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## **Personality and various motives of entrepreneurial exit in highly innovative industries**

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### **Abstract**

Entrepreneurial exit is widely understudied (DeTienne and Cardon 2010), especially in highly innovative environments. Particularly, research on entrepreneurial exit mainly recognizes economic factors that determine exit decisions (see Wennberg et al. 2010). However, as Gimeno et al. (1997) claim that entrepreneurs at least rely in part on their psychological income when it comes to exit decisions, even non economic forces may lead to exit. These non economic factors, like relationships and emotional health, are though supposed to be useful to investigate (Cardon et al. 2005, DeTienne and Cardon 2010), because entrepreneurial exit has a strong impact on the entrepreneur, the firm, industry dynamics and the whole economy through the reallocation of resources (DeTienne 2010). On the other hand, entrepreneurs with certain qualities design their firms and their firm environments (Sarasvathy 2004), which may have an impact on their propensity to exit. But what are these factors? One very promising approach to explain entrepreneurial exit are the Big Five personality traits, consisting of conscientiousness, extraversion, agreeableness, openness and neuroticism (Digman 1990). So far, no study links the Big Five personality measure to various exit motives, which are in part based on non-economic factors. Therefore in this paper I pose the question: 'Are the Big Five personality traits differently related to various entrepreneurial exit motives in highly innovative industries?' In order to answer my research question, I use data from the Thuringian Founder Survey consisting of 423 entrepreneurs from the German federal state of Thuringia. This survey is an interdisciplinary project on the success and failure of team- or solo-entrepreneurs in the East German state of Thuringia. The entrepreneurs that are investigated in this study operate in innovative industries according to Centre for European Research (ZEW) classification 'advanced technology' and 'technology-oriented services' (Grupp and Legler 2000). 98 of the 423 (co-) founders ceased their entrepreneurial activity. From these 98 discontinuances, I could also identify four specific reasons for discontinuance. Multivariate Cox-regressions (Wei, Lin and Weissfeld 1989) are employed to trace the possible link between the entrepreneur's Big Five personality traits and the three above introduced reasons to exit, namely (1) overinvestment of personal resources, (2) low job satisfaction, and (3) problems with other team members, given a founder team exists,

and (4) other reasons with the help of a competing risks framework.

My results indicate that from the Big Five only neuroticism has a (negative) effect on exit due to overinvestment. Moreover, exit because of problems with other founder team members negatively relates to agreeableness. Finally, I find that exit due to job dissatisfaction positively relates to extraversion and neuroticism, while it negatively relates to agreeableness.

The above results imply that entrepreneurial exit is not only affected by economic considerations, but by other motives, like well being, relationships and risk taking preferences, too. Viewing strategic exit decisions only from the point of economic firm performance hence may fall short of tackling the issue of entrepreneurial exit. This finding suggests that psychological income may play an important role in entrepreneurial exit decisions, as it is proposed by Gimeno et al. (1997). As a consequence, individual differences in explaining entrepreneurial exit decisions are not only related to human capital, opportunities or demographic factors (see Wennberg et al. 2010), but also the personality of entrepreneurs. In conclusion, investigating factors that affect various exit motives might be a more fruitful approach to understand exit decisions than only consider exit as a one dimensional phenomenon.

# **For Whom the Bell Tolls - Personality and various motives of entrepreneurial exit**

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**VERY PRELIMINARY DRAFT**

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## **1. Introduction**

Many studies on entrepreneurship address characteristics of entrepreneurs and their effect on entrepreneurial success or failure. A popular proxy for failure is entrepreneurial exit (Brüderl et al. 1992). In most of the studies on exit there is no differentiation among various exit reasons (Davidsson 2008, Watson 2010), like between failure and successful closure (see Headd 2003). Moreover, research on various exit reasons mainly recognizes economic factors that determine exit decisions (see Wennberg et al. 2010). However, as Gimeno et al. (1997) claim that entrepreneurs at least rely in part on psychic benefits when it comes to exit decisions, even non-economic forces may lead to exit. These non economic factors, like relationships and emotional health, are though useful to investigate (Cardon et al. 2005, DeTienne and Cardon 2010), because entrepreneurial exit has a strong impact on the entrepreneur, the firm, industry dynamics and the whole economy through reallocation of resources (DeTienne 2010). In general, entrepreneurial exit is widely understudied (DeTienne and Cardon 2010).

On the other hand, entrepreneurs with certain qualities design their firms and the surrounding, which may impact their propensity to certain outcomes (Sarasvathy 2004). But what are these factors? One very promising avenue of research in explaining entrepreneurial exit is the entrepreneurs' personality. I will use the Big Five personality traits extraversion, agreeableness and neuroticism (Digman 1990, Barrick and Mount 1991, Barrick et al. 2003). To my best knowledge there exist only one study that investigates the relationship between those Big Five personality traits and entrepreneurial failure (Cantner et al. 2011). As a consequence, no study links extraversion, agreeableness and neuroticism to various exit motives.

Therefore in this paper I pose the question: "Does the founder personality differently relates to various exit reasons in highly innovative environments?" The dataset that I utilize in order to answer this question consists of 425 entrepreneurs of highly innovative start-ups located in the German Federal State of Thuringia. With the help of the data, it is possible to distinguish among 4 different motives for quitting entrepreneurial activities, in case that entrepreneurial exit occurred. I employ multivariate Cox regressions (Wei, Lin and Weissfeld 1989) to trace possible links between the entrepreneur's Big Five personality traits extraversion, agreeableness and neuroticism and 4 different motives to quit, which are (1) overinvestment of personal resources, (2) friction in the founder team, (3) job dissatisfaction, and (4) other reasons.

The paper is organized as follows. In the next Section I discuss the threshold model of performance by Gimeno et al. (1997). I demonstrate that not only economic factors play a role in exit decisions. Correspondingly, differing constellations that outbalance economic and psychological income may lead to exit. The potential driver of these differing constellations is the personality as a part of a personality system that shapes the occupational choice functions of entrepreneurs. The personality system theory is introduced in Section 3. Section 4 deals with theoretical and empirical findings on the relationship between the personality and the above mentioned motives to quit. Moreover, the respective hypotheses are derived. The analytical framework and the dataset for testing my hypotheses are introduced in Section 5. Section 6 treats the results and a discussion on them takes place in Section 7.

## **2. Are all exits the same?**

In general, I will follow the definition of entrepreneurial exit given by DeTienne (2010) as "...the process by which the founders of privately held firms leave the firm they helped to create; thereby removing themselves...from the primary ownership and decision-making structure of the firm." Entrepreneurial exit decisions are mainly explained by utility maximization and entrepreneurial exit as a career choice. The model of Gimeno et al. (1997) refers to exit decision of firms through their dominant organizational constituents. In line with

DeTienne and Cardon (2010), I suppose that this model may explain entrepreneurial exit decisions as well. Akin to Gimeno et al. (1997), there are two expected utility functions:

$$\begin{aligned} U_A &= EI_A(X_1) + PI_A(X_2) \\ U_E &= EI_E(X_3) + PI_E(X_4). \end{aligned} \tag{1}$$

$U_A$  notes the expected utility of alternative employment, like launching another firm or to be employed, while  $U_E$  renders the expected utility of remaining in the entrepreneurial firm.  $EI_A$  or  $EI_E$  are the expected economic incomes in a different job or in his own firm, respectively.  $PI_A$  and  $PI_E$  represent the entrepreneurs' psychic income, either in an alternative employment or through remaining in his own firm. If switching costs are neglected, a rational entrepreneur ought to exit his own firm if

$$U_E < U_A. \tag{2}$$

Thus, inserting (1) in (2) and reorganizing to  $EI_E$  on the left hand side leads to

$$\begin{cases} \text{entrepreneurial exit if} & EI_E < EI_A + PI_A - PI_E \\ \text{stay in venture if} & EI_E \geq EI_A + PI_A - PI_E \end{cases}. \tag{3}$$

Equation (3) shows that entrepreneurial exit not only depends on  $EI_E$ , but also on  $EI_A$ ,  $PI_A$  and  $PI_E$  (Gimeno et al. 1997). In this framework a definition of failure that links exit solely to the economic income from business venturing is too narrow. Rather "...failure is the termination of an initiative that has fallen short of its goals" (McGrath 1999). Hence, beyond economic incomes  $EI_E$  and  $EI_A$  also psychological income  $PI_E$  and  $PI_A$  determines entrepreneurial exit decisions, so that investigating exit reasons from a mere financial perspective is inadequate. In other words, different constellations of  $EI_A$ ,  $EI_E$ ,  $PI_A$  and  $PI_E$  may lead to exit and, thus, various exit reasons ought to be investigated in order to draw meaningful conclusions. Therefore, I probe the relation between the entrepreneurs' personality and various exit reasons, which are not only constituted either by economic or financial drivers. But what are these other reasons that set entrepreneurial goals fall short?

Ronstadt (1986) suggests that from the perspective of the entrepreneur there are three main reasons for entrepreneurial exit, namely financial-, personal- and venture-based reasons. However, even this classification might be too general in order to find proper explanations for exit. Thus, I investigate specific subcategories of these three main reasons.

### **2.1. Exit due to overinvestment of personal resources**

With regard to financial reasons, van Witteloostuijn (1998, see also De Tienne et al. 2008, Holland and Shepherd in press) claims that firms remain in operation, even if their performance is poor. A reason for this outcome is escalation of commitment behavior (Staw 1981). This behavior marks the avoidance of exit from an adverse course of action, especially, if the decision unit is responsible for the adverse development. Escalation of commitment behaviour is related to the personality of individuals (Wong et al. 2006). Correspondingly, entrepreneurs who are prone to escalation commitment behaviour may stick to their weak performing firms until they realize distress sale or distress liquidation (Wennberg et al. 2010). As a consequence, one financial reason for entrepreneurial exit might be overinvestment of own resources. Since Cantner et al. (2011) investigate the relationship between personality

and economic entrepreneurial failure in highly innovative environments, it is worthwhile to investigate the personality of exited innovative entrepreneurs who overinvested their private resources and, thus, did not “flight from losses” instead according to van Witteloostuijn’s (1998) classification. In case of overinvestment, for certain entrepreneurs the psychic income in (3) obtained from their venture might be higher than for others, given the same economic performance (Shepherd et al. 2009), which is due to their personal characteristics (Holland and Shepherd in press). Studies on entrepreneurial persistence despite a poor venture performance stress the importance of environmental munificence, investment of personal resources, alternative options, previous organizational success, perceived collective efficacy, extrinsic motivation (De Tienne et al. 2008) and personal values (Holland and Shepherd in press). Nevertheless, relatively little evidence exists regarding personality and persistence or exit an underperforming firm.

I test whether the personality predicts exit due to overinvestment.

## **2.2. Exit due to job dissatisfaction**

Personal problems drive entrepreneurial exit. In this context, personal problems may be affected by a poor performing business venture (Egeln et al. 2010). If expectations and realities in managing a firm diverge, the entrepreneur perceives personal dissatisfaction, which may end up in exit (Cardon et al. 2005). With respect to exit, entrepreneurial job dissatisfaction causes low psychic income in (3), which perhaps is simultaneously affected by low economic venture performance. Therefore, I test how personality relates to entrepreneurial exit due to job dissatisfaction.

## **2.3. Exit due to friction in the founder team**

Besides motives concerning financial and personal issues, firm-based problems cause entrepreneurial exit. If the decision structure of a firm is determined by an entrepreneurial team, conflicts may arise due to disagreeing opinions among the founder management team members (see Amason and Sapienza 1997), which may lead to entrepreneurial exit (Chandler et al. 2005). Founder team conflicts are mainly attributed to team heterogeneity with regard to human capital (Ucbasaran et al. 2003), race, age, prior industrial experience or team size (Hellerstadt, Aldrich and Wiklund 2007). Nevertheless, even team member personalities cause founder team conflicts (Bono et al., 2002; Jong et al. 2011). Because conflicts may end up in both, a poor venture performance (Ensley et al. 2002, Jong et al. 2011) and job dissatisfaction, exit due to disagreement in the founder team is maybe fostered by low psychic income and a poor economic performance in equation (3). I investigate whether personality relates to exit because of disagreement in the founder team, given that a founder team exists.

The next section treats the Big Five personality traits. I employ this measure in order to test whether personality affects various exit reasons differently.

## **3. The Big Five personality traits**

A widely accepted personality measure is the Big Five taxonomy (Digman 1990, Goldberg 1990, Barrick and Mount 1991, Barrick et al. 2003). The Big Five are independent from an individual’s self-concept (McCrae and Costa 1987), valid across different cultures (McCrae and Costa 1997, John and Srivastava 1999), largely time invariant (Costa and McCrae 1992, Roberts and DelVecchio 2000, Hampson and Goldberg 2006) and partly genetically determined (Jang et al. 1997). Moreover, the Big Five relate to occupational behaviour (Robertson and Callinan 1996) and job turnover decisions (Zimmermann 2008).

The Big Five are part of a dynamic personality system (McCrae and Costa 1996, 1999). Particularly, the Big Five result from basic tendencies which develop throughout childhood, mature in adulthood and shape the individual. The link between personality and biographical outcomes is given by characteristic adaptations. Characteristic adaptations are dynamic

motivational, social-cognitive and developmental manifestations, like aims, intentions, personal aspirations, concepts, abilities, relationships or even self-concepts resulting from perpetual personality-environment interactions (McAdams and Pals 2006). I apply the Big Five to figure out differences in the relation between personality and various exit reasons, because they form characteristic adaptations, which affect practical behaviour (McAdams and Pals 2006),

The Big Five taxonomy consists of conscientiousness, extraversion, agreeableness, openness, and neuroticism. Nonetheless, because the theory below implies differing relationships only between extraversion, agreeableness or neuroticism and the investigated exit reasons, I only test for these Big Five traits.<sup>1</sup> The trait extraversion is defined as "...an energetic approach toward the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality" (John and Srivastava 1999). Likewise, extraverted people favour the company of other people and possess surgency. However, this does not mean that extraverts are necessarily liked by other people (McCrae and Costa 1987). Next, neuroticism "...contrasts emotional stability and even-temperedness with negative emotionality, such as feeling anxious, nervous, sad, and tense" (John and Srivastava 1999). One main feature of neuroticism is the propensity to act impulsively and exhibiting negative affect (McCrae and Costa 1987). And finally, the meaning of agreeableness is given by "...a prosocial and communal orientation towards others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty" (John and Srivastava 1999). In contrast, low agreeable people oppose and aim to master other people (McCrae and Costa 1987).

Differing personality effects between other reasons of exit and the above discussed exit avenues, namely overinvestment of personal resources, entrepreneurial job dissatisfaction or friction in the founder team are derived theoretically in the next section. Moreover, I establish hypotheses which are tested in order to answer my research question. I do not suppose differing exit effects from all of the Big Five traits extraversion, agreeableness and neuroticism in any case. Therefore, if there is no theoretical relationship designated, I test it in an explorative manner.

#### **4. Personality and various exit reasons**

##### **4.1. Personality and exit due to overinvestment of personal resources**

Entrepreneurial exit because of overinvestment may occur if entrepreneurs take too much risk (Forlani and Mullins 2000). In this regard, neuroticism is suggested to decrease the risk-taking propensity of individuals (Nicholson et al. 2005, Daly et al. 2010) and is associated with precautionary avoidance (Lommen et al. 2010). Additionally, neurotic people react on adverse outcomes with negative affect and negative affect circumvents escalation of commitment behaviour (Wong et al. 2006). Neuroticism hence may shape characteristic adaptations that lower the innovative entrepreneur's risk taking propensity. Therefore, risk averse innovative entrepreneurs rather may have the tendency to avoid losses or overinvestment and exit earlier than continuing their business under uncertainty (Wennberg et al. 2010). At the same time, neurotic entrepreneurs are less inclined to escalation commitment behaviour. Thus, they may react with affective withdrawal in case their firm performs poor. Therefore, neuroticism probably decreases the exit hazard because of overinvestment, compared to other reasons of exit.

*Hypothesis 1: Compared to other exit reasons, the risk of exit due to overinvestment of personal resources increases if entrepreneurs are lower in (b) neuroticism, and a priori indeterminate in (b) extraversion, and in (c) agreeableness.*

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<sup>1</sup> I even test some model specifications that including the traits of conscientiousness and openness. However, there is no significant relationship between these factors and one of the investigated exit reasons.

#### **4.2. Personality and exit due to job dissatisfaction**

The Big Five trait neuroticism decreases the ability of people to cope with stress (Lahey 2009). Stress negatively relates to job satisfaction (Sullivan and Bhagat 1992). Accordingly, neuroticism relates to job dissatisfaction (Tokar and Subich 1997, Judge et al. 2002, Steel et al. 2008), which in turn may lead to job turnover (Zimmermann 2008). Likewise neuroticism negatively correlates with well-being (McCrae and Costa 1991, Weiss et al. 2007, Steel et al. 2008) and promotes negative affect based on negative mood inductions (Larsen and Ketelaar 1991). Neurotic entrepreneurs thus are more likely leaving their firms because they sense job dissatisfaction, which is triggered through stress in their job. In a similar vein, neuroticism induces bad mood to unsuccessful entrepreneurs, which leads to job dissatisfaction. Affective adaptations shaped through neuroticism in that case might fuel the decision to exit. In conclusion, neuroticism is likely to increase the risk of exit due to job dissatisfaction, compared to other exit reasons.

Extraversion relates to well-being (McCrae and Costa 1991, Weiss et al. 2007, Steel et al. 2008), job satisfaction (Tokar and Subich 1997, Judge et al. 2002, Steel et al. 2008) and positive affect (Mount et al. 1998, Srivastava et al. 2008). However, despite extraversion contributes to job satisfaction, in case there predominates job dissatisfaction, positive affectivity fosters voluntary job turnover (Judge 1992). Hence, if extraverted entrepreneurs sense job dissatisfaction, i.e. because of a poor performing firm, they are more likely to leave their firm voluntarily due to their tendency to positive affect. In contrast to neuroticism which relates to job dissatisfaction, extraversion shapes adaptations that increase the preferences for voluntary entrepreneurial exit, given job dissatisfaction is sensed. Summarized, extraversion increases the likelihood to exit due to job dissatisfaction, compared to other exit reasons.

The trait agreeableness is unrelated to job satisfaction (Judge et al. 2002, Steel et al. 2008). Nonetheless, it is a strong predictor of job satisfaction in the context of work relationships (Organ and Lingl 1995) and decreases the likelihood of job turnover (Zimmermann 2008). Agreeable entrepreneurs accordingly might be less prone to encounter job dissatisfaction in their work relations. Furthermore, agreeableness probably shapes adaptations which prevent entrepreneurs from job turnover. Because manifold interpersonal relationships exist in entrepreneurial activities, like with customers, suppliers, employees or other founder team members, both adjustments developed through agreeableness negatively affect the risk of entrepreneurs to exit because of job dissatisfaction, compared to other exit reasons.

*Hypothesis 2: Compared to other exit reasons, the risk of exit due to job dissatisfaction increases if entrepreneurs are higher in (a) neuroticism and (b) extraversion, while lower in (c) agreeableness.*

#### **4.3. Personality and exit due to friction in the founder team**

Mount et al. (1998) claim that agreeableness and neuroticism are strong predictors of cooperation and teamwork performance. In particular, agreeableness decreases the tendency to have prejudices (see Ekehammar and Akrami 2007) and reduces interpersonal counterproductive work behaviours, like swearing at co-workers (Mount et al. 2006). Agreeableness relates to team job performance (see Mount et al. 1998, Barrick et al. 2001) and a team member's satisfaction with his team (Peeters et al. 2006). Conflicts in the founder team hence are less likely if team members are agreeable, as they are less prejudiced and not prone to interpersonal counterproductive work behaviours. Furthermore, agreeable entrepreneurs may obtain higher job satisfaction from working in a founder team. Agreeableness therefore decreases the likelihood of entrepreneurial exit due friction in the founder team, compared to other exit reasons.

Neuroticism is related to characteristic adaptations like mood swings, stress susceptibility and inefficient coping behaviour. Moreover, it decreases emotional intelligence (Zeidner et al. 2004), which is the capability to recognize ones' own and other people's feelings in order to process this information as a behavioural guidance (Salovey and Mayer 1990). In addition, neuroticism negatively relates to performance in team jobs (see Mount et al. 1998, Barrick et al. 2001) and a team member's satisfaction with his occupational team (Peeters et al. 2006). Neurotic entrepreneurial team members therefore might promote friction in the founder team, as they are moody, less stress resistant and low in emotional intelligence. As mentioned above, neuroticism relates to negative affect in case of negative mood inductions (Larsen and Ketelaar 1991). Owing to interpersonal problems and affective actions, the likelihood to exit due to friction in the founder team might be increased for neurotic entrepreneurs, in comparison to other exit reasons.

*Hypothesis 3: Compared to other exit reasons, the risk of exit due to friction in the founder team increases if entrepreneurs are lower in (a) agreeableness, and higher in (b) neuroticism, and a priori are indeterminate in (c) extraversion.*

## **5. Data and empirical methods**

### **5.1. Sample and data selection**

In order to test the Hypotheses 1-3, I utilize data from the Thuringian Founder Survey. This survey is an interdisciplinary project on the success and failure of team- and solo-entrepreneurs in the German Federal State of Thuringia. The Thuringian Founder Survey focuses on entrepreneurs operating in innovative industries according to Centre for European Research (ZEW) classification "advanced technology" and "technology-oriented services" (Grupp and Legler 2000). The whole population consists of 4,215 founders who registered their firms with the commercial registry in Thuringia between 1994 and 2006. Out of this population, 639 face-to-face interviews were accomplished between January and August 2008. All in all, 219 observations are dropped because of missing observations, lacking interview quality, or they are not original start-ups. The remaining sample size comprises 425 observations from which 98 (co-) founders ceased their entrepreneurial activity till 2008. If there was a team founding, it was aimed in the survey to interview the main founder.

From these 98 discontinuances, four specific reasons for discontinuance are identified<sup>2</sup>, namely exit because of: (1) "I lost too much money" (23 cases), (2) "I was not able to cope with my partners anymore" (29 cases), (4) "I did not enjoy the work anymore" (13 cases), and (4) "Other reasons" (75 cases). With respect to the hypotheses stated, (1) exit due to overinvestment of personal resources was measured by "I lost too much money", (2) exit due to job dissatisfaction by "The work wasn't fun anymore" and (3) exit due to friction in the founder team by "I was not able to cope with my partners anymore". According to Lunn and McNeill (1995), I split up the sample by 4 times to assure 4 different exit hazards for each entrepreneur. Moreover, from 425 entrepreneurs in my sample only those 289 entrepreneurs who participated in team foundations are considered under the risk of exit due to friction in the founder team. After this procedure, there are 1564 observations and 140 exits.

### **5.2. Dependent variable: hazard rate**

I employ multivariate (stratified) hazard rate regressions (Wei, Lin and Weissfeld 1989) to test for differing effects of the entrepreneur's personality on the three above introduced reasons to exit, namely (1) overinvestment of personal resources, (2) job dissatisfaction, (3) problems with other founder team members in comparison to (4) other exit reasons. The hazard rate equals the probability for instantaneous entrepreneurial exit, given that the

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<sup>2</sup> Multiple answers were possible in the questionnaire.

entrepreneur has been active until time  $t$ . Advantages of hazard rate models refer to the recognition of right censoring and nonnegative values of spell-data, which is not possible with logit- or linear regression. The hazard rate of observation  $i$  and type of failure  $k$  is henceforth written by

$$h(t) = \lambda_{0k}(t) \exp(\beta_k' x_{ik}). \quad (4)$$

The failure-type specific baseline hazard function  $\lambda_{0k}(t)$  and the vector of coefficients  $\beta_k$  may vary across types of failures. I exploit this feature in order to investigate differing relationships between the Big Five traits extraversion, agreeableness and neuroticism and various exit reasons. As the nature of dependence among failure times is totally unspecified (Lin 1994), this framework permits correlations among failure times. I employ robust stratum-specific standard errors.

In direction to test differing relationships between various exit reasons and extraversion, agreeableness and neuroticism, I include reason specific interaction terms according to Lunn and McNeill (1995), which allows testing whether there exists a common effect or not. The main effects then account for the relationship between personality and other reasons of exit. However, a straightforward interpretation of the coefficients is difficult in this case, as the relationship among the respective baseline hazard rates is not estimated (Lunn and McNeill 1995). The controls in my models serve as average effects across all exit reasons (see Lin 1994). All the models are estimated with Stata 11.

### **5.3. Explanatory variables: The Big Five traits extraversion, agreeableness and neuroticism and reasons for failure**

The traits extraversion, agreeableness and neuroticism of the investigated entrepreneurs are measured with 27 standardized items, and, in particular, with 9 German bipolar adjectives on a six-point Likert-scale (0-5) (Ostendorf 1990). The level of the traits extraversion, agreeableness and neuroticism is derived by the mean of each of the values on the corresponding bipolar scales.

### **5.4. Control Variables**

Entrepreneurial exit is not only affected by the personality of a founder manager. Also socioeconomic variables and firm features may have an impact on this decision. Beyond the personality of the founder manager, especially in highly innovative environments human capital may explain exit (see Bates 1990, Gimeno et al 1997, DeTienne and Cardon 2010). Likewise, industry related experience is linked to firm exit, which may correspond to entrepreneurial exit too (Klepper 2002, Buenstorf and Klepper 2010). Moreover, firm size has an effect on firm exit (Audretsch and Mahmood 1993, 1994, 1995) and might also drive entrepreneurial exit. With the purpose in mind that the firm environment (Baum et al. 2001) and industry structure (Chrisman et al. 1998) has an effect on firm exit, these factors perhaps affect entrepreneurial exit too. Moreover, the issue whether the founder is involved in an entrepreneurial team ought to have an impact on entrepreneurial exit (Ucbasaran et al. 2003). In conclusion, I control for the age of the entrepreneur at the time of starting the corresponding business, number of years in self-employment, industry related experience (1=Yes, 0=No), if the turnaround in the first year exceeds 100.000 Euros (1=Yes, 0=No), the number of other firms in operation while managing the firm, the number of other founder team members and the NACE industry classification (1-digit, NACE2, chemical industry, 1=Yes, 0=No; NACE2, electrical engineering, fine mechanics, optics, 1=YES, 0=NO; NACE7, information and communication technology, 1=YES, 0=NO).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Extraversion	1																			
2. Agreeableness	0.05	1																		
3. Neurotizism	-0.34***	-0.18***	1																	
4. Conscientiousness	0.19***	0.1	-0.27***	1																
5. Openness	0.27***	0.02	-0.24***	0.11**	1															
6. AGE	0.05	0.14***	-0.02	0.14***	-0.06	1														
7. SELFEMPL	0.05	0.05	-0.04	0.02	0.04	0.17***	1													
8. EXP_IND	0.05	0.06	0.01	0.01	-0.03	-0.04	0.05	1												
9. NO FIRMS	0.06	-0.02	0.03	-0.06	0.05	0.17***	0.41***	0.01	1											
10. NO TEAM MEMBERS	0.03	0	0	-0.03	0.03	0.06	0	0	-0.01	1										
11. TURNAROUND	0	-0.01	-0.11**	0.02	-0.05	0	0.03	-0.15***	0.01	0	1									
12. NACE2	0.05	0.06	0.01	0.09*	-0.12***	0.15***	0.03	-0.02	0.12***	-0.08*	0.08	1								
13. NACE3	-0.07	-0.08*	0.05	0.03	0.02	0.15***	0.04	0.11**	-0.01	0.09*	0.02	-0.31***	1							
14. NACE7	-0.01	0.01	-0.01	-0.15***	0.12***	-0.19***	-0.03	-0.04	-0.06	0.04	-0.2***	-0.41***	-0.42***	1						
15. EXIT_INVEST	-0.01	-0.04	-0.08	0.03	0.04	0.05	0.21***	0.02	-0.06	0.16***	0.01	-0.06	0.06	-0.05	1					
16. EXIT_TEAM	0	-0.09*	0.05	-0.02	0.05	0.15***	0.16***	-0.03	-0.04	0.21***	-0.12***	0.05	-0.03	0.01	0.3***	1				
17. EXIT_SAT	0.06	-0.16***	0.09**	-0.06	-0.01	0.02	0.08	0.06	0.07	0.14***	-0.09*	0.03	0	-0.02	0.26***	0.38***	1			
18. EXIT_OTH	-0.03	0.05	0.02	0.07	0.03	0.18***	0.1**	0.15***	-0.03	0.07	0	0	0.07	-0.05	0.21***	0.17***	0.09*	1		
19. EXIT_ALL	-0.03	-0.05	0.01	0.07	0.03	0.17***	0.13***	0.09**	-0.03	0.14***	-0.09*	0.05	0.03	-0.07	0.44***	0.5***	0.32***	0.58***	1	
20. CENSORED	0.03	0.05	-0.01	-0.07	-0.03	-0.17***	-0.13***	-0.09**	0.03	-0.14***	0.09*	-0.05	-0.03	0.07	-0.44***	-0.5***	-0.32***	-0.58***	-1	1

\* p<.1, \*\* p<.05, \*\*\*p<.01

**Table 1: Correlation coefficients**

	Mean*	Mean+	Mean#	Mean\$	Mean-	SD*	SD+	SD#	SD\$	SD-	Max*	Max+	Max#	Max\$	Max-	Min*	Min+	Min#	Min\$	Min-
1. Extraversion	3.21	3.16	3.17	3.41	3.17	0.63	0.695	0.602	0.474	0.619	4.78	4.11	4.11	4.11	4.44	1.44	1.67	1.67	2.67	1.67
2. Agreeableness	3.11	3.01	2.89	2.58	3.14	0.557	0.78	0.584	0.621	0.611	5	4.44	4.11	3.67	4.44	0.889	1.22	1.44	1.44	1.22
3. Neurotizism	1.36	1.2	1.44	1.63	1.35	0.501	0.609	0.529	0.37	0.547	3.11	2.56	2.56	2.11	2.56	0	0.222	0.375	0.889	0.222
4. Conscientiousness	3.62	3.71	3.63	3.45	3.69	0.601	0.615	0.521	0.661	0.62	4.89	4.78	4.44	4.56	4.78	0	2.33	2.33	2.44	2.33
5. Openness	3.17	3.27	3.26	3.14	3.2	0.536	0.441	0.54	0.409	0.562	4.89	4	4.38	3.78	4.56	1.56	2.33	2.11	2.44	2.22
6. AGE	38.9	41.8	45.2	41.1	43.7	9.27	9.72	8.28	6.53	9.79	63	67	67	51	67	18	25	29	29	25
7. SELFEMPL	2.15	6.22	5.03	4.31	3.55	4.14	7.05	6.72	5.12	4.87	34	26	26	13	26	0	0	0	0	0
8. EXP_IND	0.841	0.783	0.897	0.692	0.72	0.366	0.422	0.31	0.48	0.452	1	1	1	1	1	0	0	0	0	0
9. NO FIRMS	0.352	0.174	0.241	0.615	0.293	0.723	0.388	0.511	1.04	0.588	5	1	2	3	3	0	0	0	0	0
10. NO TEAM MEMBERS	2.21	3.3	3.48	3.46	2.64	1.26	3.07	2.65	3.91	1.35	8	16	16	16	7	1	1	2	1	1
11. TURNAROUND	0.226	0.217	0.034	0	0.147	0.419	0.422	0.186	0	0.356	1	1	1	0	1	0	0	0	0	0
12. NACE2	0.22	0.13	0.276	0.308	0.28	0.415	0.344	0.455	0.48	0.452	1	1	1	1	1	0	0	0	0	0
13. NACE3	0.235	0.348	0.207	0.231	0.227	0.425	0.487	0.412	0.439	0.421	1	1	1	1	1	0	0	0	0	0
14. NACE7	0.373	0.261	0.379	0.308	0.307	0.484	0.449	0.494	0.48	0.464	1	1	1	1	1	0	0	0	0	0
	*indicates observations that continued																			
	+indicates observations that quitted because of financial distress																			
	#indicates observations that quit because of friction in the founder team																			
	\$indicates observations that quit because of dissatisfaction in the job																			
	-indicates observations that quit because of other reasons																			

**Table 2: Summary statistics**

	Model 1				Model 2			
	Exit due to over-investment	Exit due to friction in the founder team	Exit due to job dis-satisfaction	Main effects (other reasons)	Exit due to over-investment	Exit due to friction in the founder team	Exit due to job dis-satisfaction	Main effects (other reasons)
Extraversion	<b>-0.191</b> (0.306)	<b>0.137</b> (0.288)	<b>1.131***</b> (0.378)	<b>0.115</b> (0.192)	<b>-0.186</b> (0.303)	<b>0.137</b> (0.293)	<b>1.147***</b> (0.369)	<b>0.195</b> (0.197)
Agreeableness	<b>-0.508</b> (0.336)	<b>-0.775***</b> (0.267)	<b>-1.423***</b> (0.358)	<b>0.160</b> (0.224)	<b>-0.486</b> (0.343)	<b>-0.817***</b> (0.279)	<b>-1.470***</b> (0.361)	<b>0.148</b> (0.225)
Neuroticism	<b>-0.776*</b> (0.436)	<b>0.132</b> (0.408)	<b>1.451***</b> (0.493)	<b>-0.115</b> (0.268)	<b>-0.756*</b> (0.446)	<b>0.169</b> (0.422)	<b>1.554***</b> (0.502)	<b>-0.0193</b> (0.269)
Openness						<b>Controls</b>		
Conscientiousness						<b>0.310</b> (0.203)		
						<b>0.196</b> (0.214)		
N	1564				1564			
Events	140			EPV: 11.67	140			EPV: 10
AIC	1574.0				1572.9			
BIC	1638.2				1647.9			

Standard errors in parentheses; \* p<.1, \*\* p<.05, \*\*\*p<.01

**Table 3: Models 1-2**

	Model 3				Model 4			
	Exit due to over-investment	Exit due to friction in the founder team	Exit due to job dis-satisfaction	Main effects (other reasons)	Exit due to over-investment	Exit due to friction in the founder team	Exit due to job dis-satisfaction	Main effects (other reasons)
Exit					<b>1.643</b> (1.323)	<b>1.217</b> (1.573)	<b>-3.462*</b> (2.071)	
Extraversion	<b>-0.126</b> (0.344)	<b>0.196</b> (0.333)	<b>1.311***</b> (0.390)	<b>-0.371*</b> (0.212)	<b>-0.143</b> (0.353)	<b>0.195</b> (0.336)	<b>1.290***</b> (0.378)	<b>0.364*</b> (0.210)
Agreeableness	<b>-0.548</b> (0.339)	<b>-0.887***</b> (0.265)	<b>-1.642***</b> (0.359)	<b>-0.0415</b> (0.229)	<b>-0.476</b> (0.350)	<b>-0.856***</b> (0.289)	<b>-1.589***</b> (0.370)	<b>-0.0775</b> (0.228)
Neuroticism	<b>-0.698*</b> (0.402)	<b>0.168</b> (0.398)	<b>1.385***</b> (0.484)	<b>0.0195</b> (0.279)	<b>-0.718*</b> (0.411)	<b>0.0721</b> (0.412)	<b>1.359***</b> (0.480)	<b>0.0519</b> (0.279)
Openness		<b>Controls</b>				<b>Controls</b>		
Conscientiousness		<b>0.466**</b> (0.209)				<b>0.459**</b> (0.210)		
Age		<b>0.156</b> (0.275)				<b>0.170</b> (0.281)		
Selbstdauer		<b>0.0435***</b> (0.0111)				<b>0.0435***</b> (0.0111)		
Industry experience		<b>0.120***</b> (0.0211)				<b>0.120***</b> (0.0214)		
Number of other firms		<b>0.237</b> (0.298)				<b>0.216</b> (0.301)		
No team members		<b>-0.509**</b> (0.253)				<b>-0.506**</b> (0.252)		
Turnaround>100.000E		<b>0.267***</b> (0.0431)				<b>0.271***</b> (0.0454)		
nace2		<b>-0.801**</b> (0.361)				<b>-0.797**</b> (0.365)		
nace3		<b>-0.223</b> (0.354)				<b>-0.216</b> (0.359)		
nace7		<b>-0.865**</b> (0.418)				<b>-0.868**</b> (0.425)		
		<b>-0.679*</b> (0.368)				<b>-0.669*</b> (0.371)		
N	1564				1564			
Events	140			EPV: 6.1	140			EPV: 5.4
AIC	1466.2				1801.1			
BIC	1589.4				1940.3			

Standard errors in parentheses; \* p<.1, \*\* p<.05, \*\*\*p<.01

**Table 4: Model 3-4**

## 6. Results

Summary statistics of the variables that I use can be found in Table 1 and a correlation of them is depicted in Table 2.

Tables 3-4 depict four multivariate hazard rate specifications. The Models 1-3 represent stratified models, while Model 4 is an unstratified Cox estimation. In all of the models, the main effects represent the estimated effects of extraversion, agreeableness and neuroticism on the hazard rate of other exit reasons. Therefore, the exit reason interaction terms render the effect difference for the respective specific exit reason to other exit reasons. The robust standard errors obtained from a covariance matrix according to Wei et al. (1989) allow testing whether the effects of extraversion, agreeableness and neuroticism respectively differ between exit due to friction in the founder team, overinvestment or dissatisfaction with the job and other exit reasons, respectively. As in case of exit due to job dissatisfaction the number of exits is with 13 relatively low and the Models 3-4 are close to the proposed minimum number of 5 events per variable (Vittinghoff and McCulloch 2007), even bootstrapped standard errors (see Efron and Tibshirani 1994) on the basis of 4000 replications are estimated (available upon request from the author). The bootstrapped standard errors show that the estimated robust standard errors are reliable. In Model 1, beside the main effects only interactions between extraversion, agreeableness and neuroticism with the respective exit reasons are specified. Model 2 in Table 3 it is controlled for the remaining Big Five traits openness and conscientiousness. However, as theory suggests no differing effects of these traits between the exit reasons which are investigated and other reasons, I only estimate the concerning average effect across all of the exit reasons.<sup>3</sup>

Evidence which corroborates Hypothesis 1a may be drawn from all of the Models 1-4. Compared to the group of other reasons, the risk of exit due to overinvestment is only decreased with neuroticism (significantly,  $p \leq 0.1$ ). The risk of exit due to friction in the founder team decreases with agreeableness ( $p \leq 0.01$ ) in the Models 1-4, which accords to Hypothesis 3a. As the interaction effects between exit due to friction in the founder team and neuroticism are not significant in any of the Models 1-4, Hypothesis 3b has to be rejected. As mentioned above, these interaction terms only recognize entrepreneurs who started team ventures.

The Models 1-4 show that, compared to other reasons of exit, the risk of exit due to job dissatisfaction is positive affected through extraversion ( $p \leq 0.01$ ), negative through agreeableness ( $p \leq 0.01$ ) and positive through neuroticism ( $p \leq 0.01$ ). These results change not notably, even if bootstrapped standard errors are introduced and in turn all of the standard errors slightly increase. These results are in line with the Hypotheses 2a-2c.

Even though the stratified Cox Models 1-3 do not allow an easy interpretation of the relationship among the different failure types, they are useful for testing the hypothesis whether a covariate has a diverse effect on different exit types. Because the relationship among the baseline hazard rates of the competing risks is totally unspecified, one cannot assess the exact effect of a covariate on the exit risk ratio among various exit reasons (Lunn and McNeill 1995). However, in case the assumption of a proportional ratio among the baseline hazard rates of the competing risks is realistic, an unstratified Cox regression may be employed, which is done by Model 4 in Table 4. Proportionality means that the underlying survival curve, which remains unspecified, is the same for all exit reasons. This permits a straightforward interpretation of the respective coefficients.

In comparison to the Models 1-3, in Model 4 dummies representing the different exit reasons are added (exit because of other reasons is the comparison group) in order to estimate coefficients for the relative risks of exit. Correspondingly, the risk to exit due to job

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<sup>3</sup> Specifications which depict interactions of the investigated exit reasons and openness or conscientiousness indicate that these traits possibly do not explain those various exit paths.

dissatisfaction is significantly lower (by a factor of  $\exp(-3.463)$ ) than to exit due to other reasons ( $p \leq 0.1$ ), but the risk of exit due to overinvestment or friction in the founder team is not significant. The standard errors of the exit coefficients are relatively high, which indicates that the proportionality assumption is ambitious. However, the other coefficients and their significance marginally changes compared to Model 3. All other things being equal, an increase of the value in neuroticism by one unit increases the relative risk of exit due to job dissatisfaction at any time by a factor of  $\exp(1.359)$ , while the relative risk of exit due to overinvestment at any time is decreased by a factor of  $\exp(-0.718)$ . If these factors are respectively added to the main effect of neuroticism,  $\exp(0.052)$ , the effect of neuroticism on the concerning exit reason may be obtained, given the baseline hazard rate.

The Cox Snell residuals (Klein and Moeschberger 2003) of the Models 1-3 (see Appendix A, Figure 1-3) form a well approximation of a 45° line, which indicates a proper model fit, while those of Model 4 (Figure 4 in Appendix A) attribute a poor model fit. This result is a hint that a stratified Cox regression is possibly more suitable for my dataset.

## 7. Discussion

The present study investigates the relationship between personality and various motives of entrepreneurial exit. The findings indicate that from the Big Five under investigation neuroticism has a negative effect on exit due to overinvestment of personal resources, compared to other reasons. This effect was predicted by Hypothesis 1a. Moreover, the results are in line with Hypotheses 2a-2c. In particular, compared to other reasons of exit, extraversion and neuroticism increase, while agreeableness decreases the risk of exit due to job dissatisfaction. Finally, in comparison to other exits, the risk of exit due to friction in the founder team is significantly decreased by agreeableness, which corroborates Hypothesis 3a.

Supporting Hypothesis 1b implies that neurotic entrepreneurs rather quit earlier in order to avoid losses or overinvestment because they possess a lower risk taking propensity (see Nicholson et al. 2005, Daly et al. 2010) and a higher precautionary avoidance (Lommen et al. 2010) than emotional stable entrepreneurs. These adaptations are flanked by affective behaviour in case of negative mood inductions, which may counteract escalation commitment (Wong et al. 2006). Correspondingly, neuroticism reduces the psychic income from conducting an innovative venture in the face of uncertainty if the economic performance of the firm falls short of expectations. This either leads to fast exit or a budget restriction. As a consequence, both of these effects prevent from overinvestment. Thus my results contribute to evidence that neuroticism shapes adaptations that may circumvent escalation commitment behaviour and promote precautionary avoidance in an entrepreneurial context.

Compared to other exit reasons, exit due to friction in the founder team negatively affected by agreeableness, which is in line with Hypothesis 3a. My results therefore contribute to evidence that emphasizes the importance of agreeableness for the outcome of team occupations (see Mount et al. 1998, Barrick et al. 2001). Friction in the founder team of highly innovative ventures is promoted by low agreeable main founders within those founder teams. In turn, disagreements in the founder team may lead to both, a lower economic firm performance (see Jong et al. 2011) and a lower psychic income from leading an entrepreneurial firm, which simultaneously affect exit. However, in my work there is no evidence which adaptations developed through low agreeableness may enforce frictions in the founder team.

In Hypothesis 3b it was suggested that neuroticism has a positive relationship to exit because of frictions in the founder team. Although there is a positive effect across all the estimated models, neuroticism is not significantly related to exit due to friction in the founder team in my dataset.

Finally, I find that exit due to job dissatisfaction positively relates to extraversion and neuroticism, compared to other exit reasons. In this context, neuroticism is supposed to

decrease the ability of people to cope with stress (Lahey 2009) and it is negatively correlated with general well-being (McCrae and Costa 1991, Weiss et al. 2007, Steel et al. 2008). Furthermore, neuroticism promotes negative affect based on negative mood inductions (Larsen and Ketelaar 1991). Neurotic entrepreneurs may decide to exit, because they psychologically suffer more under their entrepreneurial responsibility or personal conflicts, like the non-compatibility of leading an entrepreneurial firm and having a family (see Egelin et al. 2010). Therefore, my results support evidence which claims a positive relationship between job dissatisfaction and neuroticism. That extraversion increases the hazard to exit due to job dissatisfaction, compared to other reasons, which was expected. My results hence show that positive affect might induce job turnover in case of job dissatisfaction, even if the occupation is entrepreneurial. This finding underlines the importance of agreeableness for job satisfaction in entrepreneurial occupations. Particularly, the negative effect of agreeableness on interpersonal relationships might have an adverse effect on job satisfaction, as interpersonal relationships are especially important in highly innovative environments (see Sarasvathy 2001).

There are several limitations in my study. First of all, the mediation role of characteristic adaptations is not modelled in my specifications. This shortcoming may be overcome with a study that takes them into account. However, characteristic adaptations were not considered in the data of the Thuringian Founder Survey. Moreover, especially with respect to exit due to job dissatisfaction I only can draw on 13 observations, which is few. Yet the effects that I find are fairly high, and the bootstrapped standard errors attribute robustness to these.

Secondly, the Big Five personality measure was taken *ex post*. Although the effects are probably small, the experience to withdraw from an entrepreneurial venture may lead to slight changes in personality (Vaidya et al., 2002). Similarly, in young adulthood personality is still in its development and moderate changes in the Big Five measures over time may occur (Roberts et al., 2006). Nevertheless, the mean age of entrepreneurs in my data at the time of start-up in case of all exit reasons is above 40 and for those entrepreneurs who continued 38. It is thus reasonable to assume that age induced personality changes are not a notable problem in this study. Another issue that concerns the measures that I use in my study are the items that measure the regarding exit motives. These motives are complex and thus further items may enhance the validity of respective constructs. A replication of this study with additional measures of entrepreneurial exit motives therefore may help to validate the present results.

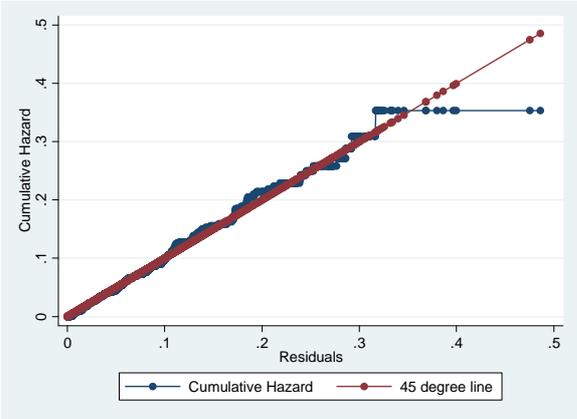
A third shortcoming of this study is neglecting of the personality of the other founder team members in case of team conflicts. The frequency of conflicts is however partly determined by the dyadic personality constellations of the team members (Bono et al. 2002) for which it is not controlled in the models. Future research ought to recognize the personality of other founder team members in case of exit too. Akin to this problem, Jong et al. (2011) distinguish between task and relationship conflict. My data does not reveal whether entrepreneurs' withdraw from founder teams because of poor relationships or disagreements on tasks. Furthermore, the relationship between personality and exit due to overinvestment is possibly mediated by extrinsic motivation (De Tienne et al. 2008) or values (Holland and Shepherd *in press*), which are not considered by this study. Finally, the link between personality and job turnover due to job dissatisfaction is mediated by performance (Zimmerman 2008). In my models it is however not controlled for entrepreneurial performance as a mediator between personality and exit due to job dissatisfaction.

The present work provides several contributions. The above results demonstrate that entrepreneurial exit is not only affected by economic considerations, but by other factors, like well being, relationships and risk taking preferences, too. Viewing strategic exit decisions only from the point of economic firm performance hence may fall short of tackling the issue of entrepreneurial exit. This finding suggests that psychic income may play an important role in entrepreneurial exit decisions, as it is proposed by Gimeno et al. (1997). In addition, I show

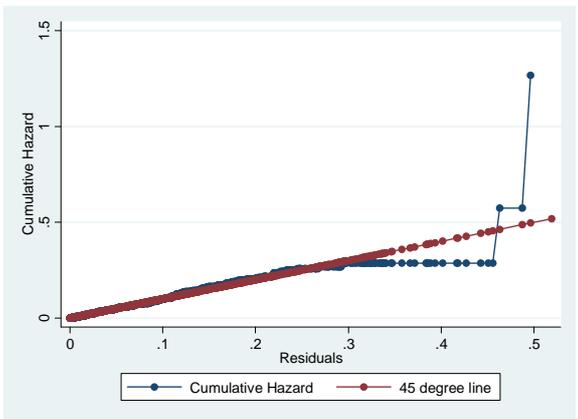
that the personality of entrepreneurs is an important aspect in explaining various exit reasons. As a consequence, individual differences in explaining entrepreneurial exit decisions are not only related to human capital, opportunities or demographic factors (see Wennberg et al. 2010), but also the personality of entrepreneurs. In conclusion, investigating factors that affect various exit reasons is more fruitful approach to understand exit decisions than only consider exit as a one dimensional phenomenon.

Moreover, the present findings add to the evidence that personality affects entrepreneurial outcomes (see Rauch and Frese 2007, Zhao et al. 2010). Particularly, the results point out that beyond human capital (Ucbasaran et al. 2003), demographic or income determinants (Hellerstadt et al. 2007) even personality drives exit from venture teams. Thus, this work adds insights to the area of entrepreneurial founder team turnover and shows that personality plays a potential role for team exits. Investigating whether entrepreneurial team exits are mainly driven by relationship or task conflict (see Jong et al. 2011) is a future research avenue. The result that job dissatisfaction mediates between personality and entrepreneurial exit offers a contribution to the literature on job satisfaction and job turnover, which so far mainly takes a focus on employees but not on entrepreneurs. Future research ought to figure out mediators between personality and job dissatisfaction in entrepreneurial job settings. Moreover, this study serves insights to the question why entrepreneurs persist with their poor performing firms. Beyond context and motivational factors (De Teinne et al. 2008, Holland and Shepherd in press), even personality has an effect on escalation commitment behaviour by entrepreneurs. Nevertheless, future research may help to figure out how context and motivational factors are linked to personality in order to explain entrepreneurial escalation commitment behaviour.

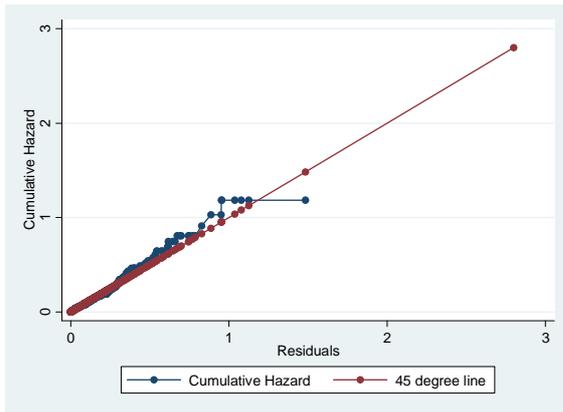
**Appendix A**



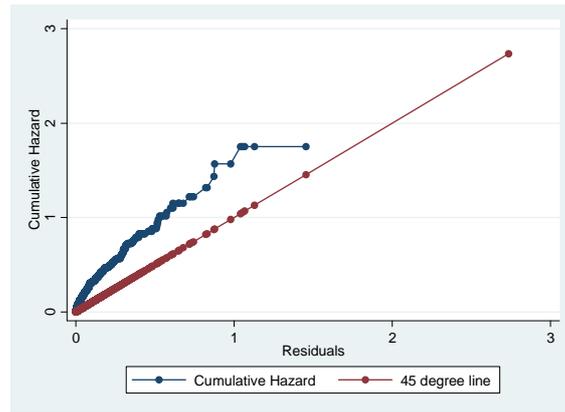
**Figure 1:** Cox Snell Residuals Model 1



**Figure 2:** Cox Snell Residuals Model 2



**Figure 3:** Cox Snell Residuals Model 3



**Figure 4:** Cox Snell Residuals Model 4

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