Risk Propensity and Personality [*]

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ABSTRACT

The concept of risk propensity has been the subject of both theoretical and empirical investigation, but with little consensus about its conceptualization and measurement of risk propensity. This paper seeks to advance the field through data from a sample of 1,669 managers and professionals. These show the internal consistency and correlates of a new scale that measures overall risk propensity, and risk taking in six different decision domains. Correlates examined are the NEO PI-R, a Five Factor personality inventory, demographic variables and biographical self-reports. There are four key conclusions. First, we find support for integrity of the risk propensity scale, with domain specific as well as general attributes. Second, the data show risk propensity to be strongly rooted in personality, with sensation-seeking confirmed as a key component in most decision domains. A strong Big Five pattern emerges for overall risk propensity comprising high E and O, and low N, A, and C. Third, risk propensity predicts career and other behaviors as predicted, lending validation support to the measure. Fourth, the validity of the measure is also supported by findings that risk propensity differs markedly in its distribution across job types and business sectors. The implications for risk research and risk management are considered.

Introduction

The concept of risk propensity has important implications for the theoretical modeling of risk behavior and for practical insights into the motives underlying individual level choices about engaging in risky behavior. In organizational terms, a better understanding of risk behavior could contribute significantly to risk management programs. In this paper we have three objectives. First we seek to establish the viability of a new measure of risk propensity and to consider whether it is a construct that can be conceptualized as stable across domains and time. Second, by examining demographic and biographical correlates we seek support for its validity and practical significance. Third, our principal objective, assuming the measure is sufficiently robust, is to explore how personality dispositions underlie risk propensity.

Two developments have influenced this research. The first development is a strong revival of interest in trait psychology, with attention converging around the Big Five factorial model of personality (McCrae & Costa, 1997). The second development has been a rapid growth of attention and concern in business around the concept of risk (Bernstein, 1996). This is partly due to greater awareness and incidence of high profile accidents in operational areas and in finance, for example the collapse of Barings bank in 1996 (Fay, 1996).

Risk Propensity – Conceptual Status

The literature concerning risk propensity has two main themes. The first theme relates to prospect theory (Kahneman & Tversky, 1979), which proposes that risk taking is asymmetric about a reference point, and that people will be risk averse when they perceive themselves to be in the domain of gain, and risk seeking in the domain of loss. Prospect theory has stimulated numerous research studies into risk preferences and risk taking. A key premise of the theory is that individual level risk taking is relatively inconsistent across situations – a person will take risk in some circumstances, and avoid risk in other circumstances. The prompt

for behavioral change could be as simple as the semantic presentation of data, for example whether a choice outcome is presented as a loss or a gain.

A second theme in the research considers the individual difference factors that could influence risk taking. A significant contribution to this research is the notion that risk taking could be linked to factors that are trans-situational, such as personality – risk propensity could thus be more a characteristic of an individual than their situation. In this area, sensation-seeking has been found to be particularly important. Zuckerman pioneered the study of this concept (Zuckerman et al., 1964), and since then a stream of research has confirmed its importance as a highly consistent predictor of various kinds of risk taking, including compulsive gambling and participation in high risk activities (Zuckerman, 1974; Zuckerman & Kuhlman, 2000). This construct has also been the subject of extensive psychophysiological investigation, linking it clearly with individual differences in cortical arousal thresholds and levels of enzymes and neurotransmitters affecting the central nervous system (Geen, 1997). Substantial heritability of the trait may also be inferred from evidence for the genetic origins of dopamine receptor levels linked with venturesome personality (Cloninger, 1996; Farde et al., 1997).

An alternative but related approach in the risk literature has been to consider risk propensity in terms of the variance in within-individual measures of risk. An example of this work is Weinstein and Martin (1969), with other studies adopting the same approach in more recent research (e.g. Salminen & Heiskanen, 1997). These empirical works focus attention on the inter-correlation of scores on a range of measures of risk taking in different decision areas. Findings have typically shown correlations between different measures of risk to be weak. However, research on managerial decision making by MacCrimmon and Wehrung (1986), showed that this pattern of results does not preclude the possibility of strong intra-individual relationships between different measures of risk taking for some proportion of the population.

They found that a small number of people showed consistent responses on different measures of risk taking, and could be classified by the authors as consistent risk seekers, or consistent risk averters. A similar conclusion was reached in the work of Weber and Milliman (1997) who showed that underlying risk preferences tend to remain stable across situations for a significant portion of their sample.

A key consideration in the risk literature is the notion of the stability of cross-domain risk preferences (e.g. Fagley & Miller, 1997; Weber & Milliman, 1997). This is the question of whether it is possible to be risk seeking in some areas of one's life and a risk averse in others, and the degree to which there could be said to exist trans-situational propensities for taking risks. Evidence suggests both general and domain-specific risk propensities are possible. Our premise in this paper is that, to be viable, the construct of risk propensity should encompass several risk domains, i.e. that individuals can be validly characterized as consistent in their risk seeking or risk aversion across types of decision. People who are inconsistent in their approaches to risk can be regarded as lacking a strong propensity to either take or avoid risks. These individuals can be seen as likely to take risks in some situations, but not others. The domains in which they take or avoid risks could vary, or could be consistent – a finance trader might take risks routinely at work, but avoid risk when making family, leisure and personal finance choices.

A number of theories and empirical studies on risk propensity have been published, the most sophisticated of which in the literature has been the modeling set out by Sitkin and Pablo (1992). In this it is suggested that the two key inputs to risk taking are risk perception and risk propensity, with risk propensity conceptualized as a confluence of dispositional tendencies, cognitive inputs and past experience.

Here, we seek to build upon this work, with some theoretical adaptation to accommodate a measure that could be widely applicable. In their discussion, Sitkin and Pablo

define risk propensity as "the tendency of a decision maker either to take or to avoid risks" (p. 12). It could be implied from this definition that risk orientation needs to be consistent across several decision domains, as discussed above. The research we report here seeks to assess whether consistent cross-domain risk propensity is an empirically viable concept. A further issue of importance is whether risk propensity can be confirmed as a behavioral construct. In our research we define risk propensity as the frequency with which people do or do not take different kinds of risks, i.e. risk propensity is tested here as a summary concept for the risk-taking behavior of an individual across time and situations.

This modeling supports the idea that risk propensity will have a domain-general aspect, underpinned by stable personality dispositions, and domain-specific aspect, due to the situational inputs that evoke risk behaviors according to the match with the interests, skills and orientations of individuals. Data on these themes could have important implications for our understanding and for the management of risk in organizations and it was with these considerations in mind that we sought to develop a scale that asked participants about their current and past risk behavior in different domains.

Hypotheses

Our objective was to develop and test a measure of risk propensity that spanned a variety of domains, and could be used to test relationships with personality and a range of biographical and organizational factors, in the context of an ongoing study of the risk profiles of finance traders in investment banking. We conceived the facets of risk as threefold: threats to self or physical well being, threats from aspects of lifestyle, and threats from work-related sources. In each broad area we pinpointed more specific risks sources or domains, as follows:

A) Physical status: the domains of *health* and *safety* risk;

B) Lifestyle: *social* and *recreational* risk;

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C) Livelihood : *career* and *finance* risk.

The threefold classification was a conceptual devise to help us think broadly about domains, rather than an alternative way of constructing the domains themselves. Domain-specific effects we expected to relate to the six-fold rather than the threefold model, though both are tested for. The first hypothesis, to be tested by confirmatory factor analysis following the above reasoning therefore is as follows:

H1:   Risk propensity will be both domain specific and general, with common variance across reported risk behaviors in different domains, as a well as unique variance accountable to specific life domains.

The second objective is to test the validity of the measure via its relationship with demographic variables. The literature, and anecdotal evidence from media reports, all point to one major effect: the high risk propensity of young males (Miller, 2000), for reasons of the especially strong drive for youthful male distinction and achievement, as evolutionary psychologists point out is rooted in the pervasive Darwinian principle of sexual selection – i.e. why males are especially motivated and hormonally primed to take risks at this time of life (Miller, 2000). This is the combined result of both a stable sex difference (Powell & Ansic, 1997; Byrnes et al., 1999) and an inverse age-risk taking function (Ungemack, 1994; Martin & Leary, 2001). Accordingly we predict:

H2.a) Men will have consistently higher risk profiles than women.

H2.b) Risk propensity will be inversely related to age.

H2.c) Age effects will be more pronounced for men than women.

An important component of risk-taking in many people's lives is career experience. Switching employers and career changes are typical high-risk career strategies (Nicholson & West, 1988), a pattern that links with career success via proactive personality factors (Boudreau et al., 2001; Seibert et al., 1999). This seems likely to be mediated by quite stable

underlying temperamental factors, if one accepts the evidence from behavior genetics research that career risk taking has a significant heritable component (McCall et al., 1997). So we expect:

H3: Higher risk propensity is associated with greater frequency of career and employer changes.

In the area of entrepreneurship, the evidence on firm growth and entrepreneurial behaviors is mixed and methodologically fraught with difficulty (Bird, 1989; Miner et al., 1994; Wooten et al., 1999). One problem is self-perception – that entrepreneurial risk takers may not see themselves as such (Busenitz & Barney, 1997). Regardless of success, however, we would expect whether people are prepared to try to start a new business would be have a greater willingness to consciously engage risks, especially in the domain of finance. The literature is patchy in this area, but does seem to be consistent with this pattern (Rauch & Frese, 2000; Simon et al., 2000).

H4: Overall risk propensity will be associated with reported business start-ups, and with stronger effects on this criterion for risk propensity in the financial domain.

Gathering data from a variety of occupations and sectors, one would also expect people with different risk orientations to prefer certain job and organization types. In terms of job functions, a relatively high-risk orientation can be expected for people in sales and marketing, and low in finance. We make similar predictions in relation to business sector, expecting a low risk propensity in the finance sector, in view of its emphasis upon systems of control, and a relatively high risk propensity in the "creative" industries of PR, marketing, and media. We do not list these as additional numbered hypotheses, since they are more descriptive generalizations than theoretically derived statements. However, the key theoretical hypothesis that underlies these expectations is the simple idea that individuals self-select (and are selected)

into areas of work partly as a function of their risk propensities. The hypothesis can be stated, therefore, as follows:

H5: Demographic differences by job function and by sector are expected, according to the risk profile of occupations and business types.

All results that would be supportive of the above hypotheses, H1 – H5, would also reinforce the construct validity of the measure.

The third objective of the research is to examine the relationship of personality to risk behavior. The advent of comprehensive Big Five measures suggests that a fresh look at the relationship is justified, beyond the predominant concern with sensation seeking in earlier research. Research has confirmed the importance of the five factor model of personality in understanding risk behavior (e.g. Kowert & Hermann, 1997). Our predictions concerning personality relate to the Big Five Factors (Costa & McCrae, 1991; McCrae & Costa, 1997). Following Eysenck's theory of extraversion as a generalized need for stimulation, we expect the E scale to follow the pattern predicted above for sensation-seeking (Eysenck, 1973; Segal, 1973). Openness to experience can be seen as the cognitive counterpart of risk seeking – acceptance of experimentation, tolerance of the uncertainty, change and innovation (McCrae & Costa, 1997). Conversely, conscientiousness, which can be summarized as a desire for achievement under conditions of conformity and control, is antithetical to these qualities and can be expected to be inversely related to risk-propensity (Hogan & Ones, 1997). The literature also suggests that repeated risk-takers require resilience (Klein & Kunda, 1994), which would suggest that they should also score low in emotional sensitivity or neuroticism. The same logic could be applied to agreeableness – the tough to tender-mindedness dimension - that robust self-interest, and a lack of interest in the consequences for others of one's risk taking, serves the risk-taker (West & Hall, 1997). Thus, in relation to personality variation we hypothesize:

H6: Overall risk propensity will be directly related to extraversion and openness, and inversely related to neuroticism, agreeableness and conscientiousness.

Sensation seeking is one of the facets of the NEO PI-R, the chosen measure for the current research.   Positive findings on this facet would add further encouragement to the validity of the propensity measure. Hence we expect:

H7: Sensation-seeking will predict overall risk-propensity, as well as specific domains, but with varying strength.

Method

Procedure and Samples

The data we report here were collected from a number of linked research initiatives. A sizeable NEO PI-R personality database has been accumulating through various studies and initiatives based at London Business School. One of these studies, and the central motive for our interest in the development of a practical and valid measure of risk propensity, was a three-year investigation of risk and performance among financial traders in investment banks in the City of London (Nicholson et al, 2000). Administration of the NEO in this study and in other settings has been accompanied by various editions of a Research Questionnaire designed to gather extended biographical and other data from the samples. Over the past 3 years this has incorporated the Risk Propensity scale that we report on here. This scale was initially developed and refined on student populations. Once its factorial integrity had been verified by these means, the final version was incorporated in the Research Questionnaire accompanying the administration of the NEO PI-R. The respondent sample reported from this data set here comes from these sources, comprising student and executive participants in other ongoing research projects and various graduate courses, including MBAs and executives on company specific training programs. The total sample is 1,669.

Measures

We sought to develop a short, simple measure with high face validity that asked about risk behaviors in the main areas of life experience in which most people would potentially be exposed to risk. The Risk Propensity Scale is a 12-item Likert-format scale, asking respondents the following: "We are interested in everyday risk-taking. Please could you tell us if any of the following have ever applied to you, <u>now</u> or in your adult <u>past</u>?". For each of 6 items there were two response scales, one for "now" and one for "past". Each was scaled 1-5 "never", "rarely", "quite often", "often", and "very often". The six items were:

a) recreational risks (e.g. *rock-climbing, scuba diving*);

b) health risks (*e.g. smoking, poor diet, high alcohol consumption);*

c) career risks (*e.g. quitting a job without another to go to*);

d) financial risks *(e.g. gambling, risky investments);*

e) safety risks *(e.g. fast driving, city cycling without a helmet);*

f) social risks *(e.g. standing for election, publicly challenging a rule or decision).*

The full 240-item version of the NEO PI-R was used. This yields 30 x 8-item facet scales from a Likert-type format, with 6 facets each aggregating to provide scores on the Big Five personality factors. The scale has probably been more extensively tested for reliability and validity than any other Big Five measure, including cross-cultural validation (see Costa and McCrae,1991; and McCrae and Costa,1997). This makes it especially well suited for the international business sample of the present research.

Results

The first objective was to establish the integrity of the Risk Propensity Scale and whether risk taking is best conceptualized as a generalized propensity or domain-specific risk

taking. Confirmatory factor analysis (using AMOS 3.6.1, a structural equation modeling package) was used to compare five theoretically plausible models:

1. Single factor - this implies that common variance between items can be explained by a single risk propensity variable.

2. Two factor (past and present) - this implies a single risk propensity variable that is not consistent over time.

3. Three factor (physical, lifestyle and livelihood) - separate (although correlated) risk behaviors in each area of life experience.

4. Six factor - separate (although correlated) risk behaviors in each behavioral domain.

5. Six factor plus a second order overall factor - separate risk behaviors in each behavioral domain with common variance between factors accounted for by the common influence of an overarching risk propensity variable.

The results are shown in Table 1.

TABLE 1 ABOUT HERE

Table 1 shows the six factor solution is superior to a single factor, two or three factor solution and considerably better than the independence model. (Chi squared /df is not less than 3 for any of them, but large samples tend to inflate Chi Squared.) The fit of the six-factor model and the six-factor model with a second order factor are very similar. However, the second order model is much more parsimonious (parsimony ratio of 0.727 versus 0.591). To understand this, consider that the six-factor model explains the relationships between observed variables in terms of all the possible combinations of relationships between the six factors. The second order model explains them as a consequence of a single common influence on the six factors. The three-factor solution is only a small improvement on the one and two factor cases. (A three-factor solution with a second order factor would have greater parsimony but no better fit.)

Table 2 shows the factor loadings for each domain in the six factor case (with a second order factor).

INSERT TABLE 2 ABOUT HERE

The data do not suggest that "past" and "now" should be scaled separately. Scaling confirms high internal consistency for the general propensity scale (Cronbach alpha .798), with corrected item-whole correlations all in the highly acceptable range of .330 to .504. The alpha coefficient is not enhanced by the removal of any single item. The relationships between variables within each domain over time are examined in Table 3.

TABLE 3 ABOUT HERE

This confirms that self-reports for "now" and in the "past" are remarkably consistent – correlations all around .7, but mean levels differ markedly, with the exception of social risk taking. This is a promising pattern. On the one hand it suggests a high degree of consistency in self-perception. On the other hand, the mean differences show substantial discrimination in people's judgments of their levels of risk taking over domains. Taken at face value this shows, for example, big reductions over time in recreational, health and safety risk behaviors, and small reductions or no change in career, financial or social risks. We cannot say that this constitutes strong validation evidence for the scale, but the findings are highly encouraging. Risk behaviors most associated with youth – those where people risk life and limb – show the biggest shifts. The evidence thus supports the scaling procedure we have adopted: an overall propensity scale plus domain-specific scales.

Turning to look at domain patterns, Table 4 shows the alphas for domains and inter-correlations between them.

TABLE 4 ABOUT HERE

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Although there is common variance among all scales, the results indicate highly reliable two item domain scales, each with distinctive properties, consistent with H1. The alpha coefficients confirm the strength of all the two-item scales and the overall propensity scale.

Now let us turn to the second objective - to examine the properties of the scales more closely by examining their covariation with independent measures. Structural equation modeling regression analyses were performed on each scale against a common set of demographic variables: sex, age, job level, organization size, length of service, number of previous employers in career, and entrepreneurship (business start-ups).

Table 5 shows the results.

TABLE 5 ABOUT HERE

The results provide some validation for the measure generally. The differentiated patterns of results also lend support to the idea of domain specific risk propensity. The results support H2a) and b) for age and sex differences, i.e. that risk taking is especially a young male phenomenon, particularly in the recreational, health and safety risk domains. The patterning by domain on these two demographic variables, age and sex, suggests the scales are eliciting valid discriminations. However, the age patterns do not correspond to the earlier "now"-"past" comparison, where we found major shifts on the "life and limb" scales of recreation, health and safety. But there is an important methodological difference in how these two approaches measure changes over time. The results are not necessarily inconsistent, and could be interpreted as reflecting the difference between what longitudinal research calls "maturational" and "historical" change (Baltes, 1982). Career risk taking is subject to both effects. Young people take more career risks than older people (maturational) and people of all ages today take more career risks than people did in earlier times (historical) (Nicholson & West, 1988; Peiperl et al., 1999).

Health and safety risks seem mainly to decline historically. In recent times, there has been a great increase in public awareness of health and safety issues. This underlines the central role of perception in risk propensity. Increased awareness of environmental risk seems likely to attenuate propensity over time in many areas. This result indicates the scope that exists for future research to explore further how risk propensity may be managed by altering perceptions.

Hypothesis 2c was tested by examining the correlations between "now" and "past" responses for men and women separately.

TABLE 6 ABOUT HERE

The hypothesis was confirmed. For men, there were significant differences in "now" and "past" scores for each of the six risk domains and the overall risk scale. The results for women showed that there were significant differences between only three risk domains (recreation, career and social risks) and the overall risk scale.

Construct validity support for the measure comes from other findings, especially those relating to career behaviors, and confirm the predictions of H3. The data presented in Table 5 show that people who have set up their own business score higher on the career risk taking as well as financial, social and overall risk taking. Career risk taking was significantly associated with having a greater number of employers and business start-ups. One finding that was not predicted is the inverse relationship between health risk taking and working in small organizations. The result may be a chance finding, or indicate some unmeasured mediating factor, but one possible explanation would be a tendency for health self-protection to be more important in the more exposed and demanding roles of small business management.

Hypothesis 4 was examined by considering the differences between the risk propensity of people categorized in terms of their job function and business type.

INSERT TABLE 7 ABOUT HERE

The analyses of variance shows that there are significant differences between the groups with respect to both job function and business type. Post hoc tests[1] reveal that there was greater homogeneity of risk preferences within groups categorized in terms of function than business type. As predicted, people working in the finance function have lower reported risk taking in each domain and overall lower risk propensity than people working in other functions. Consultants had the highest risk scores in each domain and overall. The business type analysis revealed stronger patterns. For example, the arts and media participants rated themselves as high risk-takers in the health domain, but not as risk-takers in other domains. Participants working in the finance sector were risk-takers in the finance domain, but not in other domains or overall. These results can tentatively be taken to lend some additional support to the validity of the scale.

The next set of results was concerned with the relationships between personality factors and the risk scale data. Hypothesis 6 predicted that overall risk taking would be predicted by high scores in extraversion and openness, and by low scores in neuroticism, agreeableness and conscientiousness. The hypothesis was confirmed.

<div align="center">TABLE 8 ABOUT HERE</div>

The results of SEM regression analyses show that there is a common pattern across almost all of the risk domains, including the overall risk scale, as hypothesized, with the exception of three results that are not significant. Neuroticism did not predict health risk taking significantly. Various factors associated with risk-taking in these domains could be implicated.

Hypothesis 7 proposed that sensation seeking would be the key facet of personality that predicts risk taking. Regression analysis was used to examine the relationships between the 30 NEO PI-R facets and each of the risk taking scales. The forward entry stepwise regression method was used to test further whether this would emerge in precedence over the other

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[1] The full data are available from the authors.

facets. For reasons of space the quantitative data are not presented in full[2]. Here, we show summary tables identifying the set of facets and the direction of relationship that predicts each aspect of risk taking. The facets are presented in rank order of strength of association with the dependent variable.

TABLE 9 ABOUT HERE

Table 9 confirms the prediction of Hypothesis 7 that sensation seeking would be associated significantly with risk taking. The facet E5 emerges as a predictor of risk taking in all domains, and the primary predictor in four of them plus for the overall risk taking scale. The results for the other facets are also noteworthy. There are several aspects of personality that feature prominently in the results. The openness to values scale (O6), interpreted as a tolerance for multiple perspectives, is a predictor of five risk domains plus the overall risk scale. Low levels of compliance (A4), a measure of competitiveness, lack of straightforwardness (A2) and lack of self-discipline (C5) were also significant predictors of risk taking in a number of domains.

Overall, 23 personality facets, out of the total of 30 facets, were revealed by stepwise regression to be associated with risk taking. The data indicate that there are a number of facets that are associated with risk taking in several domains. These can be interpreted as common dispositional factors that influence trans-situational risk taking. It is also likely that these common factors increase the likelihood of trans-temporal risk taking in view of the stability of personality over the adult lifespan (Caspi, 2000). In addition, there are a number of facets that predict risk taking in just one or two risk domains suggesting that a combination of general and specific personality facets underlie domain specific risk behavior. These results mirror the conclusion of the analysis of the properties of risk scales: variance distributed on one overall factor plus six domain specific factors.

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[2] The full data are available from the authors.

Conclusion

This research aimed to develop an effective measure of domain-specific and trans-domain risk taking, and to examine the relationships between personality and risk taking. The data showed that risk taking in any domain is influenced by a combination of general factors, including age, sex and several personality characteristics, notably sensation seeking and value openness. However, risk taking in any one domain is not entirely generalizable to risk taking in another domain. The results showed that in addition to the general factors that predicted risk taking in all domains, there is a range of domain specific variables that influence whether people choose to take or avoid risk. In sum, risk behavior is patterned. Some people are likely to be consistently risk takers; others will be consistently risk averse, while a third group have domain-specific patterns of risk behavior. Factor level analysis of the relationships between personality and risk taking showed that personality profiles can be used to predict risk taking in each of the six domains measured, and overall risk taking. The general profile is strong and distinctive in terms of the Big Five. Together they can be interpreted as a causal dynamic. High Extraversion (especially sensation-seeking) and Openness supply the motivational force, Low Neuroticism and Agreeableness supply the insulation against concern about negative consequences, and low Conscientiousness lowers the cognitive barriers. The last of these is of greatest interest. Most people take risks in order to reap some psychological or material benefit, not for the sake of the risk itself. People with high Conscientiousness will pursue these benefits through disciplined striving rather than risk taking. People with low Conscientiousness can be seen as attempting to "get rich quick" – secure benefits by taking chances rather than controlled effort.

The implications of this research are threefold. First, theoretical frameworks that aim to predict risk-taking need to take into account the domain specific nature of risk. Individual choice to take a risk in one domain might not predict risk taking in a different domain. Second,

the data have confirmed that particular personality profiles are associated with trans-situational consistency in risk taking, while people who do not have a strong directional risk propensity are situation-sensitive. These findings have important implications for the selection and placement of people into jobs that involve risk. One should not forget that in some environments – such as trading – risk aversion is an undesirable attribute. In other environments risk seeking is a liability. Personality profiling would seem to be a fruitful approach, alongside other management strategies for risk management.

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Table 1: Modeling the Risk Propensity Scale by confirmatory factor analysis

Model	χ^2	df	χ^2/df	AGFI	NNFI	RMSR	Parsimony ratio
Independence model	7929.30	66	120.14	0.421	0.000	0.277	1.000
Single factor	4963.95	54	91.93	0.547	0.237	0.242	0.818
Two factor	4807.32	53	90.70	0.569	0.247	0.241	0.803
Three factor	3546.56	51	69.54	0.630	0.425	0.210	0.773
Six factor	323.91	39	8.31	0.918	0.939	0.069	0.591
Second order	473.78	48	9.87	0.910	0.926	0.076	0.727

Key:

Π^2/df : Ratio close to or below 3.0 desirable for goodness of fit

AGFI: Adjusted goodness of fit index.   Good fit indicated by values >.9

NNFI: Non-normed fit index. Does not depend on sample size. Good fit indicated by values >.9

RMSR: The root mean square residual. Values < 0.08 indicate good fit (Browne and Cudeck, 1993).

Parsimony ratio: degrees of freedom of the model divided by the degrees of freedom of the independence model. More parsimonious models are to be preferred, so long as there is a good fit to the data.

Table 2: SEM factor loadings "now" and "past" Risk Propensity Scale items on domains, and

of overall risk propensity on each domain

Item	Domain	Standardised regression coefficient
Recreational risk now	Recreational risk	0.838
Recreational risk past	Recreational risk	0.849
Health risk now	Health risk	0.794
Health risk past	Health risk	0.886
Career risk now	Career risk	0.814
Career risk past	Career risk	0.805
Financial risk now	Financial risk	0.841
Financial risk past	Financial risk	0.858
Safety risk now	Safety risk	0.937
Safety risk past	Safety risk	0.773
Social risk now	Social risk	0.855
Social risk past	Social risk	0.892
Recreational risk	Overall risk taking	0.595
Health risk	Overall risk taking	0.419
Career risk	Overall risk taking	0.539
Financial risk	Overall risk taking	0.515
Safety risk	Overall risk taking	0.545
Social risk	Overall risk taking	0.529

The fit statistics are shown in Table 1.

Table 3: Risk Propensity Scale: Item means, SDs, and relationships over time (t-tests & r's)

	Means & SDs "Now"	Means & SDs "In the Past"	Matched pairs t-tests for "now-past" differences	Zero-order correlations - "now-past".
Recreational	2.232 (1.168)	2.684 (1.305)	-18.708***	.703***
Health	2.107 (1.104)	2.524 (1.325)	-17.264***	.695***
Career	1.956 (1.214)	1.908 (1.133)	2.029*	.645***
Financial	1.986 (1.013)	2.031 (1.068)	-2.285*	.697***
Safety	2.526 (1.152)	3.007 (1.249)	-21.449***	.719***
Social	2.285 (1.097)	2.319 (1.125)	-1.649	.767***

N=1582

* p<.05, ***p<.001, all two-tailed

Table 4: Zero-order inter-correlations and Cronbach alpha reliability coefficients for Risk Propensity Scale and domain subscales.

	Recrea-tion	Health	Career	Financial	Safety	Social	*Coefficient Alpha*
Recreation							*.822*
Health	.169						*.812*
Career	.277	.199					*.783*
Finance	.196	.160	.325				*.821*
Safety	.291	.262	.162	.230			*.835*
Social	.215	.144	.317	.252	.430		*.868*
TOTAL	.608	.540	.624	.601	.618	.607	*.798*

N=1551

All correlations significant at the .001 level (two-tailed)

Table 5: SEM regressions of demographics on Risk Propensity Scale and domain subscales

The first line in each row shows the standardized regression coefficient. The second line in each row shows the critical ratio value and significance level.

	Standardized regression coefficients						
	Recreate	Health	Career	Finance	Safety	Social	TOTAL
Sex	**.136**	**.128**	**.088**	**.164**	**.168**	.025	**.200**
	3.939* **	**3.676*** **	**2.554***	**4.788*** **	**5.031*** **	.735	**5.161*** **
Age	**-.212**	**-.156**	**-.198**	**-.186**	**-.163**	**-.174**	**-.329**
	-3.809* **	**-2.808***	**-3.586*** **	**-3.404*** **	**-3.051***	**-3.193***	**-5.276*** **
Job level	.038	-.024	.052	.013	-.031	.050	.035
	.988	-.625	1.374	.339	-.835	1.339	.846
Org size	.041	**-.127**	-.064	-.032	**.073**	-.027	-.033
	1.083	**-3.304*** **	-1.690	-.850	**1.988***	-.722	-.810
Tenure	.027	.094	-.079	-.038	.073	.018	.014
	.534	1.840	-1.560	-.768	1.473	.369	.265
No. of employers	.073	.055	**.180**	-.024	.075	.061	**.115**
	1.790	1.351	**4.413*** **	-.587	1.891	1.525	**2.615***
Business start-up	.032	.001	**.138**	**.085**	-.002	**.105**	**.110**
	.938	.036	**4.047*** **	**2.517***	-.063	**3.188***	**2.976***

* p<.05, ** p<.01, ***p<.001

Fit statistics for Table 5

$\chi^2 = 388.68$

df = 103

$\chi^2/\text{df} = 6.968$

Adjusted goodness of fit index = .989

Non-normed fit index = .985

Route mean square ratio = .064

Table 6: Zero-order inter-correlations for Risk Propensity Scale and domain subscales by

male/female

	Age (Male)	Age (Female)
Recreation	-.129***	-.113**
Health	-.085**	-.022
Career	-.206***	-.163***
Finance	-.216***	-.077
Safety	-.076*	-.057
Social	-.150***	-.121**
TOTAL	-.224***	-.154***

N (female) = 576

N (male)   = 936

N total   = 1512

Table 7: Oneway analysis of variance of Risk Propensity Scale and subscales by job function

and business type

		Job function		Business type	
		df	F	df	F
Recreational	Between groups Within groups Total	6 1561 1567	1.512	7 1516 1523	.534
Health	Between groups Within groups Total	6 1570 1576	1.415	7 1527 1534	6.038 ***
Career	Between groups Within groups Total	6 1558 1564	8.996 ***	7 1515 1522	7.144 ***
Finance	Between groups Within groups Total	6 1572 1578	4.338 ***	7 1529 1536	10.099 ***
Safety	Between groups Within groups Total	6 1575 1581	1.561	7 1532 1539	.968
Social	Between groups Within groups Total	6 1569 1575	8.505 ***	7 1525 1532	4.649 ***
TOTAL	Between groups Within groups Total	6 1528 1534	4.939 ***	7 1485 1492	5.813 ***

Table 8: SEM multiple regressions of personality factors on Risk Propensity Scale and domain subscales

The first line in each row shows the standardized regression coefficients. The second line in each row shows the critical ratio value and significant level.

	Standardized regression coefficients						
	Recreate	Health	Career	Finance	Safety	Social	TOTAL
Neuroticism	**-.152**	**.089**	**-.104**	**-.146**	**-.083**	**-.091**	**-.170**
	-4.997*	**2.855**	**-3.292***	**-4.652***	**-2.753**	**-3.266**	**-5.363***
Extraversion	**.177**	**.157**	.021	**.092**	**.241**	**.233**	**.283**
	5.483*	**4.671***	.627	**2.807***	**7.573***	**7.842***	**8.028***
Openness	**.200**	**.070**	**.321**	**.113**	.051	**.327**	**.362**
	6.354*	**2.207**	**9.097***	**3.525***	1.672	**11.179***	**9.939***
Agreeableness	**-.113**	**-.163**	**-.167**	**-.196**	**-.197**	**-.170**	**-.299**
	-4.138*	**-5.577***	**-5.736***	**-6.843***	**-7.243***	**-6.736***	**-9.517***
Conscientiousness	**-.089**	**-.143**	**-.082**	**-.170**	**-.152**	-.048	**-.189**
	-3.032	**-4.614***	**-2.674**	**-5.548***	**-5.202***	-1.761	**-6.061***

* p<.05, ** p<.01, ***p<.001

Fit statistics for Table 8

$\chi^2 = 717.76$

df = 103

$\chi^2/df = 6.968$

Adjusted goodness of fit index = .989

Non-normed fit index = .985

Route mean square ratio = .064

Table 9: Multiple hierarchical regressions of personality facets on Risk Propensity Scale and domain subscales

Recreation	Health	Career	Finance	Safety	Social	Overall
E5 Sens. seeking ⇑	E5 Sens. seeking ⇑	O4 Actions ⇑	E5 Sens. seeking ⇑	E5 Sens. seeking ⇑	E3 Assertiveness ⇑	E5 Sens. seeking ⇑
O4 Actions ⇑	N5 Impulsiveness ⇑	O1 Fantasy ⇑	O5 Ideas ⇑	E3 Assertiveness ⇑	O1 Fantasy ⇑	O5 Ideas ⇑
N1 Anxiety ⇓	C2 Order ⇓	E5 Sens. seeking ⇑	C6 Deliberation ⇓	A4 Compliance ⇓	O5 Ideas ⇑	C6 Deliberation ⇓
A4 Compliance ⇓	A2 Straightforward-ness ⇓	A6 Tender-minded. ⇓	A2 Straightforward-ness ⇓	C6 Deliberation ⇓	O4 Actions ⇑	A4 Compliance ⇓
O6 Values ⇑	O6 Values ⇑	O5 Ideas ⇑	N3 Depression ⇓	N1 Anxiety ⇓	C5 Self-discipline ⇓	O6 Values ⇑
	E2 Gregariousness ⇓	A2 Straightforward-ness ⇓	C5 Self-discipline ⇓	C2 Order ⇓	C4 Achievement striving ⇑	N1 Anxiety ⇓
	A6 Tender-minded. ⇓	O6 Values ⇑	N5 Impulsiveness ⇓	A2 Straightforward-ness ⇓	E5 Sens. seeking ⇑	A2 Straightforward-ness ⇓
	C6 Deliberation ⇓	C5 Self-discipline ⇓	O2 Aesthetics ⇓	O6 Values ⇑	O2 Aesthetics ⇑	O4 Actions ⇑
	C1 Competence ⇑	N1 Anxiety ⇓		E2 Gregariousness ⇓	N6 Vulnerability ⇓	C5 Self-discipline ⇓
	A1 Trust ⇓	C4 Achievement striving ⇑		E4 Activity ⇑	A4 Compliance ⇓	E4 Activity ⇑
	C3 Dutifulness ⇓	A4 Compliance ⇓		C5 Self-discipline ⇓	O6 Values ⇑	A6 Tender-minded. ⇓
		E3 Assertiveness ⇓			C2 Order ⇓	E3 Assertiveness ⇑
					A5 Modesty ⇓	E2 Gregariousness ⇓
						C2 Order ⇓

⇑ indicates a positive relationship; ⇓ indicates a negative relationship