

“Leaving it to chance”—Passive risk taking in everyday life

Ruty Keinan*

Yoella Bereby-Meyer†

Abstract

While risk research focuses on actions that put people at risk, this paper introduces the concept of “passive risk”—risk brought on or magnified by inaction. We developed a scale measuring personal tendency for passive risk taking (PRT), validated it using a 150 undergraduate student sample, and obtained three factors indicating separate domains of passive risk taking: risk involving resources, medical risks and ethical risks. The scale has criterion validity, as it is correlated with reported passive risk taking in everyday life, and also has high test-retest reliability. While correlated with the DOSPERT scale, the PRT shows divergent validity from classic risk taking constructs like sensation seeking, and convergent validity with tendencies previously not linked to risk taking, such as procrastination and avoidance. The results indicate that passive risk is a separate and unique domain of risk taking, which merits further research to understand the cognitive and motivational mechanism perpetuating it.

Keywords: risk, decision making, passive, inaction.

1 Introduction

The simple term “risk taking” suggests that an action is involved when accepting risk. The research on risk taking behavior focuses mainly on issues like drug and alcohol abuse, promiscuous sexual activity, smoking, reckless driving, gambling, participating in dangerous sports (Andrew & Cronin, 1997; Carlin & Robinson, 2009; Leigh, 1999; McCormick, 1993; Zuckerman & Kuhlman, 2000), or taking part in crime (Horvath & Zuckerman, 1993). But in many real life situations risk is also embodied in abstaining from taking action rather than in taking it. Consider the following examples: only 58% of US adults age 50 and older underwent colon cancer screening within the previous 10 years, or used a relevant home test kit within the preceding year—which is partly why less than 40% of colorectal cancers are detected early.¹ In US states where drivers cannot be pulled over by police solely for not using a seatbelt 24% chose not to wear one (Pickrell & Ye, 2011). Only 52.7% of Americans age 21-64 working full time participate in some kind of retirement plan.² People who don’t undergo the recommended cancer screenings, don’t wear seatbelts or don’t save for retirement are all taking risks due to their inactions. The

risk taking literature so far has focused predominantly on actions people take that put them at risk, and less attention has been paid to those risks brought on, or greatly magnified, by inaction. Even though grave passive risk choices like not getting cancer screenings (Howard & Huang, 2012) or not saving for retirement (e.g., Thaler & Benartzi, 2004; Kogut & Dahan, 2012) have been at the focus of academic research, they have not been regarded as “risk taking”, and have not been analyzed under this theoretical framework. The current research aims to validate the concept of “passive risk” and to show that it is a separate domain of risk taking behavior.

The concept of “risk” has been extensively studied in the last decades. There are different definitions for risk, but most distinguish between certain and probable outcomes, marking the “riskier choice” as the one with the greater outcome variance (Kaplan & Garrick, 1981; Leigh, 1999; Yechiam & Ert, 2011). Accordingly, we define “passive risk taking” as *foregoing an opportunity to act in order to reduce outcome variance*.

1.1 “Passive risk taking” and other inaction phenomena

Passive risk taking may resemble some known inaction phenomena. The most prominent and widely researched inaction bias is the Status Quo Bias—people’s tendency to prefer the status quo over similar or even better options (Kahneman, Knetsch & Thaler 1991; Samuelson & Zeckhauser, 1988), even when forced to choose (Schweitzer, 1994). Other documented inaction biases include the Omission Bias—people’s preference for harm caused by omissions over equal or lesser harm caused by

*Department of Psychology, Ben-Gurion University of the Negev, P.O. box 653, Beer Sheva, 84105, Israel. Email: rutykeinan@gmail.com.

†Department of Psychology, Ben-Gurion University of the Negev. E-mail: yoella@bgu.ac.il.

¹Data from US National Health Interview Survey (NHIS), administered by the Center for Disease Control in 2010. CDC website, index ‘colorectal cancer’, article title: “Cancer Screenings US—2010”.

²EBRI—Employee Benefit Research Institute Notes, Feb 2007, vol. 28(2).

acts (Baron & Ritov, 2004; Ritov & Baron, 1992), the Default Bias—the tendency to choose an option labeled as the default more often than if it were not labeled as such (Baron & Ritov, 2004; Dinner, Johnson, Goldstein & Kaiya, 2011), and Inaction Inertia—people’s tendency to forego acting on a favorable opportunity just because they did not act on a previous even more favorable opportunity (Tykocinski & Pittman, 1998; Pittman, Tykocinski, Sandman-Keinan & Mathews, 2008). In all these behaviors, as well as in passive risk taking, the tendency is not to act, but the reasons suggested for these behaviors are different.

Avoidance of regret (more precisely “perceived future regret”/ “anticipated regret”) is a major factor in most inaction biases (Gilovich, Medvec & Chen, 1995; Samuelson & Zeckhauser, 1988; Tykocinski & Pittman, 1998). Support for this idea can be found in Norm Theory which claims that inactions are usually perceived as “normal”, in contrast to actions, which are viewed as “abnormal” and therefore elicit more counterfactual thinking and regret (Kahneman & Miller, 1986). People regret actions (with bad outcomes) more than inactions (Kahneman & Tversky, 1982; Ngbala & Branscombe, 1997), so it is clear why people who try to avoid regret prefer inaction in situations when actions may lead to unwanted outcomes. However, in passive risk taking behavior we refer to situations in which actions can only lead to positive/neutral outcomes, so regret avoidance cannot be the cause of inaction in these instances. People do not avoid cancer tests because they fear they might feel regret after having the tests done. Passive risk taking is not aimed at minimizing regret, and may actually lead to serious regret if risks materialize. These understandings lead us to consider the notion that passive risk taking is a unique construct, and, while it might sometimes be enhanced by other known inaction biases, we suggest that it is a separate phenomenon and deserves attention to understand how and why it occurs.

1.2 Passive risk as a separate construct

Extensive research on personality and risk tried to identify personal tendencies that lead to risky behavior (Gullone & Moore, 2000; Zuckerman & Kuhlman 2000). Sensation seeking was repeatedly found to predict risk taking (Andrew & Cronin, 1997; Zaleski, 1984), and thus it is regarded as a basic construct of risk taking. Impulsive tendencies were also found to correlate with risk taking behavior (Vitaro, Arsenault & Tremblay, 1999). Sensation seeking as well as impulsive tendencies share an active component that is expected to be uncorrelated with passive risk taking. On the other hand, passive risk taking is expected to be related to “inaction” tendencies, such as procrastination or avoidance, factors that are probably not

correlated with active risk taking.

Procrastination is defined as “the act of needlessly delaying tasks to the point of experiencing subjective discomfort” (Solomon & Rothblum, 1984). It may seem as though passive risk taking is essentially procrastination, but there is a major difference: the procrastinator knows that eventually he will have to complete the task at hand, the decision to act has already been established—it is only the actual doing that is delayed. In passive risk taking people decide “not to act”, or in some cases “not act for now”. As best explained in Steel (2007): “one procrastinates when one delays beginning or completing an intended course of action.”

While procrastination is often considered to be a common every-day motivational issue, avoidance—the act of refraining or escaping an action, person or thing, is often linked to mental difficulties such as anxiety disorders (Barlow, 2002) or depression (Ottenbreit & Dobson, 2004). Avoidance can be either cognitive—refrain from thinking about something, or behavioral—avoid doing something (Ottenbreit & Dobson, 2004), both of which seem relevant to passive risk taking and will be examined in the current study.

Previous research studied avoidance in the context of decision making, and receives much attention in Janis and Mann’s conflict theory of decision making (1977). Their model suggests that “defensive avoidance” is one of four faulty decision making patterns caused by high stress, in which the decision maker escapes the conflict, brought on by the need to make a decision, by procrastinating or shifting responsibility to someone else. Based on this model Mann and colleagues also developed a scale measuring individual differences in the coping with decisional conflict (Mann, Burnett, Radford & Ford, 1997). Janis and Mann’s work focuses on stressful decisions, where people are afraid to make mistakes or hurt someone, and therefore avoid making a decision. In passive risk situations the issue of “making a mistake” is less prominent since action does not lead to harm, so why not decide to act? Deciding to avoid taking action in situations where an action is expected to lead to favorable or neutral results is puzzling and definitely worthy of exploration. This line of questioning has been at the center of the literature on protective behavior.

1.3 Protection Motivation Theory (PMT)

Protection Motivation Theory (Rogers, 1975) was originally developed to explain the effects of fear appeals on health attitudes and behaviors. The theory focuses on two processes, threat appraisal and coping appraisal, which together determine whether or not the person in question will take a protective action. Threat appraisal consists of estimates of the threat’s severity and the likelihood that it

will occur, while coping appraisal involves believing the action taken will in fact remove the threat and the degree to which one thinks one is capable of doing what the protective measure requires (self-efficacy). These appraisals may interact with each other. For example, Weinstein (2000) demonstrated that the effects of severity and probability are not additive, and, if one of them is estimated to be low, the tendency to take protective actions greatly decreases. On the other hand, some studies demonstrated that emotional factors, like worry or future regret, are a better predictor of protective behavior than threat appraisal (Baron, Hershey & Kunreuther, 2000; Chapman & Coups, 2006). Many studies involving PMT aim to find ways to enhance one or more of these four variables through emotional or cognitive means to bolster protective behavior (Griffeth & Rogers, 1976; Prentice-Dunn, McMath Cramer, 2009).

Studies examining protective behavior have focused on numerous issues and hazards. Decision pertaining to vaccination have received much attention (Brewer et al., 2007; Weinstein et al., 2007), as have choices regarding AIDS prevention (Bengel, Belz-Merk & Farin, 1996; Eppright, Tanner & Hunt, 1994), cancer screenings (Seydel, Taal & Weigman, 1990) or behavior relevant to preventing heart disease (Plotnikoff & Higginbotham, 1995). Although the vast majority of protective behavior research focuses on issues pertaining to health, protection motivation theory was also applied to other issues such as antinuclear behaviors (Axelrod & Newton, 1991; Wolf, Gregory & Stephan, 1986), or increasing earthquake preparedness (Mulilis & Lippa, 1990).

While PMT has been the prominent theoretical framework for studying protective measures, other approaches also address these issues. For example, Thaler and Bernartzi's (2004) work on the insufficient saving for retirement emphasizes the role of bounded rationality and self control in explaining this inappropriate protective behavior.

It may seem as though the concept of passive risk taking somewhat parallels Protection Motivation Theory. While both concepts share some similarities, mainly refraining from actions that can prevent danger, there are some notable differences. The primary difference is that Protection Motivation Theory focuses mainly on health issues and illness prevention (for a meta-analysis see Floyd, Prentice-Dunn & Rogers, 2000; Milne, Sheeran & Orbell, 2000), while passive risk taking is a broader, more general concept, relevant to various issues and other risk domains such as financial and ethical risks. Also, the process of coping appraisal, central to PMT, has little relevance in most passive risk situations, since people normally know the action will minimize the risk, and self-efficacy issues are much less prominent (people know that if they go over their credit card bill they will mini-

mize chances of paying for something they did not buy, and they know they are able to go over the bill).

People tend to rely on their personal experience when making decisions. People's known tendency for underweighing the probability of rare events when making experience-based decisions (Barron & Yechiam, 2009; Hertwig, Barron, Weber & Erev, 2004) may therefore contribute to passive risk taking, since it leads to an underestimation of the chances that these risks will materialize. However, this tendency also seems to contribute to active risk taking (in situations when people take repeated or familiar risks), and it does not differentiate between the two domains, so we won't elaborate on this issue.

1.4 The present study

The current study aims to examine risk brought on or magnified by inaction or avoidance. It is important to note that there are many situations in which both action and inaction carry risk (like heart surgery), and people choose whether to take risk actively (have the surgery) or passively (not have the surgery). In the present study we focus only on those situations in which inactions involve risk, while taking an action carries no risk. Furthermore, this study deals with passive risk situations in which the person involved is aware (to some degree) there is risk involved and is aware of the action he/she can take to minimize it. While some passive risk situations, like not going to the doctor for a checkup, may allow for a "window" of procrastination (i.e., not take action "for now"), others have a definite decision point and do not involve procrastination, like not reading the fine print before signing a lease.

We present two experiments that aim to validate the construct of passive risk taking. Experiment 1 introduces the Passive Risk Taking scale (PRT), examines the discriminant validity of this scale from other scales that measure "active" risk taking, and tests criterion validity with actual behavior. Experiment 2 demonstrates test-retest reliability, as well as expected correlations with "inaction related" constructs like procrastination and avoidance.

2 Experiment 1

2.1 Method

Subjects and procedure. The 150 subjects, 97 females and 53 males, aged 20–33 (average age: 25), responded to an internet-sent invitation asking them to fill out a few questionnaires in return for participating in a raffle, with a chance of 1 in 7.5 of winning \$15. After subjects had signed up for the 150 slots in the experiment, a link was sent by email informing them they have a 72 hour win-

dow to complete the attached questionnaires. All subjects completed this task within the 72 hour window.

Materials. The self-report battery included the following questionnaires:

1. *Passive risk taking* was measured with the Passive Risk Taking scale (PRT)—a self-report questionnaire measuring the tendency for passive risk taking, developed for this study. We adopted the notion of domain-specific risk taking suggested in the DOSPERT scale (Blaise & Weber, 2006), and designed the PRT to measure risk taking in different domains of life: risk concerning resources (money / time / effort), risk concerning health and safety, risks due to recreational activities and ethical risks. The PRT initially included 51 items, all pertaining to taking/not taking action to reduce various risks. Subjects were asked to assess how likely they are to act in the way described by each item, on a 7 point scale ranging from 1 (very unlikely) to 7 (very likely). Since it is difficult to answer numerous questions about “not” doing something, (*not* saving money, *not* declaring items in customs, etc.), we worded most items in the positive form (“*going* to the doctor to inquire about an on-going pain”).

2. *Actual passive risk taking in everyday life* was measured with 8 multiple choice questions regarding actual decisions made in recent years, for example: “When you bought your latest computer, how many stores did you visit to compare prices?” These questions are designed to serve only as a preliminary indication of criterion validity, demonstrating the relation of the PRT to actual decisions and behavior.

3. *Risk taking* was measured using the 30 item Domain Specific Risk Taking Scale—DOSPERT (Blais & Weber, 2006), which distinguishes between risk taking in various domains: financial, ethical, health/safety, social and recreational.

4. *Sensation seeking* was measured with the 8-item Short Sensation Seeking Scale (Madsen, Das, Bogen & Grossman, 1987), which includes questions focusing on thrill and adventure seeking, experience seeking, disinhibition and boredom susceptibility.

5. *Impulsivity* was measured with the 30 item Barratt Impulsiveness Scale (Patton, Stanford & Barratt, 1995).

2.2 Results

An exploratory factor analysis with a Varimax rotation revealed three factors with substantial Eigenvalues (8.4, 2.9 and 2.8).

We excluded items that were loaded less than 0.4 in any factor (16 items), or were hard to explain within the factor they were classified to (10 items), which left 25 items. These three factors corresponded to the three original domains: resources, medical and ethics. The first factor (resources) had a Cronbach’s alpha of 0.82 and included 12

items. The second factor (medical) had an alpha of 0.73 and included 7 items. The third factor (ethics) included 6 items and had a moderate alpha of 0.60 (possibly due to the different topics that are included in this factor). The General score had a Cronbach’s alpha of 0.79. Questions designed to measure passive risk taking in the domain of recreation (like: “going to a movie without finding out ahead of time what it’s about”) did not show any coherence or load logically to any factor and were therefore removed. Factor analysis results are displayed in Table 1. The resources, medical and ethical factors explained 19.87%, 10.2% and 7.86% percent of the variance, respectively.

Table 2 presents the correlations between the different scales of the PRT. As can be seen in Table 2, there are small correlations between the medical factor and the other two factors.

2.2.1 Criterion validity

The PRT factors show significant correlations to four of the “life experience questions” which ask about actual passive risk taking in recent years. The correlations are displayed in Table 3.

2.2.2 Discriminant validity

As part of the construct validation of the PRT we aim to differentiate it from other risk measures such as the DOSPERT. Table 4 presents the correlations between the PRT and the DOSPERT scores.

The general PRT score shows a significant correlation with the general DOSPERT score ($r=0.42$, $p<.001$), indicating that both questionnaires measure some form of risk. However, this medium-level correlation indicates that these constructs are only partially related, and that there are other factors that account for the rest of the PRT variance.

Next we analyze the correlations between known risk taking correlates and the PRT, as well as the DOSPERT scale. As expected, the DOSPERT scale was positively correlated with sensation seeking ($r=0.62$, $p<.001$), demonstrating that they measure common domains of risk taking. More importantly, as hypothesized, the Passive Risk Taking scores were *not* correlated with sensation seeking ($r=0.15$, $p=0.06$). This pattern of results supports the idea of passive risk taking as a separate domain of risk taking. The last issue relevant to divergent validity is Impulsivity. While we hypothesized no correlation between impulsivity and PRT we found that the two are somewhat correlated ($r=0.32$, $p<.001$).

There was an effect of gender in the medical and ethical components of the PRT, demonstrating with women taking less passive risks than men in these domains (med-

Table 1: Factor analysis—rotated component matrix.

Factor 3	Factor 2	Factor 1	Items on the PRT* (question number in the original 51 questions questionnaire):
.06	.11	.75	Buy an expensive product (computer, refrigerator) only after comparing prices in several stores (27).
.05	.15	.69	Install an up to date anti-virus on my computer (44).
.00	.08	.67	Check the credit card bill in detail every month (29)
−.06	.12	.66	Inquire all about a course before signing up (who is the lecturer, what are the topics, the assignments, etc.)(49).
.04	.08	.61	Read the fine print on any major document like a lease, an insurance policy or loan application (30).
.07	.21	.58	Save receipts and warranty documents of major items in an organized fashion (45).
−.23	.33	.55	Check tolls and prices before calling long distance or overseas (50).
−.11	.20	.53	Back up all important files on the computer, including documents, pictures or videos (38).
.02	−.05	.46	Not save money regularly (51).**
−.11	.11	.45	Always lock the house door when going to sleep (31).
.14	−.24	.44	Buy clothes without trying them on (21).**
.20	.00	.42	Buy a used car only after taking it to a complete check up in a licensed auto shop (7).
.03	.70	−.14	Immediately go to the doctor’s when something in my body is aching or bothering me (1).
.18	.64	.20	Have regular general medical check-ups every one or two years (43).
−.20	.63	.10	Get vaccinated for the flu in the winter (28).
−.01	.61	.13	Install an anti-collision device in the car (32).
.23	.61	.07	Drive straight to the auto repair shop when the car makes a strange noise (3).
.15	.49	.15	Ask the person I am dating about his/her sexual history (6).
.26	.48	.23	Buy serious medical insurance when traveling to another country (5).
.65	.15	.05	Always wear a seatbelt when sitting in the back seat (14).
.64	−.12	.07	Pay when parking in a blue-white zone as directed by the parking meter (9).
.57	.09	−.10	Change some part in the car (filter, strap, etc.) because the mechanic said it was old and due to fail (12).
.55	.14	.08	Go through customs without declaring about goods I am bringing, which are supposed to be taxed (46).**
.49	.19	.14	Report to social services about a child from the neighborhood who is seriously neglected by his parents (18).
.47	−.06	−.22	Not say anything when receiving too much change at the store (23).**

* The PRT is mostly written in the positive form, i.e. it asks about incidences when people do things to prevent risk, so most questions were reversed in the analysis to create a PRT score that indicates passive risk taking. The exception are those questions that directly ask about passive risk taking; these are marked with two stars (**) and were not reversed in the analysis.

ical: $r = -0.19$, $p < 0.02$, ethical $r = -0.20$, $p < 0.02$). The same pattern of correlations was found for the DOSPERT and its different components. Except of the social component all other components were significantly negatively

correlated with gender (all r value showed a stronger negative correlation than 0.17 , $p < 0.05$). These findings are in line with numerous risk studies that showed gender differences in risk taking behavior with men taking more

Table 2: Correlations among the different scales of the PRT for Experiment 1.

	Resources	Medical
Medical	0.32 ($p < .001$)	
Ethical	0.02	0.21 ($p < .05$)

Table 3: Pearson correlations between PRT scores and life events.

	Number of notices received for unpaid bills in 3 years	Number of computers checked before buying the current one	Number of apts. checked before renting the current one	Number of times had appliances checked for safety issues
Passive resources	.27**	.40***	.25**	-.02
Passive medical	.07	.04	.04	.22**
Passive ethical	.12	-.11	-.01	.2*
Passive risk general	.24**	.23**	.17*	.16*

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

risks overall, but actual gender differences varying as a function of the domain (for a review see Byrnes, Miller & Schafer, 1999). These results support the idea that the PRT does measure risk taking behavior.

3 Experiment 2

This experiment was designed to further establish the PRT as a reliable measure of passive risk taking by proving test-retest reliability, as well as showing relevant correlations between the construct of passive risk taking with inaction-related constructs like avoidance and procrastination, which have not been previously linked to risk taking.

3.1 Method

Subjects and procedure. 100 students (90 females and 10 males, mean age 23) participated in the experiment for course credits. Subjects were informed that this was a two part experiment and that they had to complete both parts of the experiment to receive credit. After signing up for the experiment subjects were sent a link by e-mail inviting them to fill out the first part during a 72 hour “window”. Three weeks later the second link was sent, and subjects again had 72 hours to complete the questionnaires. All 100 subjects completed both parts of the experiment, but the questionnaires of two subjects were excluded from the final analysis because we could not match the two sessions for them, leaving us with 98 subjects (88 females and 10 males).

Materials

1. *Passive risk taking* was measured with the final version of the PRT scale described in detail in Experiment 1.
2. “Active” risk taking was again measure with the DOSPERT scale (Blais & Weber, 2006).
3. *Procrastination* was measured using the 20 item Lay Procrastination Scale (1986).
4. *Avoidance* was measured using Ottenbreit and Dobson’s Cognitive-Behavioral Avoidance Scale-CBAS (2004). This scale includes 31 items that measure 4 dimensions of avoidance: cognitive social/non social and behavioral social/non social.

3.2 Results

Test-retest scores were calculated on two samples of the PRT scale, filled out by the same subjects 3 weeks apart. Test-retest correlations of the PRT general score, and the resources, medical and ethical factors are 0.90, 0.85, 0.88 and 0.83 respectively; $p < .001$ for all scores.

We calculated the correlations between the different factors of the PRT for the first and the second sample. Table 5 presents the correlations between the different factors of the PRT. As can be seen in Table 5, the different factors of the PRT are not independent and share some moderate common variance.

We also calculated the internal reliability for each of the three PRT factors extracted in Experiment 1 for Experiment 2. Cronbach’s alphas were 0.78 for “resources”, 0.74 for “medical” and 0.37 for “ethical”. All internal reliability measures are presented in Table 6. The positive correlation between the PRT and DOSPERT scale, found in Experiment 1, was replicated in Experiment 2 ($r = 0.39$,

Table 4: Pearson correlation between DOSPERT scales and PRT components.

DOSPERT	PRT			
	Resources	Medical	Ethical	Passive risk general
Ethical	.24**	.01	.57***	.34***
Financial	.10	.03	.3**	.18*
Health and safety	.44***	.17*	.32**	.47***
Recreational	.25**	.27**	-.15	.34***
Social	-.10	.18*	-.01	.03
DOSPERT General	.30***	.23**	.38***	.42***

* p<0.5, ** p<.01, *** p<.001

Table 5: Correlations among the different factors of the PRT for sample 1 and 2.

	Sample 1		Sample 2	
	Resources	Medical	Resources	Medical
Medical	0.49***		0.49***	
Ethical	0.39***	0.31**	0.31**	0.28**

* p<0.5, **p<.01, ***p<.001

p<.001 in Experiment 2 vs. r=0.42, p<.001 in Experiment 1). These results render the PRT a reliable and stable measure of passive risk taking.

As expected, total PRT scores show a significant correlation with procrastination (r=0.41, p<.001), and all three factors show significant correlations as well (resources: r=0.40, p<.001; medical: r=0.26, p<.02; ethics: r=0.28, p<.001). In contrast, the general DOSPERT score is not significantly correlated with procrastination (r=0.16, p=.085) and only the ethical factor (r=0.30, p<.002) and the medical factor (r=0.25, p<.02) of the DOSPERT scale show significant correlations with procrastination. These findings are presented below in Table 7.

General PRT scores are significantly correlated with the two cognitive factors (social and non-social) of the Cognitive Behavioral Avoidance Scale (r=0.25, p<.02; r=0.25, p<.02, respectively), while the general DOSPERT score is not. Data regarding avoidance are presented in Table 7.

4 General discussion

This study aimed to establish the construct of passive risk taking and to show that this type of risk taking “behaves” differently in comparison to active risk taking, correlating with personal tendencies previously not considered relevant to risk taking behavior.

The results obtained in Experiments 1 and 2 demonstrate that the Passive Risk Taking scale has internal validity and includes three different components: risk involving tangible resources, health risks and ethical risks. While the resources and health components show consistently high internal reliability, the ethical component is apparently somewhat weaker. This may be due to the fact that the questions included in this domain involve very different issues (from wearing seatbelts to reporting a child is being neglected). Since it has already been widely established that risk taking tendencies are domain specific (Weber, Blaise & Betz, 2002), the fact that passive risk taking is also sensitive to domains is further evidence that we are dealing with a form of risk taking.

The PRT shows reliability in test-retest measurements, rendering it a stable tool for assessing personal tendency for passive risk taking. Furthermore, the fact that the PRT scores are related to actual decisions and consequences experienced in recent years serves as a preliminary indication of criterion validity, and establishes an important connection between the somewhat hypothetical self-reports derived from the PRT and actual (reported) behavior outside the lab.

The moderate correlation between the PRT and the well-established DOSPERT scale, as well as the fact that both are domain specific and both display similar gender differences, all indicate that there is a common element of risk taking. That being said, the fact that these

Table 6: Internal reliability scores (Chronbach’s alpha) for the two experiments.

	PRT Resources	PRT Medical	PRT Ethical	PRT General
Exp. 2-sample 1	0.74	0.69	0.36	0.81
Exp. 2-sample 2	0.78	0.74	0.37	0.82

Table 7: Correlations between passive risk taking, DOSPERT, avoidance and procrastination.

	Avoidance				Procrastination
	Cognitive avoidance (social)	Cognitive avoidance (non social)	Behavioral avoidance (social)	Behavioral avoidance (non social)	
PRT resources	.20*	.27**	-.05	.01	.40***
PRT medical	.20*	.16	-.09	-.07	.26**
PRT ethical	.20*	.13	.04	.07	.28***
PRT general	.25*	.25*	-.06	-.004	.41***
DOSPERT health & safety	.16	.23*	-.01	-.07	.25*
DOSPERT social	-.18	-.23*	-.20	-.45***	.06
DOSPERT recreation	-.02	.03	-.12	-.18	.01
DOSPERT financial	.05	.12	.19	.05	.01
DOSPERT ethical	.22*	.25*	.17	.11	.30**
DOSPERT general	.07	.10	.00	.15	.16

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

two risk measures have largely different relations to other constructs shows that we are actually measuring different forms of risk taking.

In Experiment 1 the PRT was not related to sensation seeking, a “classic” risk related construct, which is in turn highly correlated with active risk taking as measured by the DOSPERT. This leads us to consider the notion that the goals of passive risk taking are quite different from those of active risk taking—they seem more oriented towards minimizing cost than at gaining some sensation or maximizing rewards.

Although we predicted that impulsiveness should not correlate with passive risk taking, we found a surprising significant correlation. Further research is needed to understand this relationship, possibly considering the involvement of a mediating variable like self-control or the ability to delay gratification, which may cause people to be both impulsive and not invest time/money/thought in risk minimizing efforts.

Experiment 2 demonstrates that the PRT is positively connected to other inaction oriented tendencies such as procrastination. This theoretical link between risk taking and procrastination is new, and it may shed some light in

the future as to why people take passive risks in certain situations. A link between risk taking and avoidance was also established in Experiment 2, but since passive risk taking was significantly correlated only with cognitive avoidance, and not with behavioral avoidance, this may suggest that passive risk taking has more to do with not fully realizing the risks or thinking about them and has less to do with inaction per se. The general DOSPERT score had no significant correlation with procrastination and avoidance, strengthening the notion that passive risk taking differs from active risk taking and should be considered a unique construct.

It is important to note that the DOSPERT ethical domain often “behaves” more like passive risk taking, showing significant correlations with procrastination and avoidance. One can speculate that ethical risk taking (having an extramarital affair, revealing someone’s secret) is somehow different from other domains, possibly involving things people know they *should not* do. Recreational or financial risks may be considered more legitimate. Passive risk taking also has this “should” element about it, as people know they are “supposed to” check their credit card statements, get regular check-ups, etc.

4.1 Understanding passive risk taking and future research

The validation process of the PRT scale successfully established passive risk as a unique and separate construct. It remains to be understood when and why people take passive risks. One direction of future research should focus on the cognitive aspects of passive risk taking and examine the roles personal perception and known preference anomalies, such as loss aversion (Kahneman et al., 1991) or temporal discounting (Green, Fristoe & Myerson, 1994), play in passive risk situations.

Loss aversion, i.e., the notion that losses have a greater impact on preferences than gains (Kahneman & Tversky, 1979), may contribute to passive risk taking, since people may weigh what they pay or “lose” in a situation (like putting money aside for retirement) more heavily than what they may gain in the future (financial security at old age). This may be especially true for individuals who perceive actions, more precisely - preventive actions (like buying insurance or getting cancer screenings), as “sure losses”, as people tend to be risk seeking in domains of loss (Kahneman and Tversky, 1979).

Temporal discounting, the magnitude by which future rewards are discounted (Green, Fristoe & Myerson, 1994), is another element that may be relevant to passive risk taking, since it may contribute to understanding the passive risk taker’s utility function. People who greatly discount future benefits may be much less willing to pay anything for them in the present.

Since the status quo is often perceived to be the safer, less threatening option (Riis & Schwarz, 2000), and familiarity is known to breed trust (Gulati, 1995; Zablotska, Grulich, De Wit & Prestage, 2011), a third cognitive line of research could focus on the process by which people realize that the status quo is actually not a “safe state” worthy of their trust, and that they are in a risky situation.

A different research effort should examine the motivational aspects of passive risk taking and the role of personal accountability. People are often held less responsible for their omissions than for their commissions (Heider, 1958; Kahneman & Miller, 1986). This lack of perceived responsibility may lower the motivation to act. People are usually less likely to do something if they believe they won’t be held accountable for failing to do it. However, risk aversion often increases with personal accountability (Tetlock & Boettger, 1994), since accountability stimulates self-critical forms of thought and increases awareness of one’s own judgment processes (Lenrner & Tetlock, 1999). It seems plausible that, once people do feel accountable, they process information better, they realize that they are in a risky situation, and they are motivated to act to avoid unwanted risk. Future research should examine the role perceived personal ac-

countability plays in passive risk taking and explore ways to enhance a sense of accountability in these seemingly non-accountable situations.

5 Conclusion

The risks taken due to inactions (like not getting vaccinated or not saving for retirement) have been the focus of previous research efforts, but they were not viewed as a type of “risk taking”, and they therefore were not much studied from a risk-taking perspective. If we can learn more about the personal tendencies that are associated with passive risk taking, and better understand the underlying mechanisms that may perpetuate such risk taking, we may be able to design educational programs or public policies aimed at minimizing unnecessary risk taking. We identified passive risk taking as a separated and unique type of risk taking, but this is only a first step in what we hope will be an extensive line of research that will shed light on this everyday decision making phenomenon.

References

- Andrew, M., & Cronin, C. (1997). Two measures of sensation seeking as predictors of alcohol use among high school males. *Personality and Individual Differences*, 22, 393–401.
- Axelrod, L. J., & Newton, J. W. (1991). Preventing nuclear war: Beliefs and attitudes as predictors of disarmist and deterrentist behavior. *Journal of Applied Social Psychology*, 21, 29–40.
- Barlow, D. H. (2002). *Anxiety and its disorders: The Nature and Treatment of Anxiety and Panic*, (2nd ed). New York: Guilford Press.
- Baron, J. & Ritov, I. (2004). Omission bias, individual differences, and normality. *Organizational Behavior and Human Decision Processes*, 94, 74–85.
- Baron, J., Hershey, J. C., & Kunreuther, H. (2000). Determinants of Priority for Risk Reduction: The Role of Worry. *Risk Analysis*, 20, 413–427.
- Barron, G., & Yechiam, E. (2009). The coexistence of overestimation and underweighting of rare events and the contingent recency effect. *Judgment and Decision Making*, 4, 447–460.
- Benartzi, S. & Thaler, R. (2004). Save more tomorrow: Using behavioral economics to increase employee savings. *Journal of Political Economy*, 112, 164–187.
- Bengel, J., Belz-Merk, M., & Farin, E. (1996). The role of risk perception and efficacy cognitions in the prediction of HIV-related preventive behavior and condom use. *Psychology and Health*, 11, 505–525.

- Blaise, A. R., & Weber, E. U. (2006). A Domain Specific Risk Taking (DOSPERT) Scale for adult populations. *Judgment and Decision Making, 1*, 33–47.
- Brewer, N. T., Chapman, G. B., Gibbons, F. X., Gerrard, M., McCaul, K. D., & Weinstein, N. D. (2007). Meta-Analysis of the Relationship Between Risk Perception and Health Behavior: The Example of Vaccination. *Health Psychology, 26*, 136–145.
- Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk taking: a meta-analysis. *Psychological Bulletin, 125*, 367–383.
- Carlin, B. I., & Robinson, D. T. (2009). Fear and loathing in Las Vegas: Evidence from the black jack tables. *Judgment and Decision Making, 4*, 385–396.
- Chapman, G. B., & Coups, E. J. (2006). Emotions and preventive health behavior: Worry, regret, and influenza vaccination. *Health Psychology, 25*, 82–90.
- Dinner, I., Johnson, E. J., Goldstein, D. G., & Liu, K. (2011). Partitioning default effects: Why people choose not to choose. *Journal of Experimental Psychology: Applied, 17*, 332–341.
- Eppright, D. R., Tanner, J. F., Jr., & Hunt, J. B. (1994). Knowledge and the ordered protection motivation model: Tools for preventing AIDS. *Journal of Business Research, 30*, 13–24.
- Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. (2000). A meta-analysis of research on protection motivation theory. *Journal of Applied Social Psychology, 30*, 407–429.
- Gilovich, T., Medvec, V. H., & Chen, S. (1995). Commission, Omission, and Dissonance Reduction: Coping with Regret in the “Monty Hall” Problem. *Personality and Social Psychology Bulletin, 21*, 182–190.
- Green, L., Fristoe, N., & Myerson, J. (1994). Temporal discounting and preference reversals in choice between delayed outcomes. *Psychonomic Bulletin & Review, 1*, 383–389.
- Griffith, R. W., & Rogers, R. W. (1976). Effects of fear-arousing components of driver education on students’ safety attitudes and simulator performance. *Journal of Educational Psychology, 68*, Aug 1976, 501–506.
- Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal, 38*, 85–112.
- Gullone, E., & Moore, S. (2000). Adolescent risk taking and the five-factor model of personality. *Journal of Adolescence, 23*, 393–407.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Hertwig, R., Barron, G., Weber, E. U., & Erev, I. (2004). Decisions from experience and the effect of rare events in risky choice. *Psychological Science, 15*, 534–539.
- Horvath, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal and risky behavior. *Personality and Individual Differences, 14*, 41–52.
- Howard, D. H., & Huang, Y. (2012). Serious health events and discontinuation of routine cancer screening. *Medical Decision Making, 32*, 627–635.
- Janis, I. L., & Mann L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York, NY, US: Free Press.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion and status quo bias. *The Journal of Economic Perspectives, 5*, 193–206.
- Kahneman, D., & Miller, D. T. (1986). Norm Theory: Comparing reality to its alternatives. *Psychological Review, 93*, 136–153.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263–291.
- Kahneman, D., & Tversky, A. (1982). The psychology of preferences. *Scientific American, 246*, 160–173.
- Kaplan, S., & Garrick, B. G. (1981). On the quantitative definition of risk. *Risk Analysis, 1*, 11–27.
- Kogut, T., & Dahan, M. (2012). Do you look forward to retirement? Motivational biases in pension decisions. *Judgment and Decision Making, 7*, 282–291.
- Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality, 20*, 474–495.
- Leigh, B. C. (1999). Peril, chance and adventure: Concepts of risk, alcohol use and risky behavior in young adults. *Addiction, 94*, 371–383.
- Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects accountability. *Psychological Bulletin, 125*, 255–275.
- Madsen, D. H., Das, A. K., Bogen, I., & Grossman, E. E. (1987). A short sensation-seeking scale. *Psychological Reports, 60*(3, Pt 2), 1179–1184.
- Mann, L., Burnett, P., Radford, M., & Ford, S. (1997). The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict. *Journal of Behavioral Decision Making, 10*, 1–19.
- McCormick, R. A. (1993). Disinhibition and negative affectivity in substance abusers with and without a gambling problem. *Addictive Behaviors, 18*, 331–336.
- Milne, S., Sheeran, P., & Orbell, S. (2000). Prediction and Intervention in Health-Related Behavior: A Meta-Analytic Review of Protection Motivation Theory. *Journal of Applied Social Psychology, 30*, 106–143.
- Mullis, J. P., & Lippa, R. (1990). Behavioral changes in earthquake preparedness due to negative threat appeals: A test of protection motivation theory. *Journal of Applied Social Psychology, 20*, 619–638.

- Ngbala, A., & Branscombe, N.R. (1997). When does action elicit more regret than inaction and is counterfactual mutation the mediator of this effect? *Journal of Experimental Social Psychology*, 33, 324–343.
- Ottensbreit, N. D., & Dobson, K. S. (2004). Avoidance and depression: the construction of the Cognitive Behavioral Avoidance Scale. *Behaviour Research and Therapy*, 42, 293–313.
- Patton, J. H., Stanford, M. S., & Barratt E. S. (1995). Factor structure of the Barratt Impulsiveness Scale. *Journal of Clinical Psychology*, 51, 768–774.
- Pickrell, T. M., & Ye, J. Y. (2011, November). *Seat belt use in 2011—Overall results*. (Traffic Safety Facts Research Note. Report No. DOT HS 811 544). Washington, DC: National Highway Traffic Safety Administration.
- Pittman, T. S., Tykocinski, O. E., Sandman-Keinan, R., & Mathews, P. A. (2008). When bonuses backfire: An inaction inertia analysis of procrastination induced by a missed opportunity. *Journal of Behavioral Decision Making*, 21, 139–150.
- Plotnikoff, R. C., & Higginbotham, N. (1995). Predicting low-fat diet intentions and behaviors for the prevention of coronary heart disease: An application of protection motivation theory among an Australian population. *Psychology and Health*, 10, 397–408.
- Prentice-Dunn, S., McMath, B. F., & Cramer, R. J. (2009). Protection motivation theory and stages of change in sun protective behavior. *Journal of Health Psychology*, Vol 14, 297–305.
- Riis, J., & Schwarz, N. (2000). Status quo selection increases with consecutive emotionally difficult decisions. Poster presented at the meeting of the Society for Judgment and Decision Making, New Orleans, LA.
- Ritov, I., & Baron, J. (1992). Status-quo and omission bias. *Journal of Risk and Uncertainty*, 5, 49–61.
- Rogers, R. W., (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology: Interdisciplinary and Applied*, 91, 93–114.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1, 7–59.
- Schweitzer, M. (1994). Disentangling status quo and omission effects: An experimental analysis. *Organizational Behavior and Human Decision Processes*, 58, 457–476.
- Seydel, E., Taal, E., & Wiegman, O. (1990). Risk appraisal, outcome and self efficacy expectancies: Cognitive factors in preventive behavior related to cancer. *Psychology and Health*, 4, 99–109.
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: frequency and cognitive behavioral correlates. *Journal of Counseling Psychology*, 31, 503–509.
- Steel, P. (2007). The Nature of Procrastination: A Meta-Analytic and Theoretical Review of Quintessential Self-Regulatory Failure. *Psychological Bulletin*, 133, 65–94.
- Tetlock, P. E., & Boettger, R. (1994). Accountability amplifies the status quo effect when change creates victims. *Journal of Behavioral Decision Making*, 7, 1–23.
- Tykocinski, O. E., & Pittman, T. S. (1998). The consequences of doing nothing: Inaction Inertia as avoidance of anticipated counterfactual regret. *Journal of Personality and Social Psychology*, 75, 607–616.
- Vitaro, F., Arseneault, L., & Tremblay, R. E. (1999). Impulsivity predicts problem gambling in low SES adolescent males. *Addiction*, 94, 565–575.
- Weber, E. U., Blaise, A. R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, 15, 263–290.
- Weinstein, N. D. (2000). Perceived probability, perceived severity, and health-protective behavior. *Health Psychology*, 19, 65–74.
- Weinstein, N. D., Kwitel, A., McCaul, K. D., Magnan, R. E., Gerrard, M., & Gibbons, F. (2007). Risk Perceptions: Assessment and Relationship to Influenza Vaccination. *Health Psychology*, 26, 146–151.
- Wolf, S., Gregory, W. L., & Stephan, W. G. (1986). Protection motivation theory: Prediction of intentions to engage in anti-nuclear war behaviors. *Journal of Applied Social Psychology*, 16, 310–321.
- Yechiam, E., & Ert, E. (2011). Risk attitude in decision making: In search of trait-like constructs. *Topics in Cognitive Science*, 3, 166–186.
- Zablotska, I. B., Grulich, A. E., De Wit, J., & Prestage, G. (2011). Casual sexual encounters among gay men: Familiarity, trust and unprotected anal intercourse. *AIDS and Behavior*, 15, 607–612.
- Zaleski, Z. (1984). Sensation seeking and risk taking behavior. *Personality and Individual Differences*, 5, 607–608.
- Zuckerman, M., & Kuhlman, D. M. (2000). Personality and risk taking: Common biosocial factors. *Journal of Personality*, 68, 999–1029.