant search for thrills and take excessive and unnecessary risks. This is commonly recognized among psychiatrists and the diagnostic tool of PID-5 (Personality Inventory for the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition) explicitly considers excessive risk taking as one of the manifestations of psychopathy. There is also substantial empirical literature linking psychopathic personality disorder to the tendency to make risky decisions (see for instance Blair *et al.*, 2001; Swogger *et al.*, 2010; Hosker-Field *et al.*, 2016; Snowden *et al.*, 2017).

Therefore, it can be argued that a psychopath-led company would be characterized by an unusually high risk level. The Capital Asset Pricing Model (CAPM) introduced by Sharpe (1964), Lintner (1965) and Mossin (1966) teaches us that the total risk of a company can be decomposed into

systematic and company-specific (idiosyncratic) risk. The former component is related to general market conditions, while the latter is, to a large extent, related to managerial actions. In order to gauge company-specific risk, we run the following regressions:

$$R_i(t) - R_f(t) = \alpha + \beta (R_M(t) - R_f(t)) + \varepsilon_i(t), \text{ where } t \in [-250, -1] \quad [3]$$

The estimation period is selected relative to the date of disclosure ($t=0$) of a given annual report. R_i denotes the return on the company issuing an annual report i , R_M is the return on the FTSE 350 stock market index, while R_f is the daily equivalent of the 3-month UK LIBOR rate acting here as a proxy for the risk-free rate. Our *Idiosyncratic_Risk* variable is calculated as the standard deviation of the residuals (ε) from regression [3]. In other words, *Idiosyncratic_Risk* is the component of the riskiness that is orthogonal to overall market fluctuations and should take high values whenever part of the managerial team is exhibiting psychopathic behavior.

4.4. Lack of empathy

The PCL-R scale includes items capturing callousness, lack of empathy and parasitic behavior oriented towards satisfying egoistic needs. From the point of view of a management, such attitudes could manifest themselves through disregard for corporate social responsibility (CSR) in general and charitable giving in particular. Simply put, philanthropy involves altruistic donation without expecting anything in return. Such a notion is completely alien and absurd to somebody with a psychopathic personality disorder. This inborn psychopathic instinct may however be considered misguided when one considers the bigger picture. Corporate donors often experience increased brand recognition and reputation (Smith, 1994; Brammer and Millington, 2005). They also accumulate ‘moral capital’, which can shield intangible assets and increase shareholder wealth (Godfrey, 2005). Considerations about intangible assets aside, we would expect corporations led by people with psychopathic traits to give less money to good causes.

The extent to which money is given can be easily measured in our study as, during our sample period, companies were disclosing details of their charitable donations in the directors’ report section of their annual reports. Since our empirical measure needs to recognize the fact that, nominally

speaking, large companies can commit larger resources to charitable undertakings, we scale the amount donated in a given fiscal year by the market capitalization of the firm. As such, this scaled proxy measures altruism, rather than lack of empathy. Transforming it by taking reciprocal⁸ is impossible, as for non-donating companies we would face the problem of dividing market capitalization by zero. Instead, we simply multiply the altruism measure by -1 to arrive at the following variable:

$$Lack_of_Empathy_i = -(Charitable\ Donations_i / Market\ Capitalization\ of\ the\ Firm_i) \quad [4]$$

By construction, *Lack_of_Empathy* peaks at zero for non-donating firms and reaches a minimum of -1 in the hypothetical case in which a firm decides to give away all of its wealth to charitable causes.

V. Data

As mentioned in the introduction, the goal of this paper is to check whether psychopathy proxies can forecast firms' returns over the following 250 trading days. The prediction horizon is roughly equivalent to one calendar year, as most of the data needed to construct our proxies is sourced from annual reports. The returns are chosen as the dependent variable, as they measure changes in future shareholders' wealth. Returns may be preferred to accounting performance measures in the context of our study, as corporate psychopaths have the tendency to manipulate financial numbers and commit fraud (Klarskov Jeppesen and Leder, 2016). Lambert and Larcker (1987: 114) argued that accounting numbers are less useful as a performance metric compared to market returns in situations where the ramifications of managerial decisions extend beyond one fiscal year. Additionally, successful predictions of future returns can change the fortunes of investors and lead to development of practical trading recommendations. Such benefits may not be attainable when modelling accounting profitability, as Lev (1989) indicated that the correlation between earnings and returns is very modest and unstable.

Our study focuses on the constituents of the FTSE350 index, however, a number of firms had to be eliminated in the process of cleaning the sample. Firstly, we excluded 72 companies involved in financial intermediation, as the structure of their annual report narratives is significantly different due

⁸ By reciprocal we mean (Market Capitalization of the Firm/Charitable Donations).

to existing regulations.⁹ We note that other studies performing content analysis in the UK context also removed financial institutions from their sample (e.g. Clatworthy and Jones, 2003; Schleicher and Walker, 2010). Secondly, we excluded all firms that have been subject to a merger or a takeover during the time frame considered. Lastly, we did not include companies for which annual reports and sufficient data on financial performance could not be found. As a result of imposing these sample selection criteria, we ended up with a total of 209 firms and 1,262 firm-years.

The annual reports used in this study were sourced from the web pages of companies, Bloomberg and Morningstar. We examined the reports published during the period ranging from January 2006 to June 2013. Since this study scrutinizes returns accruing to investors within approximately one year following the publication date, our return sample ends in June 2014. In order to determine an accurate annual report publication date, we collected information on the timing of disclosure in Morningstar and Bloomberg, to see which one occurred first. A practical complication that arises in our analysis relates to the fact that annual reports in the UK are usually published in pdf format. We had to convert these files to plain text before carrying out our automated content analysis in *Diction*. For conversion purposes, we used *Convert PDF to Word Desktop Software* and, for predominantly picture-based reports, an optical character recognition system called *Smart OCR*. Checks have been performed to verify whether the conversion to text was faithful and any detected inconsistencies were manually fixed. Financial section was removed from the annual reports, as it is mostly quantitative and written in accordance with regulatory standards and conventions. This leaves little space for management to express their personality and views within its content. The final files were analyzed using *Diction*, which allowed us to construct the *Psychopathic_language* variable.

Another two psychopathic proxies, namely *Audit_Problems* and *Lack_of_Empathy* were also constructed based on the information provided in the annual reports. The first one is a dummy taking a value of 1 when auditors express reservations in the *Emphasis of Matter* section. In order to construct the second variable, we sourced information on charitable donations from the directors' report section. Where this amount was expressed in foreign currency, we converted it to British pounds at the end of

⁹ Financial institutions have to comply with IAS30 and Basel Accord and their published narratives concentrate a lot of attention on fulfilment of these regulations.

fiscal year exchange rate reported in the annual report. In cases where data on exchange rates was not reported, we sourced it from the Bank of England Statistical Interactive Database. The market capitalization used for scaling the donations figure was downloaded from Thomson Reuters Datastream. In order to compile the list of actions that the Financial Reporting Council took against our sample companies, we performed searches of the online FRC news archive. This subsequently allowed us to construct the *FRC_Action* variable. Finally, the stock price data needed to construct both the *Idiosyncratic_Risk* and the dependent variable was taken from Thomson Reuters Datastream.

In an attempt to cleanly isolate the influence of psychopathic traits, we need to control for a range of other factors that could potentially affect future returns. For instance, the Capital Asset Pricing Model developed by Sharpe (1964), Lintner (1965) and Mossin (1966) implies that stock returns should be a linear function of company's beta, which is related to the amount of systematic risk. Consequently, we include the firm's beta (*Beta*) estimated immediately prior to the annual report announcement date as one of our regressors. Similarly, the size of the company could be considered to be of significance. Banz (1981) and Fama and French (1992) showed that, historically, smaller stocks earned higher returns for investors. This could represent compensation for the undesirable characteristics of small companies, such as higher risk and transaction costs, as well as low liquidity. To control for these effects, we construct a *Size* variable, which is equal to the natural logarithm of the market capitalization of the firm. Additionally, we include the book-to-market ratio in our regressions to account for the finding of Rosenberg, Reid, and Lanstein (1985) that this ratio has predictive power for returns.

Furthermore, we need to control for the financial performance of the company, which is quantified in the annual report. At the same time, however, we recognize the fact that much of the informational content inherent in this type of annual disclosure may have been incorporated in stock prices at an earlier date, as many of the UK companies publish quarterly and half-yearly financial results. The first performance variable we construct is *Earnings_Growth*, defined as the difference between the current and previous year's earnings per share scaled by share price. Moreover, guided by the observation of Jordan, Waldron, and Clark (2007) that sales have important ramifications for the value of common equity, we build a measure labeled *Sales_Increase* which captures the year-to-year

percentage growth in the firm's turnover. The first difference in financial leverage ($\Delta Leverage$) is also included as an explanatory variable, due to the fact that indebtedness is one of the important determinants of bankruptcy risk (Altman, 1968). All of the information required to construct our control variables was sourced from Thomson Reuters Datastream.

Last but not least, we take account of business cycle variation. This is necessary, as our sample witnessed a period of recession, which exerted its influence on capital markets and asset prices. To capture the macroeconomic environment, we used monthly data on growth in industrial production, inflation in Consumer Price Index and changes in the harmonized unemployment rate. This data has been sourced from Key Short-Term Economic Indicators published by OECD. For any given company-year, the information on macroeconomic aggregates is recorded for a month in which the annual report was first disseminated. Table I provides a complete list of variables used in our study, with their corresponding definitions.

[Table I about here]

[Table II about here]

The summary statistics reported in Table II reveal interesting characteristics of our sample and aptly describe the underlying processes. Since the *Psychopatic_Language* variable is composed of four z-scores, its mean by construction is equal to zero. In 1.19% of company-years, auditors indicated some issues in the *Emphasis of Matter* section and 0.24% of observations could be linked to publicized FRC interventions. In a representative year, companies donated an equivalent of 0.05% of their market capitalization to charitable causes. Furthermore, the period under consideration was characterized by declining corporate profits, which occurred despite increasing sales. Macroeconomic context was unfavorable, with an average company-year experiencing a slight decline in industrial production and a rise in unemployment. Stock market fluctuations reflected the adverse conditions of credit crunch and, nominally speaking, the equally-weighted annual return barely exceeded 3%.

[Table III about here]

Table III presents Pearson correlation coefficients between the variables used in our study. Interestingly, all gauges of psychopathy correlate negatively with future returns. For 4 out of the 5 proxies considered the relationship with returns is statistically significant. Such results imply that managerial psychopathic behavior is an ominous sign of shareholder wealth destruction. This conclusion needs to be tempered by the fact that correlation analysis is rather simplistic and additional controls need to be introduced in order to arrive at more definitive conclusions. Importantly, Table III shows that the correlations between explanatory variables are not particularly high, which means that multicollinearity is not likely to be present in the regressions that will follow. Multicollinearity leads to less stable parameter estimates and inflation of their standard errors. According to Chatterjee and Price (1991), variance inflation factors (VIFs) above the value of 10 are indicative of this econometric problem. Since the highest VIF in our regressions is equal to 1.34, we are confident that this issue is immaterial.

VI. Empirical Results

Two modeling approaches are adopted in order to link the future stock returns to managerial psychopathy proxies and control variables. Regressions (1)-(4) in Table IV employ a simple pooled OLS estimation. Furthermore, since our data has an unbalanced panel structure we also utilize panel data methods. Hausman (1978) tests indicate lack of orthogonality between random effects and the regressors, which implies that fixed effect panel needs to be used in order to obtain consistent estimates. Such panel is superior to the pooled specification in that it controls for time-invariant differences across firms. We attempted to estimate panel equivalents of the regressions (1)-(4) and report these in the Table V. However, when company dummies are added into model (1) they appear to be jointly insignificant. This means that, in this particular case, panel estimation is not advisable, as it will cause inefficiency and not lead to notable improvements in the goodness of fit.

One important aspect needs to be stressed at this point. All information required to construct our company-specific explanatory variables is available on the annual report publication date (Day 0). On the other hand, the stock returns, which act as our dependent variable, are measured in a (1,250) event window relative to the publication day. This means that models (1)-(3) in Table IV, as well as

their corresponding analogues in Table V, can be interpreted as predictive regressions. Models incorporating business cycle proxies are not predictive in the strict sense of this word, as information about macroeconomic aggregates is typically released with some delay.

[Table IV about here]

[Table V about here]

Examination of Tables IV and V reveals several interesting relationships. The first observation is that the *Psychopathic_Language* variable bears a negative coefficient and is statistically significant in all specifications. Only employees with sufficient authority to influence the wording of annual report narratives can alter the value of this variable. Consequently, this measure captures the degree to which psychopathic behavior has permeated the higher echelons of corporate power. When power is combined with reckless and self-serving comportment, the consequences for the company can be particularly dire. This is reflected in our estimates. In general, our finding is in line with Boddy (2011a), who labels psychopaths as 'organizational destroyers'.

We also observe that the reluctance of auditors to approve an annual report without any word of warning, as well as the launch of FRC investigations, are prognosticators of inferior future returns. The latter regressor, however, lacks statistical power, which could possibly be linked to the fact that publicized FRC interventions are very infrequent. As mentioned earlier, both *Audit_Problems* and *FRC_Action* are indicators for questionable integrity. Extant research documents that events undermining confidence in firm's or managerial honesty, such as publication of restatements or alleged financial fraud, provoke strong and immediate stock price declines (see, for instance, Palmrose *et al.*, 2004 and Fich and Shivdasani, 2007). What differentiates our findings from those reported in the literature is that we document the importance of trustworthiness in making medium-term return predictions. All of our regressions indicate that one-year-ahead returns are significantly lower for firms whose published annual report includes auditors' comments in the *Emphasis of Matter* section.

With regard to *Idiosyncratic_Risk* our results and rationalizations are quite interesting, particularly in view of the discord that exists between the theoretical and empirical literature on this

subject. Some theoretical models predict a positive nexus between idiosyncratic risk and returns (Levy, 1978; Merton, 1987), primarily due to the compensation demanded by under-diversified investors. On the other hand, Ang *et al.* (2006) and Ang *et al.* (2009) show that stocks with high historical idiosyncratic volatility offer ‘abysmal’ rewards to investors. We confirm these empirical findings in our sample and propound an explanation for the observed phenomenon. Psychopathic managers, who are by their very nature impulsive and stimulation-seeking, are likely to approve very risky projects without making any attempt to hedge out or diversify away the risk. Since, as we argued earlier, their presence is detrimental to the companies they work for, a low return and high company-specific risk constellation will form. In other words, to fully explain the negative association between *Idiosyncratic_Risk* and *Returns*, one needs to move beyond the rational portfolio optimization framework and consider behavioral factors.

With regard to the *Lack_of_Empathy* variable, we note that firms failing to donate to charitable causes experience lower future returns. Seen through the psychopathic lens, philanthropy appears to be counterproductive, as *prima facie* the company is not expected to benefit from such activity. Such a view, however, proves to be simplistic and rather one-dimensional. Corporate charitable giving has been shown to improve customer perception, thereby increasing the revenue of the donating firm (Lev *et al.*, 2010). The study of Patten (2008) reported that companies announcing donations to the 2004 Southeast Asia tsunami relief effort recorded an abnormal increase in their stock prices. In similar vein, our findings indicate that engagement in charitable undertakings enhances the future wealth of shareholders. Since empathy-lacking psychopathic corporate leaders shy away from such undertakings, the returns on their companies are significantly reduced.

Several interesting observations can also be made with regard to our control variables. The insignificance of *Beta* illustrates the failure of the Capital Asset Pricing Model to explain more recent data. Fama and French (1992) argued that size and book-to-market variables have much greater power to explain return distribution compared to CAPM’s beta. Our findings concur with their inferences. The negative coefficient on the *Size* variable is particularly intriguing from the point of view of our theorizing. Babiak and Hare (2006: 97) argue that, when searching for new employers, psychopaths will have a strong preference for big companies. In their constant search for ego gratification, they will

apply for positions that offer the best opportunities to gain more money and power. Such opportunities may be sparse in small capitalization firms. If the argument of Babiak and Hare (2006: 97) is correct, one would expect a positive correlation between the incidence of psychopaths and market capitalization of a company, which could explain the negative coefficient.

The three controls constructed from accounting figures published in the annual report are statistically insignificant in our predictive regressions. This is not particularly surprising, as the yearly figures can be reasonably accurately forecasted based on interim results published by companies prior to their annual reports. This means that much of the information content inherent in annual financial statements has been discounted in prices at an earlier date and is of little use for return forecasting purposes. Our interpretation coheres with the results of Ball and Brown (1968), who argue that about 85 to 90 percent of the income statement's information published in annual reports has already been captured by earlier reports.

With regard to macroeconomic controls, the results conform to intuition and existing theory. As documented previously by Chen *et al.* (1986) and Nasseh and Strauss (2000), fortunes of the stock market are dependent on whether the economy is expanding. Inflation appears to be detrimental to stock valuations. In an inflationary environment, firms may struggle to pass through their escalating costs onto the consumer. At the same time, nominal discount rates rise swiftly, depressing the market value of equity. When interpreting the coefficient on $\Delta Unemployment$, one needs to realize that the total impact of joblessness figures is unclear from a theoretical perspective. On one hand, unemployment represents inefficient allocation of resources and may be symptomatic of a weak economy. On the other hand, news of rising unemployment may change the direction of monetary policy and reduce interest rates, leading thereby to stock price increases (Boyd, Hu and Jagannathan, 2005). This theoretical ambiguity is reflected in the instability of the $\Delta Unemployment$ coefficient across different estimation methods.

VII. Further Considerations

7.1. Industry grouping

One could argue that actions of companies and their stock returns may be dependent on industry grouping. For this reason, we proceed to verify whether the relationship between changes in shareholders' wealth and psychopathic traits remains significant, even after accounting for the influence of industry sector. To this end, we create nine dummy variables reflecting the Standard Industry Classification codes of the sample companies. The nine industries captured by the dummies are: agriculture, mining, construction, manufacturing, TCEGS (Transportation, Communications, Electric, Gas and Sanitary Services), wholesale, retail, real estate & insurance, and services. In order to avoid perfect multicollinearity, we exclude *Public Administration*, which acts as a benchmark in our regression. Results from the pooled OLS regressions controlling for industry classification (not tabulated) reveal that four out of five psychopathic measures prove to be statistically significant predictors of returns and that none of the industry indicators attains statistical significance.

7.2. Other measures of company performance

Stock returns have been the only gauge of corporate performance examined thus far. Although this gauge is undoubtedly the most important from the shareholders' viewpoint, other performance indicators may also warrant investigation. For instance, one suitable measure which has been used as a control in our study is *Earnings_Growth*. It is defined as an increase in earnings per share scaled by the stock price. This variable is employed here to investigate whether there is a link between psychopathic-like behavior of corporations and their future fundamentals. More specifically, we examine the relationship between the current level of psychopathy proxies and the next year's *Earnings_Growth* in columns (1) and (2) of Table VI. With the exception of *FRC_Action*, all of the psychopathy variables are negatively signed in both the pooled OLS and the fixed effect specifications. *Psychopathic_Language*, *Audit_Problems* and *Idiosyncratic_Risk* are statistically significant in at least one of the two models.

[Table VI about here]

We further probe the nexus between the presence of managerial psychopathy and corporate profitability by collecting data on the return on assets (ROA) and the return on equity (ROE). In order to eliminate any estimation problems arising from the persistence of these two measures, we express

them in a first differenced form. The predictive regressions (3) to (6) in Table VI show that the same three psychopathic proxies influencing earnings dynamics adversely and significantly affect our profitability metrics. Taken together, these results indicate that losses in shareholder wealth attributable to the presence of psychopaths are not simply confined to reputational damage. Suppression of earnings growth and profitability appear to be other dire consequences, which seem to translate into lower stock market valuations. Such findings are consistent with the corporate psychopathy theory (Boddy, 2017) postulating that psychopaths are present amongst high ranking executives in organizations and that their leadership leads to underperformance and inefficient economic outcomes.

The final performance gauge we examine is Tobin's q (Tobin and Brainard, 1977), defined as the ratio of company's market value to its book value. Models (7) and (8) in Table VI link future changes in Tobin's q to the current level of psychopathic traits and a range of control variables. Regardless of the econometric approach adopted, *Audit_Problems* and *Idiosyncratic_Risk* prove to be statistically significant predictors, which are negatively signed. This inverse relationship may reflect the damaging effect that psychopaths have on the intellectual capital of companies, such as reputation, human and relational capital, or some other intangible assets. These items may not be fully reflected on the balance sheet, because IAS 38 (Accounting for Intangible Assets) stipulates that an intangible asset cannot be recorded unless its fair value is known. Since corporate psychopaths may undermine the value of unrecorded intangibles, they will affect the market valuation more than the book value, leading to changes in Tobin's q .

7.3. Another proxy for psychopathy

Previous empirical research by Boddy *et al.* (2010) and Ray and Jones (2011) documented that individuals with psychopathic personality disorder tend to disregard corporate social responsibility concerns. While such disregard at an organizational level may be symptomatic of psychopathic leadership, the question remains whether financial markets penalize this type of managerial attitude. To explore this issue in greater depth, we have collected data on environmental, social and governance (ESG) scores from the Thomson Reuters Eikon database. For each company, the ESG score is derived by aggregating 178 relevant measures compiled by Thomson Reuters analysts and computing a

percentile rank score (i.e. percentage of companies with a worse corporate social responsibility performance). Our study also utilizes the ESG Combined indicator, which discounts the original ESG scores whenever news controversies arise.

The abovementioned scores, however, pertain to a particular calendar year, which is problematic in the context of our study. The reference date used for the calculation of all of the remaining variables is the date on which the annual report was published. This creates a timing mismatch and implies that the ESG scores cannot be added into our regressions. In order to circumvent the problem, we construct a new variable labeled *Returns_{cy}* which represents company's stock return in a given calendar year. In order to assure variable stationarity, we compute percentage changes in the scores, creating thereby *pcESG* and *pcESG_Combined* variables. Panel A in Table VII reports regression estimates for models linking the value of *pcESG* and *pcESG_Combined* indicators to the stock returns in the subsequent calendar year (*Returns_{cy(t+1)}*). The relationship is clearly positive and statistically significant. Consequently, the negligence of corporate social responsibility that characterizes companies with psychopathic leadership can be viewed as a forewarning of future shareholder losses. We would like to point out, however, that CRS activities are only one of the possible outcomes of "non-psychopathy", which can also foster better customer relations and employee satisfaction.

[Table VII about here]

7.4. Employee turnover

Boddy and Croft (2016) as well as Boddy (2017) provide evidence that employees reporting to a psychopath lose enthusiasm for their jobs and leave the company within a relatively short period. Regrettably, UK companies are not mandated by law to disclose staff turnover statistics, which makes the precise estimation of this effect relatively difficult. One piece of information that is useful in this regard, however, is the composition of the board of directors which is published in annual reports. By collecting data from these reports, we have created a variable called *New_Members* measuring the number of new directors on the board in a given firm-year. The newcomers would usually join the company in order to replace their departed predecessors. In what follows, we use this variable as a crude

proxy for staff turnover. This proxy has admittedly its own shortcomings, as relative to directors, junior employees can be more adversely affected by the presence of the psychopath in the higher echelons of corporate structure. Nevertheless, since data on rotation of lower ranked staff members is not available, we resort to using the abovementioned measure to draw our inferences.

The estimations we have performed reveal that the *New_Members* variable is positively and statistically significantly correlated with *Psychopathic_Language* ($\rho = 0.0641$, p -value = 0.0163) and *Idiosyncratic_Risk* ($\rho = 0.0557$, p -value = 0.0371). The Pearson correlation coefficients for the remaining corporate psychopathy proxies are statistically indistinguishable from zero, although that for *FRC_Action* borders on statistical significance ($\rho = 0.0424$, p -value = 0.1124). Taken together, these results are in line with the observations made in case studies of Boddy and Croft (2016) and Boddy (2017) that individuals working under psychopathic management are more likely to explore alternative employment opportunities.

7.5. Psychopathic proxies and board of directors turnover

Since there are no successful medical therapies at present, psychopathy can be considered a permanent feature of personality. One may therefore argue that the effect of psychopathic management should be picked up fully by time-invariant company dummies in the fixed effect panel return regressions. This, however, proved not to be the case and psychopathic proxies retained their statistical significance in the panel specification. The reason why time dimension matters is related to rotation of corporate leadership. To illustrate this point, we collected data on CEO turnover from annual reports and we created a dummy variable called *CEO_Change*. When a corporate leader is being replaced, there is a possibility that a psychopath is either leaving or joining the company. In the former case we would expect all of the psychopathy proxies to fall in agreement. In the case of the latter, the psychopathic variables would be expected to increase simultaneously. To capture this unison of movement, we create the following variable:

$$Psychopathy_Absolute_Change = \left| \text{Number of increasing psychopathy proxies} - \text{Number of decreasing psychopathy proxies} \right| \quad [5]$$

Since the number of psychopathy proxies considered is five, the maximum value of *Psychopathy_Absolute_Change* is also five and it materializes whenever all of the proxies either fall or rise at the same time. If there is no alteration in the psychological characteristics of the CEO, the *Psychopathy_Absolute_Change* would be expected to take values closer to its minimum of zero.

In what follows, we examine whether CEO replacements alter the expression of corporate psychopathy. To accomplish this task, we link *Psychopathy_Absolute_Change* to *CEO_Change* using a pooled OLS regression. Our findings, which are displayed in Panel B of Table VII, show that psychopathy measures change more consistently following a rotation on the top of corporate hierarchy. We would like to note in passing that, when we focus on the board turnover rather than CEO departures, similar conclusions are reached.

VIII. Conclusions and Recommendations

The findings presented in this paper lend credence to the upper echelons perspective put forward by Hambrick and Mason (1984), which argues that managerial characteristics predict organizational outcomes. More specifically, our empirical analysis supported the hypothesis that psychopathic-like tendencies exhibited by top management teams are particularly destructive from the point of view of shareholder wealth. There are potentially two complementary rationalizations for the observed phenomenon. Firstly, psychopaths who are devoid of compassion and have a natural propensity to lie pose a reputational risk to companies. We documented that reservations expressed by auditors, as well as negligence of corporate social responsibility and philanthropic giving can be detrimental to stock market valuations. Secondly, the presence of psychopaths can negatively impact on the fundamentals of companies, as employee morale plunges, chaos is created, and unnecessary risks are taken. The uncertainties are exacerbated further by the departures of board members who refuse to work in a psychopathic environment. Earnings and profitability ratios of the affected companies have been shown to grow at lower rates, which further justifies the negative stock market reaction.

In their paper, Hambrick and Mason (1984) maintained that investigations into the upper echelons perspective can potentially deliver three major benefits. They can inform the selection process of directors and executives, offer a framework to predict organizational outcomes and foresee the

actions of competitors. Starting with the human resources implications of our study, it is clear that companies should try their utmost to identify psychopathic behavior amongst their current and potential employees. From the recruitment stage, all the information provided by the strongest candidates should be carefully verified. In the UK, employers can request criminal record checks through the governmental Disclosure and Barring Service. Whether the job candidate has indeed received a degree and grade claimed can be ascertained via the official Higher Education Degree Datacheck. Opinions of past employers should be sought, after verifying their contact details. This is important, as pathological liars often give telephone numbers of their friends, claiming that these are the contact details of their past supervisors. While these tasks may sound onerous, they can easily be outsourced to companies that specialize in performing background checks. Secondly, firms should institute appropriate internal controls and procedures, which make it difficult for employees to abuse their power, engage in anti-social behavior or cause injury to others and the firm's reputation. Anonymous complaint procedures should be put in place, in order to protect whistle-blowers against vindictive psychopaths. Thirdly, a psychological evaluation of individuals being considered for positions of great responsibility should be performed. Tools such as B-Scan 360 could be successfully used for this purpose.

In terms of predicting organizational outcomes, we have demonstrated that our psychopathy proxies correlate with future stock returns, changes in profitability ratios, Tobin's q, earnings growth as well as director turnover. Although the nature of return predictability constitutes a valuable insight from the investors' perspective, it is somewhat puzzling on theoretical grounds. The Efficient Market Hypothesis put forward by Fama (1970) states that investors cannot beat the market on a risk-adjusted basis and that stock prices should follow an unpredictable random walk. The results presented here offer evidence to the contrary. We are able to predict significant falls in stock prices of companies which are deemed likely to have psychopaths in their echelons of power. If diligent market participants conduct the necessary research to identify these companies, they will be able to enjoy superior investment performance, simply by eliminating these inferior stocks from their portfolios.

The third benefit of empirical studies on the upper echelon theory, that Hambrick and Mason (1984) alluded to, is the potential ability to foretell moves of competitors within the industry. Companies considering a takeover or merger could assess the target using the psychopathy variables

proposed in our paper. If the values of those proxies are high relative to other companies operating in the market, this will have serious implications for retention of the target's directors and the amount of due diligence required. Further insights are also available to competitors of companies with psychopathic traits. Our results indicate that charitable giving and corporate social responsibility undertakings are powerful tools for building brands and enhancing reputation.

While our study suggests which variables could be useful in the identification procedure, it is merely one of the first steps in the literature. Future research could focus on a broader spectrum of indicators, which we were unable to construct in the UK context due to data unavailability. For instance, turnover of junior staff or employee job satisfaction could potentially be useful in this identification exercise.

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Table I
Variable Definitions

<i>Variable</i>	<i>Definition</i>
<i>Returns</i>	Continuously compounded stock return in a 250-trading day window which starts one day after the annual report publication date.
<i>Psychopatic_Language</i>	A measure derived from automated content analysis of annual report narratives. It increases in the frequency of words representing self-reference, aggression and blame and decreases with the usage of terms related to human interest. The exact formula used in the construction of this variable is given in equation [2].
<i>Audit_Problems</i>	A dummy variable taking a value of 1 whenever the auditors indicated issues within the <i>Emphasis of Matter</i> section of the annual report and 0 otherwise.
<i>FRC_Action</i>	A dummy variable taking a value of 1 whenever the Financial Reporting Council launched a formal action against the company and 0 otherwise.
<i>Idiosyncratic_Risk</i>	Standard deviation of CAPM regression residuals. The CAPM regression is specified in our equation [3].
<i>Lack_of_Empathy</i>	This variable is constructed as $-(\text{charitable donations}/\text{market capitalization of the firm})$.
<i>Beta</i>	Beta of a company estimated by regressing company's returns on FTSE 350 returns during a 200-trading day window (-201, -2), relative to the annual report publication date (Day 0).
<i>Size</i>	Natural logarithm of the company's market capitalization at the end of the fiscal year for which the annual report is published.
<i>Book_to_Market</i>	Book value per share divided by share price at the end of fiscal year to which the annual report refers.
<i>Earnings_Growth</i>	Change in earnings per share relative to the previous year scaled by the share price at the end of the fiscal year for which the reporting is done.
<i>Sales_Increase</i>	An annual percentage change in total revenue.
<i>ΔLeverage</i>	Change in financial leverage defined as $(\text{total liabilities}/\text{total assets})$.
<i>IP_Growth</i>	Industrial production growth relative to previous period.
<i>Inflation</i>	Growth rate in the Consumer Price Index relative to previous period.
<i>ΔUnemployment</i>	Change in the harmonized unemployment rate relative to previous period.

Table II
Summary Statistics

	<i>No. obs.</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>25th Percentile</i>	<i>Median</i>	<i>75th Percentile</i>
<i>Returns</i>	1262	0.0303	0.4293	-0.1649	0.0794	0.2673
<i>Psychopatic_Language</i>	1262	0.0000	1.9469	-1.1162	-0.3326	0.6181
<i>Audit_Problems</i>	1262	0.0119	0.1084	0.0000	0.0000	0.0000
<i>FRC_Action</i>	1262	0.0024	0.0487	0.0000	0.0000	0.0000
<i>Idiosyncratic_Risk</i>	1259	0.0189	0.0091	0.0128	0.0165	0.0223
<i>Lack_of_Empathy</i>	1255	-0.0005	0.0015	0.0000	-0.0001	-0.0004
<i>Beta</i>	1262	0.9053	0.4040	0.6423	0.8625	1.1278
<i>Size</i>	1257	14.2887	1.4543	13.3070	14.0363	15.0170
<i>Book_to_Market</i>	1257	0.5932	0.7756	0.2316	0.3975	0.7531
<i>Earnings_Growth</i>	1254	-0.0187	0.4641	-0.0114	0.0079	0.0263
<i>Sales_Increase</i>	1238	0.0878	0.2610	0.0075	0.0800	0.1660
<i>ΔLeverage</i>	1254	-0.0051	0.1015	-0.0420	-0.0046	0.0289
<i>IP_Growth</i>	1262	-0.0011	0.0103	-0.0096	-0.0019	0.0050
<i>Inflation</i>	1262	0.0033	0.0032	0.0020	0.0030	0.0060
<i>ΔUnemployment</i>	1262	0.0002	0.0012	-0.0010	0.0000	0.0010

Note: For variable definitions please refer to Table I.

Table III
Pearson Correlation Coefficients

	Returns	Psychopatic _Language	Audit_ Problems	FRC_ Action	Idiosyncratic _Risk	Lack_of_ Empathy	Beta	Size	Book_to_ Market	Earnings_ Growth	Sales_ Increase	Δ Leverage	IP_Growth	Inflation
Returns	1.0000													
Psychopatic_Language	-0.0796***	1.0000												
Audit_Problems	-0.0659**	0.1033***	1.0000											
FRC_Action	-0.0197	-0.0334	-0.0047	1.0000										
Idiosyncratic_Risk	-0.0589**	0.0337	0.1160***	0.0566**	1.0000									
Lack_of_Empathy	-0.0915***	-0.0209	0.0178	0.0003	-0.0058	1.0000								
Beta	-0.0232	-0.0410	0.0551*	-0.0640**	0.1398***	-0.0300	1.0000							
Size	-0.1239***	0.0411	0.0127	0.0510*	-0.1121***	-0.2121***	0.1002***	1.0000						
Book_to_Market	0.1296***	-0.0068	0.0810***	-0.0121	0.0209	-0.0197	0.0897***	-0.1645***	1.0000					
Earnings_Growth	-0.1058***	-0.0169	-0.0180	0.0084	-0.0332	0.0106	-0.0232	0.0923***	-0.4589***	1.0000				
Sales_Increase	0.0163	-0.0507*	0.0331	0.0172	-0.0049	-0.0259	0.0199	0.0284	-0.0310	0.0445	1.0000			
Δ Leverage	0.0608**	0.0321	-0.0556*	-0.0195	0.0802***	-0.0508*	-0.0050	-0.0339	0.0451	-0.1538***	-0.0496*	1.0000		
IP_Growth	0.0466	-0.0350	0.0258	-0.0122	0.0243	-0.0252	-0.0152	-0.0511*	0.0158	0.0501*	-0.0269	-0.0525	1.0000	
Inflation	-0.2175***	0.0378	-0.0207	0.0000	-0.0478*	-0.0121	0.0450	0.0573**	-0.0709**	0.0840***	0.0249	-0.0423	0.2311***	1.0000
Δ Unemployment	0.2164***	0.0262	-0.0287	-0.0075	0.0095	-0.0651**	-0.0407	-0.0937***	0.1747***	-0.1488***	0.0813***	0.1391***	-0.0544*	-0.2051***

Note: For exact definitions of the variables see Table I. Correlations were computed based on a sample of 1233 observations for which information on all variables was available. ***, **, * denote statistical significance at 1%, 5% and 10% significance level, respectively.

Table IV
Return Regressions – Pooled OLS

	(1)	(2)	(3)	(4)
<i>Intercept</i>	0.0695** (0.0279)	0.6106*** (0.1288)	0.6106*** (0.1291)	0.6052*** (0.1254)
<i>Psychopatic_Language</i>	-0.0160** (0.0063)	-0.0143** (0.0062)	-0.0155** (0.0062)	-0.0137** (0.0060)
<i>Audit_Problems</i>	-0.2065* (0.1121)	-0.2473** (0.1107)	-0.2363* (0.1280)	-0.2438** (0.1236)
<i>FRC_Action</i>	-0.1686 (0.2454)	-0.0907 (0.2426)	-0.0912 (0.2413)	-0.0691 (0.2327)
<i>Idiosyncratic_Risk</i>	-2.4337* (1.3299)	-3.2165** (1.3334)	-3.2958** (1.3434)	-3.8203*** (1.2976)
<i>Lack_of_Empathy</i>	-25.7462*** (7.9564)	-33.2129*** (8.0253)	-32.3908*** (7.9977)	-28.7521*** (7.7381)
<i>Beta</i>		-0.0060 (0.0300)	-0.0144 (0.0301)	0.0066 (0.0291)
<i>Size</i>		-0.0393*** (0.0086)	-0.0383*** (0.0086)	-0.0318*** (0.0083)
<i>Book_to_Market</i>		0.0631*** (0.0161)	0.0493*** (0.0180)	0.0318* (0.0175)
<i>Earnings_Growth</i>			-0.0468 (0.0288)	-0.0333 (0.0279)
<i>Sales_Increase</i>			0.0366 (0.0453)	0.0253 (0.0440)
<i>ΔLeverage</i>			0.1935 (0.1230)	0.1150 (0.1196)
<i>IP_Growth</i>				3.9861*** (1.1450)
<i>Inflation</i>				-26.6123*** (3.7566)
<i>ΔUnemployment</i>				-51.2733*** (10.0426)
<i>No. obs.</i>	1252	1252	1233	1233
<i>R-squared</i>	2.1094%	5.5220%	6.0294%	12.8529%
<i>F-statistic</i>	5.3700	9.0813	7.1220	12.8312
<i>Prob(F-statistic)</i>	0.0001	0.0000	0.0000	0.0000

Note: This table presents pooled OLS regressions in which 250-trading day return following annual report publication date is taken to be a dependent variable. For definitions of explanatory variables please refer to Table I. The *F*-statistic is for the null that regressors are jointly insignificant. ***, **, * denote statistical significance at 1%, 5% and 10% significance level, respectively.

Table V
Return Regressions – Fixed Effect Panels

	(2*)	(3*)	(4*)
<i>Psychopathic_Language</i>	-0.0292*** (0.0083)	-0.0307*** (0.0082)	-0.0243*** (0.0081)
<i>Audit_Problems</i>	-0.4387** (0.1733)	-0.4476*** (0.1725)	-0.4342*** (0.1682)
<i>FRC_Action</i>	-0.0295 (0.0247)	-0.0374 (0.2455)	-0.0289 (0.2389)
<i>Idiosyncratic_Risk</i>	-5.4606*** (1.4489)	-5.1811*** (1.4609)	-5.5672*** (1.4232)
<i>Lack_of_Empathy</i>	-35.0315*** (13.0399)	-33.4774** (12.9957)	-26.7000** (12.6749)
<i>Beta</i>	0.0591 (0.0420)	0.0445 (0.0425)	0.0545 (0.0414)
<i>Size</i>	-0.4266*** (0.0330)	-0.4400*** (0.0338)	-0.4104*** (0.0343)
<i>Book_to_Market</i>	0.0833*** (0.0244)	0.0911*** (0.0274)	0.0751*** (0.0268)
<i>Earnings_Growth</i>		0.0166 (0.0295)	0.0138 (0.0288)
<i>Sales_Increase</i>		-0.0148 (0.0477)	-0.0162 (0.0468)
<i>ΔLeverage</i>		-0.0346 (0.1216)	-0.0587 (0.1192)
<i>IP_Growth</i>			2.1506* (1.1471)
<i>Inflation</i>			-31.7637*** (4.3245)
<i>ΔUnemployment</i>			11.9177 (10.0569)
<i>No. obs.</i>	1252	1233	1233
<i>R-squared</i>	31.4183%	32.1940%	36.0028%
<i>F-statistic</i>	2.1951	2.2085	2.5736
<i>Prob(F-statistic)</i>	0.0000	0.0000	0.0000
<i>Hausman Test (χ^2 - statistic)</i>	279.7472	284.9275	254.9335
<i>Prob (χ^2 - statistic)</i>	0.0000	0.0000	0.0000

Note: This table presents fixed effect panel regressions in which the dependent variable is defined as the 250-trading day return following annual report publication date. For definitions of explanatory variables please refer to Table I. Regressions (2*)-(4*) are equivalents of regressions (2)-(4) in Table IV, estimated using a different econometric method. The *F*-statistic is for the null that regressors are jointly insignificant. The null hypothesis for the Hausman (1978) test is that the random effects are orthogonal to the regressors. To conserve space, we do not report the fixed effect estimates. ***, **, * denote statistical significance at 1%, 5% and 10% significance level, respectively.

Table VI
Psychopathic Traits and Other Performance Measures

Dependent Variable	<i>Earnings_Growth(t+1)</i>	<i>Earnings_Growth(t+1)</i>	$\Delta ROA(t+1)$	$\Delta ROA(t+1)$	$\Delta ROE(t+1)$	$\Delta ROE(t+1)$	$\Delta Tobins_q(t+1)$	$\Delta Tobins_q(t+1)$
	Pooled OLS (1)	Fixed Effect Panel (2)	Pooled OLS (3)	Fixed Effect Panel (4)	Pooled OLS (5)	Fixed Effect Panel (6)	Pooled OLS (7)	Fixed Effect Panel (8)
<i>Intercept</i>	0.1952 (0.1468)		0.1064*** (0.0289)		-1.9186 (2.7442)		11.8465 (15.2868)	
<i>Psychopathic_Language</i>	-0.0124* (0.0069)	-0.0157 (0.0101)	-0.0026* (0.0014)	-0.0048** (0.0021)	-0.2231* (0.1299)	-0.4235** (0.2058)	-0.5545 (0.7236)	-1.0678 (1.1265)
<i>Audit_Problems</i>	-0.5521*** (0.1414)	-1.0385*** (0.2067)	0.0073 (0.0279)	0.0370 (0.0421)	-5.1522* (2.6444)	-3.2153 (4.1997)	-89.4414*** (14.7310)	-59.5806*** (22.9876)
<i>FRC_Action</i>	0.0183 (0.2661)	0.0744 (0.2954)	0.0002 (0.0525)	0.0131 (0.0601)	-1.0013 (4.9752)	-0.9965 (6.0009)	6.4415 (27.7147)	4.5720 (32.8471)
<i>Idiosyncratic_Risk</i>	-2.1515 (1.5535)	-4.6146** (1.8678)	-1.1097*** (0.3063)	-1.2781*** (0.3771)	34.7901 (29.0459)	55.4384 (37.6392)	-597.3213*** (161.8027)	-647.7687*** (206.0240)
<i>Lack_of_Empathy</i>	-5.1412 (8.9140)	-3.4568 (15.6494)	0.3023 (1.7557)	0.0357 (3.1870)	51.2054 (166.6646)	90.0298 (318.0694)	177.1509 (928.4210)	822.4175 (1741.0000)
<i>Beta</i>	-0.0081 (0.0340)	-0.0108 (0.0532)	0.0045 (0.0067)	0.0063 (0.0109)	-0.6364 (0.6358)	-1.1917 (1.0870)	0.8199 (3.5420)	-3.3067 (5.9497)
<i>Size</i>	-0.0062 (0.0097)	-0.2094*** (0.0449)	-0.0049** (0.0019)	-0.0350*** (0.0091)	0.1052 (0.1820)	0.5948 (0.9102)	-0.3446 (1.0141)	-5.5012 (4.9819)
<i>Book_to_Market</i>	-0.1240*** (0.0203)	-0.1545*** (0.0334)	-0.0144*** (0.0040)	-0.0261*** (0.0068)	0.2372 (0.3798)	0.4450 (0.6774)	1.7411 (2.1155)	-0.3592 (3.7078)
<i>Earnings_Growth</i>	-0.2300*** (0.0320)	-0.3216*** (0.0355)	-0.0333*** (0.0063)	-0.0367*** (0.0072)	0.2156 (0.5983)	0.3151 (0.7210)	1.2003 (3.3331)	0.7983 (3.9467)
<i>Sales_Increase</i>	-0.0679 (0.0505)	-0.1279** (0.0568)	-0.0005 (0.0100)	0.0015 (0.0118)	0.8783 (0.9450)	1.1223 (1.1779)	14.9553*** (5.2643)	16.5835** (6.4475)
Δ Leverage	0.0895 (0.1378)	-0.0150 (0.1482)	0.1169*** (0.0272)	0.1169*** (0.0301)	7.6457*** (2.5770)	8.4053*** (3.0009)	9.8081 (14.3557)	5.4471 (16.4261)
<i>IP_Growth</i>	3.8725*** (1.3619)	3.5268** (1.4658)	1.1230*** (0.2685)	1.0641*** (0.2980)	-19.0686 (25.4634)	-18.5158 (29.7360)	249.2221* (141.8460)	265.0789 (162.7645)
<i>Inflation</i>	-0.1895 (4.6969)	-7.5701 (5.7671)	-2.5707*** (0.9261)	-2.9487** (1.1750)	64.2180 (87.8185)	104.2922 (117.2661)	321.2736 (489.2011)	672.2698 (641.8732)
Δ Unemployment	-5.7395 (11.7296)	-29.9901** (12.6210)	-4.6919** (2.3126)	-7.0273*** (2.5733)	-134.7966 (219.3077)	-101.5759 (256.8225)	2336.7460* (1221.6740)	2144.3580 (1405.7560)
<i>R-squared</i>	8.0552%	23.2251%	7.4784%	17.2337%	1.7442%	2.6455%	6.2404%	10.3058%

Note: This table presents pooled OLS and fixed effect panel regressions linking future changes in performance indicators to psychopathy proxies and other controls. The performance indicators used here include: next year's *Earnings_Growth*, future change in Tobin's q (defined as market-to-book ratio) and changes in return on assets and return on equity at time t+1. Table I provides the definitions of the explanatory variables. All of the presented regressions are based on 1172 observations. Psychopathy proxies significant at the conventional significance levels are indicated using bold font. To conserve space, we do not report the fixed effect estimates. ***, **, * denote statistical significance at 1%, 5% and 10% significance level, respectively.

Table VII
Corporate Governance and CEO Changes

Panel A. Regressions Linking Future Returns to Changes in Corporate Governance		
Dependent Variable: <i>Returns_cy(t+1)</i>		
	(1)	(2)
<i>Intercept</i>	0.0050 (0.0148)	0.0056 (0.0147)
<i>pcESG</i>	0.1686** (0.0835)	
<i>pcESG_Combined</i>		0.0995** (0.0449)
<i>No. obs.</i>	937	937
<i>R-squared</i>	0.4343%	0.5224%
<i>F-statistic</i>	4.0786	4.9100
<i>Prob(F-statistic)</i>	0.0437	0.0269
Panel B. Strength of Psychopathic Proxies Changes and Board of Directors Turnover		
Dependent Variable: <i>Psychopathy_Absolute_Change</i>		
	(1)	
<i>Intercept</i>	1.4610*** (0.0274)	
<i>CEO_Change</i>	0.1565* (0.0881)	
<i>No. obs.</i>	1193	
<i>R-squared</i>	0.2636%	
<i>F-statistic</i>	3.1482	
<i>Prob(F-statistic)</i>	0.0763	

Note: The regressions reported in Panel A model the association between stock returns in a given calendar year (*Returns_cy*) and the percentage changes in the environmental, social and governance (ESG) scores in the previous calendar year. *pcESG* denotes the percentage growth in Thomson Reuters ESG scores for a particular company, while *pcESG_Combined* adjusts these scores for ESG controversies. The dependent variable in the regressions shown in Panel B is *Psychopathy_Absolute_Change* measuring whether the five main psychopathy proxies defined in the paper increase or decrease in unison. More specifically, it is defined the absolute value of the difference between the number of proxies that experienced an increase and the number of proxies experiencing a fall. The explanatory variable *CEO_Change* is a dummy taking the value of 1 whenever the chief executive officer is replaced and 0 otherwise. ***, **, * denote statistical significance at 1%, 5% and 10% significance level, respectively.