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THE FORMATION OF CONSUMER'S PERCEIVED RISK AND RISK AVERSION IN THE CONTEXT OF INNOVATION ADOPTION: A QUALITATIVE RESEARCH

Empirical
study

Keywords

Innovation adoption
Perceived risk
Risk aversion

JEL Classification

M31, D81

Abstract

The level of perceived risk is acknowledged to determine the innovation adoption decision. Yet, despite being largely studied in a manifold of disciplines, we still have a poor understanding of its formation from a marketing perspective. This paper offers valuable insight on how perceived risk and risk aversion evolve under different conditions and how the influence on adoption decision is made. We perform two focus groups and 10 in-depth interviews that enable us to build several counterintuitive paths that refute previous findings. Implications for management and science are discussed and a new theory is proposed.

Introduction

In a turbulent environment, risk expresses the unknown future that we can't grasp. Risk is one of the main topics in today's economy, affecting firms, individuals, states, and markets alike. Of course, risk has different meaning and substance for every of these entities. Individuals' risk especially differs by being a psychological dimension; unlike the other three that are objective measures expressing the magnitude, probability, and impendence of different risk sources.

Despite some interest in the topic, perceived risk has remained in the consumer's black box, a metaphor for the unknown paths of thinking and feeling that eventually determine his behavior. Thus, further attempts are necessary in order to enlighten causal pathways in which risk perception is dependant variable.

Understanding the underlying factors of risk perception is vital for marketing strategy, as it gives little attention to risk reduction, what may be a cause for countless failures of new products and unexpected falls of strong brands (Munteanu, 2011). Strategic planners must be able to extract any possible risk source from the situation analysis, and then, they need a clear model that explains risk formation in order to employ efficient strategies of risk reduction. High risk perception can also be an opportunity for products and services that succeed to demonstrate special safeness to address to those consumers who are risk averse and are willing to pay extra to avoid it (Gouws, Peter & van Oudtshoorn, 2011).

A concept rather neglected in marketing is risk aversion, despite being widely tackled in behavioral finance. We argue the importance of the duality risk perception – risk aversion in understanding risk formation and change, and how this influences consumer behavior, particularly innovation adoption.

Most studies on risk perception use quantitative techniques to highlight patterns of risk formation and change. Nevertheless, this approach is not suitable to identify hidden insights on the topic, as the process occurs separately in every consumer's mind. Quantitative research may dilute rare aspects that form the uniqueness of every individual, providing general paths that describe the statistical community, but not a way of thinking and feeling.

Moreover, learning theory and prospect theory aren't able to provide neither alone nor together a sufficient explanation for the resulting patterns from the previous research (Rogers, 1997). The fact that the most salient theories in the field don't apply for empirical observations must be the ground for future research to find a better theory that accounts for observed data.

This study has a qualitative approach of perceived risk and risk aversion, trying to deliver new insight on risk formation and adjustment, and eventually to

propose a new theory. We attempt to capture variety from different individuals and contexts, such that not a singular path is sought.

Theoretical background

Consumer's perceived risk was originally theorized by Bauer (1960) as the undesirable outcome that a consumer anticipates that it can follow his current actions.

Rogers (2003) mentions perceived risk along the variables that describe both consumers and the context of adoption. While is generally accepted that perceived risk is an individual measure, it can be assumed that a certain innovation can cause a higher or a lower risk, being thus a context-related measure.

The context can be divided into the product subject of the adoption decision and the adoption closeness. The latter is identified as moderator of the relation between risk perception and adoption decision. Long before the adoption decision, during the intention stage from the reasoned action theory, perceived risk is related mostly to product benefit, while in the decision stage risk is derived from the adoption costs and the assimilation of the attached behavior (Castano et al, 2008).

Empirical data confirm that perceived risk has a negative effect on both adoption intention and adoption itself, but the intention is more substantially influenced (Arts et al., 2011).

As Rogers (1997) states, learning theory and prospect theory are assumed to provide explanations for perceived risk formation. According to learning theory, risk perception is a dimension of learned social behavior. Considering that reinforcement is the core of learning, behaviors that produce the same outcome get a reinforced desirability, according to how favorable or unfavorable the outcome is. Thus, reinforced and desirable behaviors are likely to be adopted and repeated, as long as the outcome is maintained. It has to be noted that the reinforcement occurs for both own and others' behaviors. The latter represents nothing else but imitation, which is the most frequent way of social learning.

Per contra, prospect theory states that perceived risk is a relatively constant measure, being occasionally modified by salient or repeated experiences, which change the individual's value system. Prospect theory uses subjective probabilities that may have curious dynamics making it rather unpredictable. For instance, Kahneman and Tversky (1979) suggest that the subjective probability weighting function has irregular variance for extreme inputs. A risk with very low probability will rarely occur, and hence the individual lacks relevant information to judge its magnitude.

According to Mitchell (1999), risk is a multidimensional measure, comprising a number of

components, with different influence in the formation of the overall risk. The mathematical expression of this is a weighted average formula, proposed by Fishbein (1963). Hence, the taxonomy used gets high importance. The scientific literature comprises several taxonomies (Schiffman & Kanuk, 2004; Jacoby & Kaplan, 1972; Hawkins, Best & Coney, 2003), without a clear perspective on the superiority of any classification. For instance, Schiffman and Kanuk (2004) consider six components of perceived risk: functional risk, physical risk, financial risk, social risk, psychological risk, and time risk.

Methods

We employed both focus group and in-depth interview to meet the scope of this study. The two focus groups were initially settled to gain insight on relevant aspects of innovation adoption, when risk perception was just one of the topics discussed, in the context of the adoption of modern gadgets – smartphones, e-book readers, tablets, iPods, and laptop versions.

Afterwards, ten in-depth interviews took place discussing focused the topic of perceived risk and risk aversion. Multi-context discussions were planned: durable goods, FMCGs, and services.

While the focus groups had the purpose to elucidate what role may brands have in risk reduction, in order to stimulate diffusion, in-depth interviews were focused on the formation and evolution of risk perception and aversion.

One focus group comprised a group of friends, while the other consisted of opinion leaders. Thus, we were able to understand the social influence in risk formation and change, and also to check the actual application of Rogers' (2003) description of the five categories of adopters concerning risk aversion. Hence, we used a selection in cluster for the first group. Nine groups of friends were analyzed using a selection questionnaire, choosing the one fulfilling at the best the following criteria:

- both adopters and non-adopters of at least two types of gadgets exist in the group;
- at least one member of the group is adoptant of Windows 8 and one of Windows 7;
- there are positive answers to the question 'Have you seen one of the owned gadgets to a friend before purchasing it?'
- the group has at least eight eligible members;
- high degree of using friends to inform about gadgets;
- at least one member possesses the characteristics of an opinion leader, as described by Evans, Jamal and Foxall (2009).

As mentioned before, the opinion leaders of the other eight groups were selected for the second focus group.

Concerning the in-depth interviews, we used a simple selection questionnaire, asking the prospects to give a new brand/ product from the categories of durable goods, FMCGs, and services that cause them problems of any kind and to argue every choice. We also asked for the education level as we prefer smart, voluble persons.

The interview guide for the focus groups comprised four themes:

- the influences inside the group on adoption decision and the role of social learning – direct questions were used;
- types of risks, risk sources and risk evaluation – direct question and debate technique without pro and contra sides were employed;
- the knowledge level about gadgets – direct questions and storytelling technique were considered;
- brand's role on all the above mentioned aspects – analogy technique and risk reversing were used.

The in-depth interviews relied on a guide comprising five themes:

- types of risks and risk sources;
- classifying these risks into categories;
- ways of risk reduction;
- decisions and behavior under risk.

Direct questions and filling spaces techniques were enough here to deliver satisfactory results.

Results

We will further present the meaningful results of the research together with some lists of verbatim that support our interpretations. In Table 1, we explain the codifications used for the participants and their answers in the lists of verbatim. A longitudinal view is required to understand the risk universe as a whole; hence we analyze evoked risks for every individual.

For instance, M111 express his negative attitude towards technology – Table 2, lines 1-3 – by blaming it of being responsible for the seldom meetings between friends. Later, he reckons that gadgets are not durable, and suggests that many risks are associated with such a purchase. He doesn't trust any brand, and thus, he refuses to replace his old phone. Moreover, he confesses that he searched for information a while after he purchase his laptop, in order to confirm his choice. He directly indicates many functional risks and suggests a high perceived risk, although he doesn't mention any bad personal experience with his current or past gadgets (see Table 2).

Another participant, F11, has a manifestly positive attitude towards technology, directly expressed from the "get to know each other" session – Table

3, line 1 – and consistently during all the discussion. Even though she’s aware of the functional risks and not only, unlike M1II, F1I declares that this inconvenient don’t stop her buy – Table 3, line 7-8. Significantly, she shows a high degree of autonomy when searching for information, unlike other participants who rely more on personal sources.

The same conclusion can be drawn for F4I, but this time we talk about a positive attitude just toward the brands of a sole manufacturer. She suggests that she didn’t even bother to investigate potential disadvantage, as she wouldn’t care about. In line with previous findings (Munteanu & Pagalea, 2014), even though her usage experience allows her to picture these problems, the brand’s social validation beats any inconvenient (see Table 4).

Finally, M3I shows a positive attitude towards gadgets, by revealing a special relation that he has with his gadgets, and looks very autonomous in searching information. Unlike F1I, who has the same characteristics, he is very cautious to avoid buying those gadgets that are sensitive to mechanical shocks. Even though he had this problem with his previous phone – Table 5, lines 4-5 –, he considers the risk for other gadgets also – Table 5, lines 7-8. Moreover, the fact that he uses the technical formulation “mechanical shock” instead of kick, drop, or hard impact, shows that he is well informed, and takes it into consideration very seriously.

Most individuals accept that they experienced regret after some previous adoptions – Table 6, lines 1-3 – but most express an attitude of denial, minimization or ignorance towards the causing inconveniences – Table 6, lines 4-9. Instead, they usually react by communicating to the others through word-of-mouth the cause of their regret – Table 7, lines 1-4 – especially in the case of opinion leaders, whom unexpressed motivation is to preserve this status – Table 7, line 9. When they receive such information, the members have various reactions, from acceptance and risk update – Table 7, lines 5 – to skeptical acceptance without generalization – Table 7, lines 6-8. These findings are in line with Rogers (1997), who concludes that perceived risk has a prominent social dimension.

Four patterns can be extracted on the strength of these findings that cannot be explained by the extant models. The first pattern consists of consumer’s endeavor to account his negative attitude towards a brand, product, or product category by identifying and exaggerating a manifold of risks associated with an innovation adoption. While no bad experiences are evoked, we can assume that we are dealing with borrowed attitudes. This pattern counter tricomponent attitude model (Schiffman & Kanuk, 2007, p. 239), where knowledge and perception – including risk

perception – precede evaluation and intention (see Figure 1).

The next two patterns have a favorable attitude towards a brand or product class as starting point. This attitude matches with risk denial – in the second pattern – or with acceptance, but minimization and ignorance of their harmful potential. In other words, some people seem to assume the perfection of the attitude object (see Figure 2).

The last pattern start from an unfavorable experience caused by the occurrence of a risk event related to a brand or product class, when the risk is still valid. Consumers included in this pattern tend to overrate the magnitude or the recurrence probability to the detriment of other risks, exhibiting a tunnel vision (see Figure 3). Moreover, the risk is sometimes also assigned to other brands or even a whole product class. Such an effect can be explained through stimulus generalization that implies a similar response to a slightly different stimulus (Schiffman & Kanuk, 2007, pp. 203-204). Moving on to the in-depth interviews, all the patterns described above are found. Despite not being a sufficient confirmation from a scientific point of view, it’s an encouraging reinforcement for our findings.

Respondents showed a great capacity to provide a large list of possible risks for almost any product class. This suggests a strong relationship between purchase and consumption experience, on one hand, and risk awareness. Notably, they weren’t able to identify more than two types of risks for a certain product, which is a rather curious result. For an educated person, it should be an easy task to cluster different entities on the base of obvious criteria, and to name the resulting classes. Faced to this unexpected situation, the interviewer decided to present Schiffman and Kanuk’s (2007) taxonomy in order to help the interviewees, and ask them to nominate the corresponding categories for the identified risks. Most respondents appreciated as invalid at least two categories for each product class discussed, especially physical and time risks. Thus, despite its comprehensiveness in incorporating practically any known risk, this taxonomy is meaningless when it comes to analyze product-specific risks.

Concerning the individual methods for risk reduction, results are manifestly different between the three types of products approached during the interviews – durable goods, FMCGs, and services. The discussions on durable goods consistently produced many examples of actions or non-actions directed towards risk reduction, while FMCG seemed more a realm of trials. Most interviewees looked very willing to try new products in this category, neglecting almost completely the risk side of purchase decision. Services showed mixed

results, from risk ignorance to overrated risks from a product class to another.

Taking into account reasoned action theory (Ajzen, 1991), we assert that any behavior towards risk reduction is motivated by risk aversion. Intelligibly, durable goods are most associated with risk aversion, as any negative repercussion would affect the customer on long term, and the financial stake of adoption is usually higher. On the other hand, FMCG features short term inconvenient and lower financial stake. Thus, inside the accepted price, consumers are willing to take risks by trying and even adopting new products. Moreover, consumers understand that on a long run, low risk aversion towards FMCG purchase brings benefits through consumption-based learning. Thus, the relationship between perceived risk and risk aversion seem to be mediated by consumer involvement, which is partially determined by financial stake.

On the ground of these findings, we propose a new theory of perceived risk formation and update. In none of these cases, the individual doesn't seem to apply the previous mentioned multidimensional calculus (Fishbein, 1963; Mitchell, 1999) to get his perceived risk for a certain purchase. Instead, a single measure looks decisive – it's true, though, that the measure is not the same in every case.

Halo effect can provide a satisfactory explanation for these curious situations. For M1II and F1I, the halo source is the overall attitude towards product class, or even wider, towards technology. The two examples suggest that both negative and positive attitudes can drive to halo effect. The negative attitude of M1II makes him find many kinds of plausible risks as arguments for his attitude, and all his statements converge to the same conclusion. On the same pattern, the positive attitude of F1I works as a risk inhibitor, but this time it's not just about minimizing some risks – low perceived risk –, she also declares herself ready to accept the snag – low risk aversion.

In the light of our proposition, overall risk can't be estimated with a weighted average between its components, but by assigning the level of the highest risk. In other words, when a product presents, for instance, a high risk to malfunction, it's totally irrelevant that all the other risk categories are at low level; the overall risk will equal the relevant risk.

We foresee that the halo effect can also work in a different way. When a consumer identifies a specific risk, his lack of trust will make him think of a manifold of other supposed risks, without any manifest clue. In a quantitative assessment of perceived risk, this would determine a small variance between components for each rater. Practically, after identifying the relevant risk, perceiving its level, and assigning it to the overall risk, the consumer becomes unable to discriminate

between existing and absent risk; any possible risk is a high one.

Conclusion

Perceived risk and risk aversion are thrilling concepts of consumer behavior that deserve much attention from the scientific community, given the importance of these aspects in nowadays economy. The flood of products and information, the extraordinary variance of quality and price from a product to another, the increasing social relevance of consumption are only a few of the emergent facts that have made consumers more cautious.

This paper provides valuable insight on the formation and update of perceived risk and risk aversion, from two focus groups and ten in-depth interviews that confute the current theories. Thus, four patterns were emphasized describing unexpected ways of risk formation and update. These patterns suggest a high degree of irrationality in this respect. Our findings converge to a theory of the formation of perceived risk and risk aversion under halo effect. Thereby, we reject the formation of perceived risk as a weighted average between its components proposed by Fishbein (1963). The replacing theory suggests that the level of the highest risk is automatically and unconsciously assigned to the overall risk.

While we accept that the lack of representativeness is a substantial limitation of this study, the results show that a statistically significant influence doesn't necessarily need to actually take place in consumer's mind. Of course, further research has to validate it or not. In the spirit of falsifiability, we invite the scientific community to approach this topic in the sense of refuting our findings.

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Appendices

Table 1
The codification nomenclature

Code	Meaning
FG1/ FG 2	focus group 1/ focus group 2
M/F	male/female respondent
1, 2, 3...	distinguishing number – for the focus groups, the numbering was made from right to left, as they appear on the recording
I/ II	Member of the first/ second focus group
<u>Word</u>	accented word
(0.5)	a 0.5 seconds pause in the speech
[Word]	researcher's filling

Table 2
Focus group verbatim

FG2/ M1II

LINE	MIN	
1	23	We meet more seldom because of the phones and Internet. It appears that we meet more
2		often, but we actually communicate (.5) more indirect, and so we become more and more
3		dependent of technology.
4	27	When you buy something [a gadget], you don't know what to expect because all the time
5		problems appear. They don't design it any more to last.
6		
7	44	As long as this phone still works I'm not willing to buy a new one because none is
8		trustworthy.
9	61	After I bought my laptop I was asking a while 'and what type of processor has it?' and
10		keep comparing but it passed me away

Table 3
Focus group verbatim

FG1/ F1I

LINE	MIN	
1	5	I like technology, I like (.5) the <u>idea</u> of innovation.
2	20	First time when I buy something [a gadget] I try them all [the functions] to see what can
3		it do. (...) After a week or two when I learn what happens there I start to get bored.
4		
5	24	I didn't find it necessary [to ask a specialist]. I knew what I wanted from my background.
6		
7	67	There are some inconveniences that bother you, but this doesn't changes your decisions
8		radically.

Table 4
Focus group verbatim

FG1/ F4I

LINE	MIN	
1	6	I've always loved everything that related to Apple. I have a Mac and an iPhone, and I
2		had another iPhone before this one. It fits me perfectly.
3	68	Even if I had known it [about the inconvenience of gadgets], I would have purchased.

Table 5
Focus group verbatim

FG1/ M3I

LINE	MIN	
1	3	I have a laptop named Kitty
2	19	I search for information on Internet [before buying a gadget], I never ask anyone
3		
4	35	I had a phone before this one which has been dropped many times and didn't work
5		anymore. The modern gadgets are very sensitive to mechanical shocks.

6
7 59 I found some laptops [brand name] to which the video chipset damages very easily. Are
8 very poor, all the models are so.

Table 6
Focus group verbatim
FG1/ MIN 66-69

LINE	INDIVIDUAL	
1	F5I	A breakdown occurs when you're enjoying the most.
2	F2I	Unlike the [smartphone brand] that I had before, which cried daily for low battery, [smartphone brand] turns off during the call.
3		
4	M2I	I didn't buy my phone thinking that it will work a <u>century</u> .
5	F2I	Provided that it does what should do, I don't think that it may spoil; I prefer thinking that I'm gonna take care and that's enough.
6		
7	M3I	I was aware of the battery issue and I shouldered it.
8	F5I	There are some inconveniences that may bother you, but these don't change your decision radically.
9		

Table 7
Focus group verbatim
FG1/ MIN 69-72

LINE	INDIVIDUAL	
1	F5I	If something doesn't work properly, I tell my friends to be aware of that.
2	F4I	It's our way of being to complain more that to praise. When something goes wrong, 'Oh! I would <u>throw</u> this <u>phone</u> away! <u>Terrible!</u> ' When everything works perfect, we don't react with the same intensity.
3		
4		
5	M2I	I cut it from the list [the gadget].
6	F4I	While I believe him, I still tend to inform myself. 'Super! Thanks for telling me!' Than I search on Google to see if it's something general or just my friend's problem.
7		
8		
9	M2II	[...] knowing that they [my friends] won't repeat my mistake.

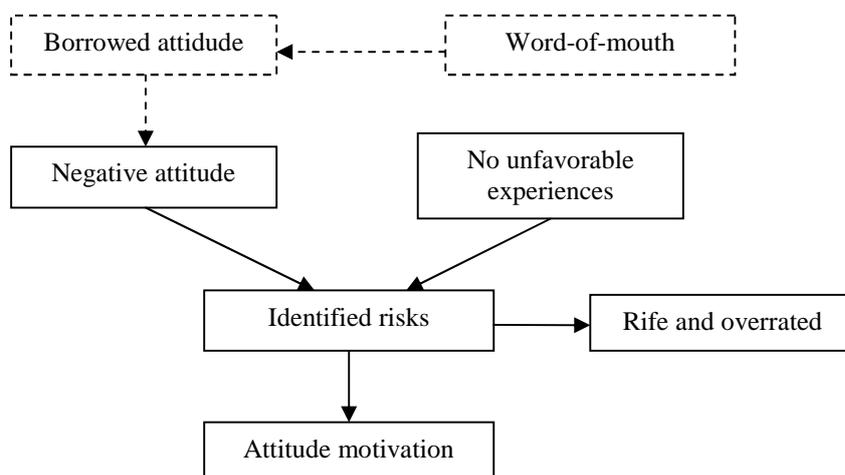


Figure 1. Risk formation – the first pattern

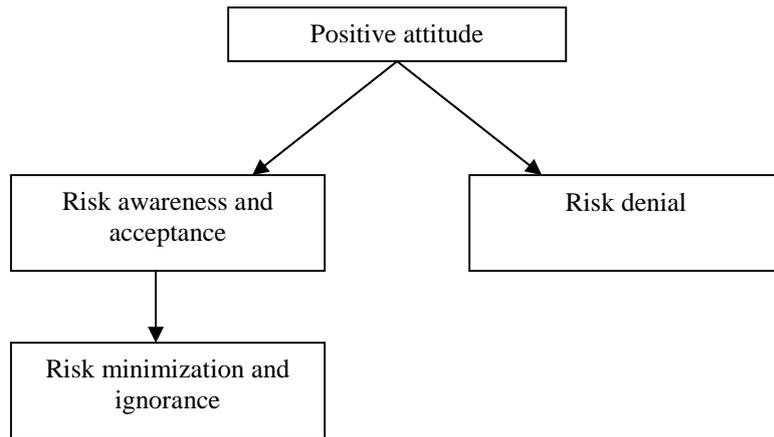


Figure 2. Risk formation – the second and the third pattern

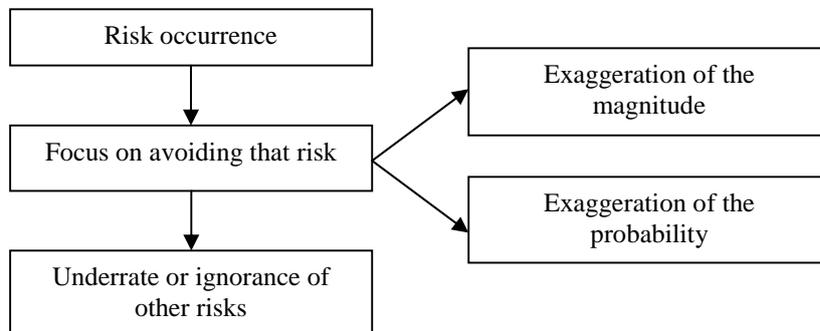


Figure 3. Risk formation – the fourth pattern

