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The Search for Social Status and Risk Taking Behavior

Evaluating the possible link between positional preferences and social comparison, social identity and risk taking behavior in avalanche terrain

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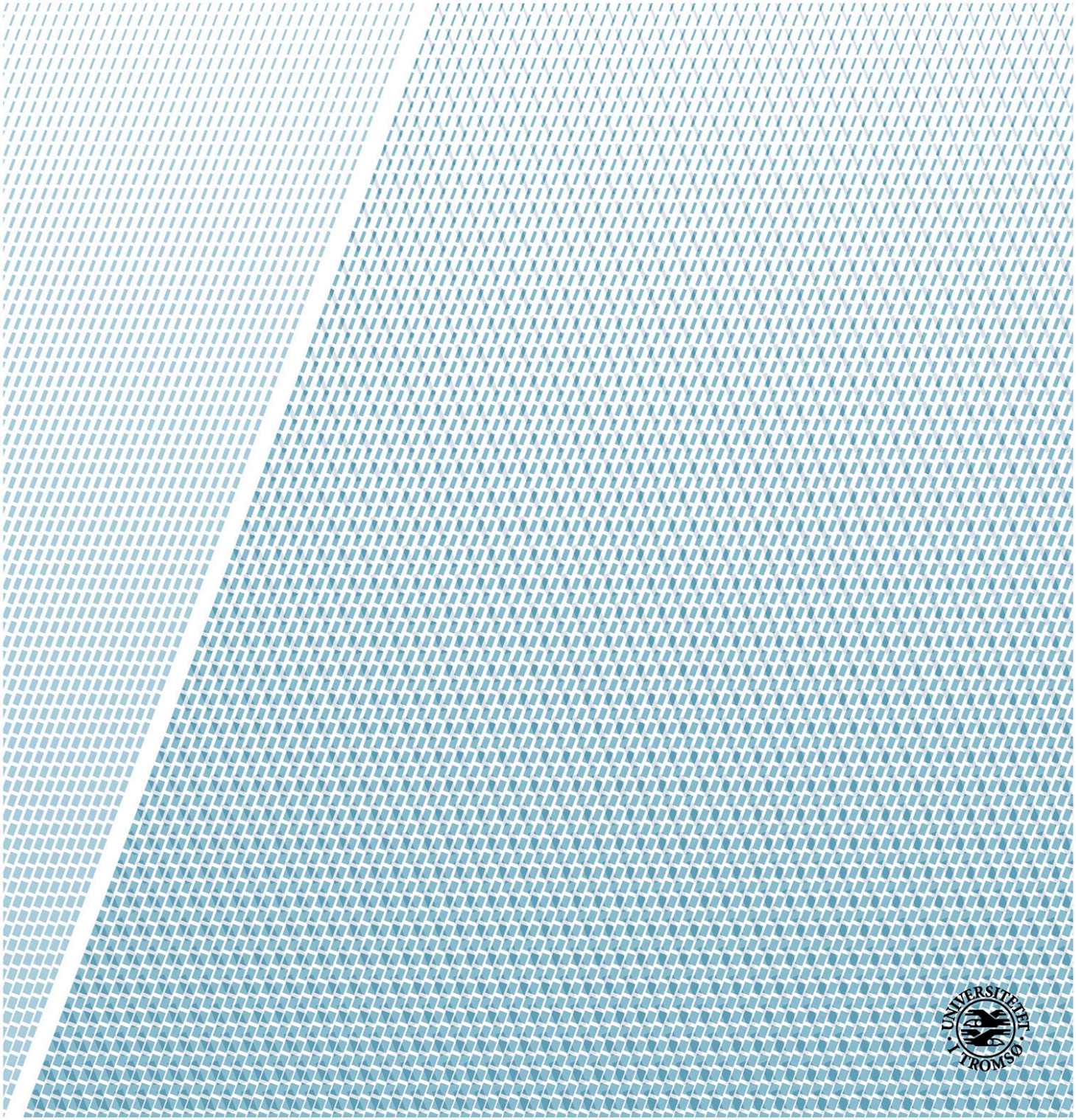

Acknowledgment

As I now hand in my thesis, this marks the end of my five years at The School of Business and Economics at the University of Tromsø. It has been a great five years, with both learning, challenges and new friendships. My years as an economics student would not have been nearly as enjoyable, without the students and staff at The School of Business and Economics. The writing of this master thesis has been both time consuming and an interesting journey. I have had to learn about the subject of avalanches, the theory of positional preferences, online survey programs, statistical software and the econometric approach used to do the regressions. It has been a great learning process and something I will look back on with joy.

I would like to express my sincere gratitude to my supervisor Andrea Mannberg, for inspiring the project, for great feedback along every step of the way, and for always taking the time to discuss the thesis. I would also like to thank those who contributed in the making of the survey, especially Jordy Hendrikx and Marcus Landrø, and those who contributed to its distribution, especially Fri Flyt and the local branches connected to Den Norske Turistforening. Last but not least, I want to give a special thanks to Amund Hesstvedt, for always providing support even in the most challenging stages of writing this thesis.

Abstract

Avalanche seminars are well attended in Norway, but despite this people are still caught by avalanches every year. Skiers and snowboarders counts for many of the victims, and the majority of accidents take place in steep terrain. Many of the victims had sufficient amount of knowledge about venturing in avalanche terrain, but still did not respond to signs of hazard. This thesis has taken a closer look at voluntarily risk taking behaviour in avalanche terrain, and the possible explanation behind why people expose themselves voluntarily to the risk of being killed by an avalanche.

More specifically, it has been investigated if the desire for social status affects risk taking among Norwegian skiers in avalanche terrain. What is considered social status is believed to be different for different social groups, and social identity is therefore believed to be closely related to social status. The hypothesis investigated states that skiers gain status from doing more and riskier rides than their fellow skiers, and due to this desire of social status, will be more likely to take risks in avalanche terrain. The link between positional preferences and social comparison, social identity and risk taking behaviour in avalanche terrain is investigated by the use of an econometric approach, more specific a logistic regression. The program used to do the regressions and analysis was r – studio.

Comparison of the terrain the respondents ski to others, is found to have a statistical significant effect on risk taking behaviour in avalanche terrain, suggesting social status to be an important determinant of risk taking behaviour among skiers in avalanche terrain. The social identity of the respondents connected to the social group of skiers, and the social norm among skiers of importance of focusing on safety is also found to have statistical significant effect, on risk taking behaviour in avalanche terrain. Additional control variables such as skill of skiing in the backcountry etc. are also found to have a statistical significant effect.

Keywords: risk taking behaviour, social status, positional preferences, social comparison, avalanche.

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1 Introduction

Avalanches, also known as "the white death", kills people every year. The last ten years, 61 people have been killed by avalanches in Norway. Recreational accidents stand for 95 % of these accidents, meaning 5.8 dead per winter. Key numbers for leisure accidents in Norway during the course of ten winters (2003/2004 – 2012/2013) shows in this period, skiers and snowboarders counts for 55 % of the casualties and 70 % of the accidents have taken place in steep terrain. Troms county have with 23 victims, the highest number of casualties (Brattlien, 2015). The importance of recognizing the problem of avalanches was especially emphasised in 2015, when the "Center for Avalanche Research and Education" (CARE) was established in Tromsø. Their focus lies on the human factor of avalanche accidents and the centre collaborates with some of Norway and the worlds leading experts in the field of avalanches.

Why do individuals choose to expose themselves to the risk of getting killed by an avalanche, when they do not have to? In this master thesis I will take a closer look at some of the potential mechanisms behind voluntarily risk taking behaviour. What makes risk taking behaviour in avalanche terrain interesting from an economic perspective, is the negative externalities and the possible market failure following this. Avalanches, like other natural disasters might inflict huge costs on society. Examples are damage to settlement, loss of recreational possibilities, damage to infrastructure and the closing of roads, which in worst case can lead small villages completely isolated for a time. In addition to causing costs for society as a whole, avalanches also inflicts costs on individuals. Individuals caught by an avalanche might face the greatest cost of all, loss of life. If lucky enough to get out of the avalanche alive, broken bones, time spent in hospital and fear of skiing again are other substantial costs they might face. These are all possible externalities following a triggered avalanche. The definition of an externality is given by Rosen and Gayer (2010): *"A cost or benefit that occurs when the activity of one entity directly affects the welfare of another in a way that is outside the market mechanism"* (p.73). When deciding on whether or not to venture in avalanche terrain, individuals might not take into account the possible externalities created by their behaviour. A level of risk exposure optimal for a private individual, might therefore become too high from society's perspective. The presence of these externalities implies a market failure, generating a sub-optimal high consumption of recreational activities

in avalanche terrain. Reducing avalanches caused by excessive risky behaviour and the externalities associated with them, will therefore be of interest.

Avalanches are dangerous. Even small avalanches can contain massive amounts of snow and reach high speed. What makes them extremely dangerous are that we are not able to predict the avalanche hazard with a 100 % certainty, and avalanches can be triggered in any slope that is steep enough (Landrø, 2002). The outcome of an avalanche is not only determined by the conditions, your own and your companions' skills and equipment, but also by coincidences (Brattlien, 2015).

Avalanches and snow science have previously been viewed as a phenomenon connected to the geological department. The early research and education on avalanches therefore focused mostly on the external factors of avalanches, such as weather, wind, terrain etc. in order to understand how to best reduce the number of accidents. The last couple of years however, we have seen a change in this focus. The current research is focusing more on the human factors of avalanche accidents, and 8 – 9 out of 10 fatal avalanche accidents are in fact triggered by the person or group caught by the avalanche (Uit.no, 2016). In this area avalanches stands out from other natural disasters such as flood, hurricanes etc. (Marengo et al., 2017). Dale Atkins says in his article from 2000*:" The literature and basic research shows avalanche accidents are not a terrain, weather or snowpack problem; avalanche accidents are a human problem"* (p.47).

Even though the role of the human factor of avalanche accidents is now accepted, there is still lack of reliable research on the subject. Ian McCammon is known for his work with avalanches and has identified six human factors in avalanche accidents; familiarity, acceptance, consistency, expert halo, tracks and social facilitation (FACETS). McCammon names these six factors heuristics, also known as rules of thumb (McCammon, 2004). Heuristics are a tool to help us make decisions on a daily basis, and can be learned either on your own or from others. The environment is the crucial factor in deciding the best way to learn heuristics (McCammon, 2001). Heuristics may work perfectly guiding us in our everyday life, but when people start applying heuristics when making decisions in dangerous and unpredictable situations, such as in avalanche terrain, problems may arise. This is what is known as a heuristic trap. As humans it comes easy for us to put our trust in heuristics, and following this ignore information about an impending hazard. The problem with the work by

McCammon and much other research, is that it focuses mostly on accidents, so there is no way of knowing if these results can be applied to all who ski in avalanche terrain or if these individuals were just unlucky.

The acceptance heuristic is what have prompted the interest for the topic of this thesis. This is defined by McCammon (2004) as*: "The acceptance heuristic is the tendency to engage in activities that we think will get us noticed or accepted by people we like or respect, or by people who we want to like or respect us"* (p.4). In certain social groups the search for approval/acceptance might provide incentives for risk taking behaviour in avalanche terrain. If these incentives are powerful enough, obvious signs of hazards might be ignored. The desire to gain acceptance by one's peers is a powerful motivator and in this thesis I analyse determinants for risk taking behaviour among Norwegian skiers. I am particular interested in finding out if the desire for social status affect risk taking behaviour in avalanche terrain. This can hopefully be a part of providing a better understanding of what drives skiers to take risks in avalanche terrain, and help reduce the number of avalanche accidents.

Avalanche seminars are in general well attended around Norway, but despite this people are still caught and killed by avalanches every year. In many of these cases the victims were well trained and had sufficient amount of knowledge about venturing in steep terrain, they just did not respond to obvious signs of a pending hazard. We still today know too little about what makes individuals not respond and react to obvious signs of avalanche danger. Given that there does not exist much solid research on the human factors and what alters skiers' decisions in avalanche terrain, we can not know if the avalanche education of today is good enough in the area of reducing accidents. By learning more about the human factor in avalanche terrain, there is hope of the avalanche education of today being improved and help bring more people safe home from the mountains.

1. 1 The research question and objective

The main research question asked in this thesis, is how the desire to gain social status and respect within a social group is related to risk taking behaviour in avalanche terrain. The hypothesis investigated is that skiers who holds a strong social identity related to skiing and belongs to a social group that valorise risky skiing activities, will have stronger incentives to expose themselves to risk in terms of avalanches. What is considered social status is believed

to be connected to social identity, and the possible link between positional preferences and social comparison, social identity and risk taking behaviour will be investigated. Three different measures for the desire of social status is used and tested, 1) positional preferences (economics), 2) a social comparison measure (psychology) and 3) a measure of social comparison related to skiing behaviour, developed for this project.

Research on risk taking behaviour in avalanche terrain, positional preferences and social comparison, and social identity has never been done before and this thesis will serve as a pilot study for further research on the subject. Hopefully the research can also be applied to other fields, in the area of risky behaviour. The data to be used in the thesis was collected through an online survey and to analyse the data and make the regressions, ordinal logit was mainly used.

1. 2 Structure of thesis

The disposition of the rest of the thesis is organized in the following way; chapter 2 covers the background and previous literature on the subject. Chapter 3 presents theory and a model on positional preferences. Chapter 4 covers empirical approach, with a description of the data collection, descriptive statistics of the sample and the econometric approach used. Chapter 5 presents the results from the different regressions tested and a discussion of the possible problems of the regressions. Chapter 6 provides a discussion of the results found and a discussion on the measures of positional preferences used in the thesis. Chapter 7 consists of concluding remarks and chapter 8 provides the appendix.

2 Background and previous literature

2. 1 Background

Much research suggests that how well we feel we are performing, is closely linked to how we perform in the eyes of others (Baumeister and Leary, 1995). Humans have an innate need to evaluate our opinions and abilities, and compare ourselves to members of our social group (Festinger, 1954). Our sense of self worth and self esteem seems to be closely related to how well we are performing in comparison to others, and our self-esteem might therefore be closely related to relative social status. This desire for social status could manifest in risky behaviour, for individuals belonging to social groups that valorise this type of behaviour. The link between risky behaviour and desire for social status was mentioned by George Loewenstein in this article from 1999. Mountaineering is considered a prestigious activity in certain social circles, and Loewenstein tried to answer the question of what drives mountaineers. His findings showed factors others than purely own excitement, such as recognition or the gaining of social status to be powerful motivators.

Skiing in steep backcountry terrain is a recreational activity having received an increasing amount of popularity in recent years, both in Norway and internationally (Huuse, 2016). Elisabeth Braathen from "Lyngen Lodge" mentions the sharing of pictures on social media as a possible explanation behind the recent increasing popularity (Oliversen, 2016). The popularity of randonee skies in recent years can be another explanation. Norwegians today are seeking more extreme mountain experiences and are perpetual seeking more demanding summits (Bergskaug, 2015). The sale of avalanche equipment has exploded in recent years, but off - piste and backcountry skiing is a demanding hobby and evaluating the avalanche hazard is not something that is learned during the course of a weekend (Dahle, 2010). The key numbers for leisure accidents in Norway during the ten-year period 2003/2004 – 2012/2013, showed that in this period only 43 % of the casualties by avalanches had an avalanche beacon on them (Brattlien, 2015). Now as venturing the mountains is becoming more popular, the importance of improving avalanche education and reducing accidents is more important than ever.

When an avalanche is triggered, externalities arise. As venturing in avalanche terrain is increasing in popularity and more people are experiencing what is known as "summit fever", fear of these possible externalities are increasing. There are however not only costs associated

with the increasing popularity of venturing the mountains and skiing in steep terrain. The benefits associated with this popularity is that more people are getting close to and enjoying nature, and skiing powder snow. These benefits does however also constitute a challenge, since more people are venturing the mountains and many of them might not have the proper experience in evaluating the avalanche hazard.

The nature of avalanches is that they are unpredictable, making direct feedback on behaviour in avalanche terrain difficult. When an avalanche is triggered, this is direct feedback that something has gone wrong. But what about the times when an avalanche was not triggered? In avalanche terrain we do not have the luxury of time and appropriate feedback to our behaviour, feedback can be catastrophic and have disastrous consequences. Statistics tells us that when an accident has occurred, usually 1 or more of the avalanche heuristics have been violated (McCammon, 2001). On the other hand, we may never know how often these heuristics have been violated and no accident occurred. Skiers might therefore be behaving in a non-safe way without even knowing it. They might believe they are behaving in a right and safe manner, when actually the exact opposite might be the case. This lack of direct feedback might provide another reason for skiers to believe the cost of recreating in avalanche terrain is lower than it actually is, and following this the consumption becomes larger than what it optimally should be. As venturing in avalanche terrain now is increasing in popularity, the "over consumption" of recreational activities, and the possible "too low" price of venturing in avalanche terrain, poses a real problem for the socially optimal equilibrium.

2.2 Previous literature

2. 2.1 The human factor in avalanche terrain

The literature of human behaviour in avalanche terrain was introduced to the concept of the human factor of avalanche accidents in the book by Fredston and Fesler from 1994. Fredston and Fesler noted 15 factors that were major contributors to avalanche accidents, including attitude, summit fever and peer pressure. Dale Atkins investigated in his article from 2000, 41 fatal accidents where the victims had avalanche awareness training. 34 of the accidents were deemed as being caused by human factors and only 7 by external factors. Much of the newer literature on the topic of human behaviour in avalanche terrain covers individual decision making and heuristic traps one might encounter.

Ian McCammon has done a lot of research on the human factors in avalanche terrain and heuristics. His study from 2004 is based on 715 avalanche accidents, so it can therefore only demonstrate correlation between victims' behaviour and heuristic traps. An exposure score was computed as a linear combination of easily recognizable avalanche hazard indicators and investigated. The acceptance heuristic was mentioned as a possible trap and the gender acceptance especially. The gender acceptance is the participation in activities we believe will gain us acceptance or being noticed by the opposite sex, and for men this can often show in risk taking behaviour during adolescence and early adult life. Across all the groups investigated, groups including women (mixed gender groups) had a significant higher exposure score, and parties with no formal avalanche training but general awareness of the avalanche hazard showed a significant increase in exposure score, when women were part of the group.

McCammon also mentions in his article from 2001, that plenty of research shows that people are motivated by other factors than being accurate, when making decisions in wilderness terrain. People are highly motivated by protection of their self-esteem and gaining the acceptance of the group. Individuals are only vaguely aware of these motivational factors and their influence and their decision strategy is following much less rational, than one might believe at first sight. Among the heuristic traps individuals might fall victims to in wilderness terrain, liking/conformity and social proof is mentioned. The liking/conformity heuristic means that if someone I like is doing something, this is what I should do to gain acceptance and this heuristic is triggered by the actions of a person or group I like. The social proof heuristic means if people similar to me are doing it, I should be doing it and this heuristic is triggered by the actions/behaviour of people like me. McCammon emphasises the importance of recognizing and avoiding heuristic traps.

The roles of heuristics in the decision making of backcountry skiers has also been investigated by Furman et. al (2010). The decision making factors mentioned by McCammon in his article from 2004 was investigated in their article by the use of hypothetical but realistic scenarios (vignettes). The acceptance heuristic was not found evidence of in their study, but it is mentioned research that supports how social interaction among men and women changes behaviour. Men could be competing with other men and the same applies for women. Furman

et al. also mentioned the idea of risk taking behaviour in the presence of others in order to gain acceptance as worthy of further research.

2. 2.2 The need to belong and social comparison

As humans we naturally seek groups. Friends, family, co-workers, class mates etc. are all groups most of us encounter during the course of a lifetime. Baumeister and Leary (1995) proposed the hypothesis that the need to belong is a fundamental human motivation, and confirmed their hypothesis after reviewing empirical literature on social and personality psychology relevant for their hypothesis. The need is for social contact with those whom we feel connected to and interact with on a regular basis. In different societies there exists differences between the type, number and the lasting of the groups people join, but people of all cultures seem to naturally form groups (Baumeister and Leary, 1995). Much of human behaviour, emotion and thought is caused by this fundamental need to belong. Some groups we are born into; others we chose to enter. We tend to move into groups, which in opinions are close to our own and whose abilities are near our own (Festinger, 1954). Due to these findings, it is natural to assume social identity to be important.

Social identity refers to the part of an individual's identity that relate to the membership in a certain social group (Luhtanen and Crocker, 1992). Your social identity is connected to a specific group and most people have several social identities. A single individual may for example identify herself in terms of the following groups; women, Norwegians, skiers and academics. This is unlike your personal identity which in unique and revolves around everything about you. An individual's sense of self might be associated with different social groups and how people in these groups should behave (Akerlof and Kranton, 2000). Social identity can be an important way for individuals of expressing who they are and how they want others to see them. With a strong social identity as a skier, you might want other to see you as a person who is certainly not boring and not afraid of skiing in steep terrain. In a world with social differences, the choice of who we want to be, is one of the most important economic decisions we make (Akerlof and Kranton, 2000). There exist studies in both the field of economics and psychology that have found social groups to contribute to improving decision making, but also to riskier decisions (Charness and Sutter, 2012, Bateson, 1966). What we see others around us doing, affects our frame of reference for evaluating our own behaviour.

As human beings it falls naturally for us to compare ourselves to others and who we compare ourselves to is not random. The main reason we compare ourselves to others is to acquire information about ourselves, but also to learn more about our own abilities and in doing this, improving them (Gibbons and Buunk,1999). Much of previous research assumes that people compare themselves to reference groups, consisting of others in their group of income, education level, occupation etc. (Clark & Oswald, 1996, Ferrer-i-Carbonell, 2005). Due to his phenomenon of comparing ourselves with those who are similar to us in occupation, income etc. and abilities, it might be reasonable to assume we also compare ourselves to those with similar interests as us. Festinger (1954) mentions *"A person does not tend to evaluate his opinions or his abilities by comparison with others who are too divergent from himself"* (p. 120) and *"The more attractive a group is to a member, the more important that group will be as a comparison group for him"* (p. 131). Social identity might therefor be closely related to social comparison.

Leary et al. (1994) finds evidence that self- presentation can be hazardous to your health. The fear of a damaged social image can lead to contraction of HIV and the risk of cancer. People's concern with how others view them might lead to directly harmful behaviour for their own health. The role of self-image is also mentioned in Johansson-Stenman and Martinsson from 2006. Their paper proposed that people also gain utility from their self-image, which is influenced by their own view of their own preferences. The evidence based on a sample from Sweden, showed that people are more concerned about status value and less with environmental value than they would like to admit to themselves. People gain utility from having a good self-image, which follows from their own view of their preferences. The paper also proposes that even though certain groups are less concerned with the status of their car, this does not necessarily mean that they are not concerned with status. They might simply get more status from consumption of other types of goods.

2. 2.3 Positional preferences and the desire for social status

The tendency to compare socially is closely related to the human desire of gaining social status. Within the field of economics, this desire is captured by what is called positional preferences. Positional preferences imply that the level of utility gained from consumption does not only depend on the absolute level of consumption, but also from how this level of

consumption is related to the level of consumption by referent others. Individuals with positional preferences are concerned with having relative more than others, and gain a disutility when surrounded by others having more than they do (Carlson et al, 2007). The relative position is what matters. The theory of positional preferences goes back to Veblen (1899), who referred to the term conspicuous consumption, meaning expenditure in goods meant to signal the consumers position in society.

Other work includes Duesenberry (1949) with his theory of consumption, which emphasised the importance of relative position in the determination of consumption and saving patterns over time. More recent work includes Solnic and Hemenway who published their paper in 1998, with a survey on positional concerns. 50 % of the respondents were positional about income, and concerns about relative position were highest for physical attractiveness and praise from supervisor. Alpizar et. al (2005) investigated positional preferences and found that people care about their relative income and consumption of certain types of goods, but also relative consumption of vacation and insurance, goods typically considered not positional. Solnick and Hemenway (2005) asked the question if positional concerns are stronger in some domains than others, and found income more positional than leisure, and visible goods like clothing and size of house more positional than health and safety. Carlson et al. presented in their paper from 2007 survey evidence on positional goods, and found income to be more positional than leisure, and the value of a car more positional than the safety.

The findings indicating that for certain individuals the relative position is what matters, can be used as an argument for why we in western countries the last 50 years have seen a substantial increase in GDP per capita, but the growth in happiness seems to be at a halt (Turner, 2012). Adair Turner used this come up with the hypothesis that additional growth in average income, will not forever deliver an increase in “life satisfaction”. His finding is in support of the theory of positional concerns. When our most basic human needs are met like housing and food consumption, it is no longer the absolute magnitude that matters. After a certain point we start comparing ourselves to others and then the relative magnitude is what matters. Adair Turner uses this as an argument as to why people buy goods like fashionable clothing etc.

In todays society there are signs of positional preferences around us, telling us that social status still matter to people. Fancy cars, huge houses and expensive holidays are examples of typical goods showing social status. Most of previous research on positional preferences have

found individuals to be more positional of visible goods than leisure. In todays society a possible explanation for this could be the everlasting presence of social media. Comparing yourself to others and showing off have never been easier, and visible goods are easily shown in social media. Previous work has also looked at leisure as time, and not activities, which could provide a reason for why visible goods and income have tended to be more positional than leisure. Another plausible explanation can be social identity, which is considered in this thesis. What constitutes as social status could in fact be very different for different social groups. Driving a fancy expensive Lamborghini for example might show of social status for someone with a strong social identity as a businessman. For individuals with a strong social identity as environmentalists, the same car might be considered a sign of shallowness. What is considered positional can be very different among different social groups. Positional preferences and what is considered social status might therefore be closely linked to social identity, an idea which has not been emphasised before. The contribution of this thesis is the investigation of positional preferences among individuals identifying themselves as skiers.

If you have a strong social identity as a skier, you may not consider the same things to be status as others. Skiing in steep challenging terrain, with fresh powder on a beautiful sunny day might constitute heaven, while others might consider the same scenario as unnecessary risky behaviour. The hypothesis of this thesis is that individuals identifying themselves as skiers will be positional of doing more and riskier rides than their fellow skiers, and driven by the desire of social status from this, will be more likely to take risks in avalanche terrain. If many skiers are driven by the desire for social status and gains this from doing riskier rides than their fellow skiers, the search for status can quickly become a dangerous race. Everyone afraid of being pushed down in the social hierarchy will participate in this race, and when individuals start participating in this race, steeper and steeper slopes will need to be skied to obtain social status. The problem arises here, as avalanches can be triggered in any slope that is steep enough. Exactly how radical or steep slopes you need to ski in order to gain status among your peers, depends on their frame of reference and someone's gain will automatically be someone else's loss. Baumeister and Leary (1995) mentioned that *"Meanwhile, it appears that the positive accomplishments of close others in domains relevant to one's own identity have a special capacity to generate distress by threatening one's cherished views of one's own important abilities"* (p 508). People are afraid of looking bad compared to the people close to them, in the domains they care about.

Richard Easterlin published an article in 1974 where he found a positive association within countries between income and happiness. People with higher incomes seemed on average happier than those with lower incomes. Given his findings Easterlin asked in his article from 1995, the question of increasing the income of all will increase the happiness of all? His answer turned out to be no (Easterlin, 1995). When the income of everyone was raised, the standards of society was raised, meaning the border of what constitutes as an individual being well of was also raised. In relative terms, nobody was better off, so nobody was any happier. These findings are in support of the theory of positional preferences, and the conclusion tells us that when individuals have positional preferences, everyone can not be better off by raising for example the income, vacation time, consumption etc. for all.

If everyone tries to raise their relative position, in the end nobody will have raised their relative position and resources will have been wasted in trying to achieve another outcome. This is what is known as the "positional treadmill". All individuals try to gain advantages, but since everyone is trying to get ahead, all remain in the same relative position (Frank, 1991). This can be compared to an important concept in game theory, the prisoner's dilemma. Two prisoners are taken into an interrogation, in two separate rooms at the same time. Their best outcome is the one where they both lie, but due to the fear of being left behind by the other prisoner, they both end up confessing (Frank, 1991). In a society where the people have positional preferences, in order for someone to better off when the relative is what matters, someone else has to be worse off in comparison.

When individuals start comparing themselves to others and caring about relative position, externalities arise. Someone trying to raise their relative position and social status in society, by building a larger house for example, will create negative externalities for their neighbours, who now have smaller houses in comparison and might feel their social status lessen by this. This is what is known as positional externalities. Positional externalities are said to arise when an individual's actions change an important frame of reference of another individual (Frank, 1991). The negative externalities that arise with this social comparison and the search for social status is what makes economists interested in the concept of positional preferences.

When individuals have positional preferences and the goal of society is to maximize overall welfare, the equilibrium will not be socially optimal. The neighbours in the previous example will have incentives to increase the size of their house, as to match the new house of their

neighbour and restore their social status. If this becomes the case, both parties will be back at their starting point on the "social ladder", and both parties will have wasted resources in the building of a larger house. This pursuit for social status caused by positional preferences makes society caught in an eternal loop, with a non – optimal equilibrium. In order to fix this problem, government intervention may be called for.

Positional concerns are the reason behind many phenomena in todays society, many whom we probably do not think or even know about. Frank (1991) mentions positional concerns as a possible reason behind 24-hours grocery shops in New York and cosmetic surgery. The problem that arises with positional preferences is that our standards of what is considered normal might be altered. Many of these situations are not optimal for the general welfare of society and emphasizes the importance of government intervention.

3 Theory

The theoretical framework for the research questions asked in this master thesis is based upon the theory of positional preferences. *"Do you enjoy having more than others?"* Carlson et. al asked this question in their paper from 2007 (p. 586). When taking a micro economic course at the university level, you learn about the utility concept. The more utility an individual has, the happier he or she will be. Utility can be gained from goods, leisure hors, income etc. and the utility concerned is the absolute utility, the absolute income, the absolute consumption etc. We learn that an individual will in most cases prefer to have more income and more consumption, but it is not emphasised that individuals may care about their relative income or relative consumption as well. When individuals care about having more than others and gain a disutility when surrounded by people who have more than them, they are said to have positional concerns/positional preferences (Carlson et al., 2007). They care more about their relative income or relative consumption, than their absolute. Solnic and Hemenway (1998) mentions about relative position: *"How well an individual feel that he is doing in society is typically affected more by his relative position than by his absolute wealth"* (p 373). This way of caring about the relative position and caring about what you have compared to what others have, is commonly known outside the world of economics as "keeping up with the Joneses".

A model on positional preferences is provided by Carlson et. al (2007). In their paper the respondents are asked to choose between two societies for an imaginary relative living in the future, one society considered positional (R) and the other not (A). For the purpose of this thesis x can be interpreted as activities. Relative comparison is taken into the utility function by an additive comparison utility function u (x, x - $\bar{x}$), where x is the number of activities for the individual and $\bar{x}$ the average number of activities for people in society. The individuals choosing the positional society gains utility and social status from having x - $\bar{x}$ relative more activities than referent others. It is assumed that people compare themselves to the average of society and the ordinal additive comparison utility function is specified as u = (1 – γ) x + γ (x - $\bar{x}$) = x – $\gamma\bar{x}$, where when U = u (x, r) ≡ u (x, x - $\bar{x}$), γ is specified as $\frac{\partial u}{\partial r}\frac{\partial r}{\partial x}$ / ($\frac{\partial u}{\partial x}+\frac{\partial u}{\partial r}\frac{\partial r}{\partial x}$). In this model, γ represents the amount of marginal utility of activities an individual gain, from an increase in the relative amount of activities. Increasing an individual's amount of activities will provide the individual with an increase in both the absolute and relative sense, and γ here represents the fraction of utility gained coming from the increase in the relative amount of

activities. The mean value of γ with respect to the sample is known as mean degree of positionality and a good is considered more positional if the mean degree of positionality is higher than for another good.

To investigate the strength of relative concern, when an individual is indifferent between society A and R is calculated. In this case the utility is the same in the two societies, hence $x_A - \gamma \bar{x}_A = x_R - \gamma \bar{x}_R$. Solving this for γ gives us $\gamma = (x_A - x_R)/ (\bar{x}_A - \bar{x}_R)$, inserting the values of x and $\bar{x}$ from society A and R, gave in the paper by Carlson et al. $\gamma = 0.25$. When an individual is indifferent the value $\gamma = 0.25$, but if the individual prefers society A, $\gamma < 0.25$ and the other way around. The positional measures in this thesis is based upon this model, assuming positional individuals gain utility and social status from having x - $\bar{x}$ relative more activities than others in their social network of skiers. This is a very simplified model, given that it does not take into account risk associated with recreational activities in avalanche terrain, but it gives the general idea of positional preferences.

4 Empirical approach

4.1 Data

The data used in this thesis was collected through an online survey. The survey was developed by Andrea Mannberg, Associate Professor at the School of Business and Economics at the University of Tromsø – The Arctic University of Norway (UiT) in collaboration with Jordy Hendrikx and Jerry Johnson at Montana State University.
The scenario and description of the different slopes in the survey was made by Mannberg and Hendrikx in collaboration with Markus Landrø (feedback on the survey was given by Espen Nordahl and Rune Engeset). Help on the section on social identity was given by Sarah Martiny, at the department of social psycology at UiT.

We considered going out into the field and collecting data but due to the risk of poor snow conditions in January/February and not getting enough respondents in time, this was disregarded and the choice was made of using an online survey. The survey included four measures of risky behaviour. The two first measures were derived by asking the respondents which of four hypothetical backcountry ski slopes they would prefer, and accept to go down. All slopes had the same avalanche danger, but differed in terms of consequence severity and social attractiveness (see appendix 8.1 for full description). Of the four slopes, the Ridge meant going down the mountain the same way you came up, and was considered the safest option, the Field was the almost safe option, the Bowl the riskier option and the Chute the riskiest option. The last two measures related to experience of ski and avalanche related accidents (or close calls) during the past five years.

To investigate and operationalize the desire for social status, three different measures was used, the positional preferences measure, a social comparison measure based on Gibbons and Buunk (1999), and a measure for social comparison and status in skiing developed particular for this project. The measures on positionality was based on the previous work by Carlson et al. (2007) and Alpizar et al. (2005), and experimental: the respondents were asked to choose between two “societies”, society A being non positional and society B positional, for three types of “goods” (number of ski days, number of advanced ski tours and the value of a company car). The hypothesis of this thesis proposes that skiers are positional of more rides and more risky rides than their fellow skiers, but positionality of the value of a company car

was also added to the survey, to also be able to test for positional preferences in general. For each good, society A contained a higher absolute level of consumption of the good, but the individual's consumption was relative lower than than the average consumption level of referent others. Society B contained a lower level of consumption of the good than society A, but in this society, the level of consumption of the good by the individual was higher than the average level of consumption by referent others. Everything except the differences specifically described in the two societies were equal, including snow conditions, the people in the respondent's social network, working hours, general price level in society etc. The question of positional preferences of number of skiing days was asked the following way:

> ***Number of skiing days***
> *Assume you are looking back on 2 different skiing seasons*
>
> ***Season A:***
> *During the past skiing season, you had 36 days with off-piste and/or downhill backcountry skiing. People in your social circle had on average 48 days with off - piste or backcountry skiing during the season.*
> ***Season B:***
> *During the past skiing season, you had 27 days with off-piste or backcountry skiing. People in your social circle had on average 12 days with off-piste or backcountry skiing.*
>
> *Which of the seasons would make you happiest and most satisfied? Remember that everything except the number of skiing days is equal.*

The same type of question was asked regarding number of advanced tours and the value of a company car. The amount of days/tours and the value of the company car in the different societies was calculated such that in the not positional society (society A) the value was 75 % of the value of people in the respondent's social network. The value in the positional alternative (society B) was 75 % of the value from society A, and the value for people in the respondent's social network was 25 % of their value from society A. The motivation behind these differences (75 %) was that when the survey was tested on a pilot group, the results showed that if the differences was smaller than 75 %, the respondents simply did not care. It was also chosen to do things differently than Carlson et. al in the area of who the respondent

was choosing for. In the work by Johansson-Stenman et. al from 2002 and Carlson et. al from 2007 the respondent chooses society for an imaginary grandchild living in the future, while this work consists of the respondents choosing for themselves. This was chosen given discussion with the pilot group, suggesting other mechanisms at work than positionality when choosing for an imaginary grandchild.

The additional two measures of social comparison was added due to the validity/reliability tests of positional measures are scant and the desire to compare these to well tested measures in psychology, that should relate to the same latent factor. The social identity measure in the survey was based on the paper by Leach et al (2008) and the risk measure in the survey was based on a brief version of the sensation seeking scale, BSSS (Zuckerman, 1994; Hoyle et.al, 2002). The survey also included demographic questions such as gender, age, education, etc. At the end of the survey all of the respondents who participated in the survey had the opportunity of winning an avalanche backpack from "7 blåner" worth 7499 kr. The whole survey is available upon request.

After the survey was translated to Norwegian and the first draft finished, the survey was distributed to small group of "test pilots" in Tromsø. The intent was to get feedback on the survey and make necessary improvements. In this way it could be certain the survey worked when distributed to a larger sample. Feedback was given and the length of the survey was cut down by a substantial amount and all non-essential information/text was removed. My personal contribution to the survey was the translating of the survey from English to Norwegian, help making sure the survey was well suited for Norwegian respondents, forwarding the feedback given from the pilot group and help with the distribution of the survey.

The target group of the survey was downhill skiers with some experience of avalanche terrain. It was also desired for women to answer the survey, since previous research has included mostly men with substantial experience. The survey was started distributed in March 2017 and was distributed by the website of CARE, the White heat research webpage, Facebook, outdoor groups such as TSI, DNT groups, ski related facebook groups and designated webpages (such as Friflyt.no, Turjenter.no and Turtrusa.no). During the first weekend around 150 codes were generated for the lottery of the avalanche backpack.

4.2 Descriptive statistics of the sample

The dataset, on which the empirical analysis is based, consists of 301 individuals. 87 are female (29 %) and 214 male (71 %). The average age of the respondents is 35 years, the youngest being 20 years old and the oldest 68. A majority of the respondents (59 %) takes residence in northern Norway. The rest takes residence in western Norway (15 %), eastern Norway (11 %), middle Norway (10 %), eastern Norway (0.33 %) and 1.6 % takes residence outside of Norway. The respondents are relative well educated; at the time of the survey 78 % of the respondents had a bachelor's degree or master's degree/PhD and the rest either secondary or primary schooling. 91 % of the respondent identified themselves as backcountry skiers, 6 % as off-piste skiers and 3 % as inbound skiers. Backcountry is defined as skiing mostly in remote wilderness terrain, not to be reached by ski lift. Off-piste as skiing mostly outside groomed slopes, that can be reached by ski lift. Inbound as skiing mostly on groomed slopes. Table 1 given below gives a general overview of other sample characteristics.

Table 1: Summary of general sample statistics

Gender	Freq.	Percent.
Female	87	28.90 %
Male	214	71.10 %
Avalanche education		
No avalanche education	61	20.54 %
Avalanche awareness nights	26	8.75 %
Day course/workshop	41	13.80 %
Avalanche course level 1	101	34.01 %
Avalanche course level 2/3	61	20.54 %
Professional	7	2.36 %
Self assessed ski skill		
Level 1	19	6.33 %
Level 2	57	19 %
Level 3	145	48.33 %
Level 4	79	26.33 %
Number of skiing days on average last five years		

0 – 10	84	28 %
11 – 20	102	34 %
21 – 30	54	18 %
31 – 40	17	5.67 %
41 – 50	24	8 %
50 +	19	6.33 %

54.55 % of the respondents have either avalanche course level 1 or level 2/3. When asked to categorizing themselves according to their level of skiing in backcountry terrain, most of the respondents categorized themselves as level 3 (48 %) and level 4 (27 %). Level 1 was defined as beginner level of skiing in steep backcountry terrain, level 2 as medium-high level of skiing/venturing in backcountry terrain, level 3 as high level of skills, level 4 as advanced/expert level of skills and level 5 as extreme high level of skills of skiing/venturing in backcountry terrain. Most of the respondents (34 %) had had 11 – 20 days with skiing in steep terrain per season on average the last five years.

56 % of the respondents answered they agree to some extent/agree/strongly agree with the statement of comparing the terrain they ski to others and 51 % answered they agree to some extent/agree/strongly agree with the statement of looking up to others who ski steep.

Table 2: Summary of statistics of ski related comparison

	Freq.	Percent.
Compare the terrain I ski	169	56.33 %
Look up to others who ski steep	152	50.67 %

The factor analysis for the risk factor showed a good fit. The Cronbach alpha was estimated by Andrea Mannberg, and showed a value of 0.78. The descriptive statistics of this and the social comparison factor is given in the appendix 8.2.1.

The respondents were asked of descriptive, social and individual norms in regards to importance of doing radical lines, getting an adrenaline rush and focusing on safety. 70 % of the sample answered it was relative important/pretty important/very important for them personally doing radical lines, 39 % answered relative many/very many/all in their social

network think doing radical lines is important and 37 % answered relative many/very many/all in their social network does ski radical lines. The rest of this descriptive statistics is given in the appendix 8.2.2.

In the questions regarding positional preferences, 17 % of the respondents chose the positional society in the question of number of skiing days, 22 % in the question of number of advanced ski tours and 19 % in the question of the value of the company car.

Table 3: Summary of statistics related to positional choices

	Society A	Society B
Number of ski days	250 (83.06 %)	51 (16.94 %)
Number of advanced tours	235 (78.33 %)	65 (21.67 %)
Value of a company car	245 (81.40 %)	56 (18.60 %)

Among the men choosing positional societies, number of advanced tours were what they were most positional about, 43 men chose the positional alternative. Among the women, there were equally many women who were positional about number of advanced ski tours and the value of a company car, 22 women chose positional of number of advanced ski tours and equally many of the value of the company car. Of all the respondents, 119 chose the positional society for at least one good, and 181 chose non positional for all goods.

Most of the respondents (60.67 %) chose the Field as their preferred slope down the mountain and 89 % of the respondents answered they would have accepted skiing down the Ridge. Comparing men and women in their choice of route down the mountain, slightly more men than women preferred the riskier rides and slightly more women preferred the safer rides.

Table 4: Summary of descriptive statistics of preferred and accepted slope of the respondents

Preferred slope	Freq.	Percent
the Ridge	54	18 %
the Field	182	60.67 %
the Bowl	53	17.67 %
the Chute	11	3.67 %

Accepted slope	Freq.	Percent
the Ridge	265	88. 93 %
the Field	238	79.87 %
the Bowl	88	29.53 %
the Chute	26	8.75 %

4.3 Econometric approach

4.3.1 Regression with positional preferences variables

Based on previous research described in section 2.2 related to social identity and social comparison, it was desired to test these effects on risk taking behaviour and the main model of interest for empirical analysis is:

$$y_i = \alpha + \beta_1 SI_i + \beta_2 SC_i + \beta_3 SN_i + \beta_4 SI_i \# SC_i + \beta_5 SI_i \# SN_i + \beta_6\, Riskpref_i + \boldsymbol{X_i}'\boldsymbol{\gamma} + \varepsilon_i$$

where y_i measures the individual *i*'s risk-taking behaviour in avalanche terrain. SI_i measures the importance of social identity related to other skiers, SC_i is a measure of social comparison, and SN_i is a measure of the social norms connected to the social group of skiers to which the individual belongs to. The interaction terms accounts for the combined effect of social identity and social comparison, and the combined effect of social identity and social norms. The vector $\boldsymbol{X_i}$ contain additional control variables believed to have an effect on risk taking behaviour in avalanche terrain.

To evaluate the determinants of risk taking behaviour in avalanche terrain, with a special focus on social comparison, I run a number of different regressions. The dependent variable in all regressions is constituted by a binary variable, given the value 1 if the respondent chose the Bowl or the Chute as their preferred slope, and 0 otherwise. The reason and motivation behind collapsing the variable into two variables is twofold, 1) using all four variables would imply an ordered probit or logit. The non-linearity of these models combined with a relative small number of observation for each cell makes it hard to get convergence. 2) The Ridge and the Field has similar characteristics (relative safe and visually non-attractive) in contrast to the Bowl and the Chute (relative risky and visually attractive). It therefore seemed reasonable to

evaluate the choice between a relative safe but not status providing run, and a riskier but more status rewarding run.

To test the importance of social comparison, I first tested the positional preferences variables. The different positional variables were dummy variables, where when the respondents had chosen the non positional society was given the value 0, and 1 when the positional was chosen. Positional dummy variables were made for number of skiing days, number of advanced ski tours and the value of the company car (PP_skidays, PP_skitours and PP_car). Three different regressions were first estimated and tested. Each of the positional preference variables was tested as the single positional dummy variable along with the control variables sex, own skill of skiing (skill_self) and the respondent's risk factor (risk_factor1). The own skill variable was categorized in the following way; level 1 and 2 was categorized as 1 (due to very few respondents choosing level 1), level 3 as 2 and level 4 as 3. None of the respondents chose a skill level higher than 4. These control variables were chosen as it was reason to believe them all to have a significant effect on the choice of a risky slope. Men are believed to be more likely to take risks in avalanche terrain than women, more skilled skiers are believed to be more inclined to chose riskier slopes than low skilled skiers, and individuals taking risks in life in general are believed to be more likely to take risks in avalanche terrain, than individuals more risk averse in general. The three different regressions were tested to see if positionality of number of advanced ski tours, would show a more significant effect on the choice of a risky slope, than positionality of the value of the company car for example. In the end the three positional dummy variables were tested together along with the control variables, to see if positionality in general had a significant effect.

The linear probability model was tested first due to its advantage of simplicity. It does however cause difficulties for the estimations. Given that the outcome variable only takes two values, this implies that the error term ε also only takes two values. The usual "bell shaped" curve describing the distribution of errors does not hold. The error is not homoscedastic and the usual error term assumption therefore does not hold in the linear probability model. The predicted values also might fall outside the interval [0,1] (Hill et al., 2012). The probit and logit model deals with these problems, so they were tested next. After the four models with positional preferences had been tested both with the linear probability model and the logistic model, it was decided to use the logistic model further. The logistic model was chosen as this

does not hold equally strong assumptions of the normal distribution of the errors, as the probit model.

4.3.2 Regression with social comparison variables

After the tests of the positional preference variables had been done, I tested the social comparison variables. This was done to see if they could show interesting effects, if the positional measures did not. Three different variables were tested, first the social comparison factor (sc_factor1), which represented the tendency towards social comparison for the respondents. Following this dummy variables representing "I compare the terrain I ski to others" and "I look up to those who ski steep" were tested. These variables were 1 if the respondents had answered they agreed to some extent/agree/strongly agree to the statements and 0 otherwise. Three different regressions were first estimated and tested, with each of these measures of social comparison as the single social comparison variable, along with the control variables sex, own skill and risk factor. In the end the three measures of social comparison were tested together, along with the control variables to see if social comparison in general showed significant effect.

Following this, variables representing descriptive, social and individual norms were tested. This was done to see if a respondent's choice of a risky slope could be affected by what skiers in the respondent's social network think is important and does. If the choice of a risky slope is prompted by social comparison, there might be reason to believe social and descriptive norms also to have a significant effect. The respondents were asked how important doing radical lines, getting an adrenaline rush and focusing on safety was for them personally when skiing in the backcountry (individual), how many in their social network that does these things (descriptive) and how many in their social network think these things are important (social). Dummy variables were created for all nine variables, which were 1 if the respondent answered relative many/very many/all think this is important/does this and 0 otherwise, and 1 if the respondents answered relative important/pretty important/very important for me and 0 otherwise. These variables represented "relative many in my social network does this/relative many in my social network think this is important/relative important for me". The choice was made of making these variables as dummy variables, given the small sample used. All the different variables were each tested, along with the control variables, sex, own skill and risk factor.

The social identity factor was tested next, along with the control variables sex, own skill and risk factor. The social identity factor represented how important their social identity as a skier was to the respondents' identity. Three interaction terms was also created and tested, these consisted of the social identity factor and the dummy variable of comparison of terrain, the social identity factor and the social norm dummy variable of relative importance of doing radical lines, and the social identity factor and the descriptive norm dummy variable of relative many does ski radical lines.

4.3.3 The final regression

The final regression tested different variables together. As regressions now had been done with the positional preference and other social comparison measures separately, it was now desired to find the overall model that fit the data best and provided the best explanation of risk taking behaviour in avalanche terrain. The social comparison variables that showed statistical significance when tested earlier was included, the social identity factor, the social and individual norms that showed significance and helped improve the model and the control variables; avalanche education, sex, own skill and risk factor. Avalanche education was added as a control variable to the final regression, as it was believed that individuals with more avalanche education will be less inclined to take risks in avalanche terrain. Age was first included in this regression, but due to this not being significant and raising the Akaike's information criterion (AIC) of the model, this variable was removed. The final regression was specified in the following way;

$$y_i^* = \alpha + \beta_1 SI\_factor + \beta_2 SC_{terrain} + \beta_3 SNI_{safety} + \beta_4 AVI_{educ} + \beta_5 IM_{safety} + \beta_6 Sex + \beta_7 Skill_{ski} + \beta_8 Risk\_factor + \varepsilon_i$$

$$y_i = 1[y_i^* > 0]$$

Where y_i^* is a latent variable related to risk taking behaviour. The observed variable y_i, takes the value 1 if the respondent chose a relative risky slope, and 0 otherwise. SI_factor is the social identity factor, which is a continuous variable. $SC_{terrain}$ is a dummy variable and takes the value 1 if the respondent to some extent or more compare the terrain they ski with that of others and 0 otherwise. SNI_{safety} is a dummy variable, taking the value 1 if relative many in

the respondent's social network or more think it is important to focus on safety and 0 otherwise. AVI_{educ} represents the respondent's level of avalanche education. IM_{safety} is a dummy variable, taking the value 1 if the respondent to some extent or more find it personally important to focus on safety and 0 otherwise. Sex is a dummy variable, taking the value 1 if the respondent is male and 0 otherwise. $Skill_{ski}$ represents the respondent's skill level of skiing in avalanche terrain. $Risk\_factor$ is the respondents general risk factor, which is a continuous variable.

5 Results

5.1 Results from regressions

The linear probability model with each of the positional variables tested as the independent variable along with the control variables, showed none of the effects of the positional variables as significant. The p-values for all the variables were very high, showing the effects as not statistically significant from zero and therefore with no predictive power. The intercept was significant in all cases, showing the probability of an individual choosing a risky slope, when each of the dummy variables equals 0. When all the positional variables were tested together with the control variables, the effect of positional preferences was not statistically significant either. At this point the logistic model was decided to use further.

Of the four different logistic regressions tested with the positional variables and the control variables, none of the regressions showed the effects of the positional variables as statistically significant. The model with the lowest Akaike's information criterion (AIC) indicating the better fit of the regressions, was the regression with only positionality of number of advanced ski tours (PP_skitours) and the control variables. But as the effect of the positionality of advanced tours showed no significance, it can be concluded in this sample of skiers, our measures of positionality have no significant effect on the choice of a risky slope. The results of the regressions with the positional variables are given further down in the text. It was also tested whether positionality of skiing days, advanced ski tours and the value of a company car jointly had no effect on an individual's choice of a risky slope. The Wald test for logistic regressions showed that our measures of being positional have no predictive power on an individual's choice of a risky slope. The positional variables will therefore be disregarded from further analysis.

The other variables representing the desire for social status, the measures of social comparison, were tested next to see if these could provide a better explanation of the choice of a risky slope than the positional variables. The effect of the social comparison factor variable did not show statistical significance when tested and neither did the effect of the dummy variable "I look up to those who ski steep". Both the regression tested with all the social comparison variables together and the regression with only the dummy variable "I compare the terrain I ski to others", showed the effect of the variable "I compare the terrain I ski to others" as significant. The effect was most significant in the regression which did not

include all the social comparison variables and this regression also showed the lowest AIC. Comparing the terrain you ski to others, does seem to have an effect on the choice of a risky slope. The results from the regression with only social comparison of terrain is given below, in addition to the result from the regressions with the positional preferences variables.

Table 5: Logistic regressions with positional preferences variables and the social comparison variable of terrain

	Dependent variable:				
	pref_slope				
	Days	Tours	Car	ALL	Social comparison Of terrain
	(1)	(2)	(3)	(4)	(5)
Constant	-3.330***	-3.318***	-3.425***	-3.338***	-3.700**
	(0.596)	(0.597)	(0.593)	(0.603)	(0.619)
PP_skidays	-0.214			-0.196	
	(0.446)			(0.482)	
PP_skitours		-0.190		-0.151	
		(0.411)		(0.444)	
PP_car			0.256	0.287	
			(0.390)	(0.394)	
sc_ski1_dic					0.720**
					(0.338)
sex	0.056	0.056	0.075	0.099	0.059
	(0.370)	(0.370)	(0.374)	(0.375)	(0.382)
skill_self	0.859***	0.856***	0.857***	0.834***	0.804***
	(0.241)	(0.240)	(0.240)	(0.241)	(0.242)
risk_factor1	0.847***	0.853***	0.860***	0.860***	0.803***
	(0.190)	(0.191)	(0.192)	(0.192)	(0.193)
Observations	293	292	293	292	292
Log Likelihood	-131.199	-130.997	-131.105	-130.676	-128.30
Akaike Inf. Crit.	272.398	271.993	272.209	275.352	266.680
Note:		*p<0.1; **p<0.05; ***p<0.01			

As seen by the results, the social comparison of terrain seems to provide the better explanation of why individuals chose riskier slopes, than positional preferences. The coefficient of the variable “I compare the terrain I ski to others” (sc_ski1_dic) shows considerable magnitude and statistical significance, and the AIC is lower in the social comparison regression than in the positional regressions. The statistical significance of own

skill of skiing and the respondent's risk factor is the same in all regressions, but the magnitude is slightly smaller in the regression with the social comparison of terrain variable. The result that the comparison of terrain to others have a significant and considerable effect on the choice of a risky slope is interesting and worthy of further investigation.

Due to these interesting results, the effects of individual, descriptive and social norms were tested next, together with the control variables sex, own skill and risk factor. The results showed the effect of the dummy variable of individual norm of relative importance of doing radial lines (IM RAD) to be significant at the 10 % level. The effect of the dummy variable of social norm of relative importance of focusing on safety (SNI SAFE) was significant at the 5 % level, and the dummy variable of individual norm of relative importance of focusing on safety (IM SAFE) was significant at the 10 % level. The rest of the individual, social and descriptive social norms showed no statistical significant effect. The variables that showed statistical significance was in the end tested together with the social comparison variable of comparing terrain and the control variables. Results are given in the table further down in the text.

In this part the last variables to be tested was the social identity factor (si_factor1) and the interaction terms connected to this. The social identity variable did not show a statistical significant effect, but was very close to being significant at the 10 % level and showed considerable magnitude, so it was included in the final regression. The interaction variables connected to social identity and the dummy variable of social comparison of terrain, and the dummy variables of social/descriptive norms of doing radical lines and social identity did not show statistical significance. The social identity factor was in the end tested with the social comparison factor of terrain and the control variables. The results are given in the table below.

Table 6: Logistic regressions with individual and descriptive norms and social identity factor

	Dependent variable:			
	pref_slope			
	IM rad	SNI safe	IM safe	SI factor1
	(1)	(2)	(3)	(4)
Constant	-3.994***	-2.052**	-2.424**	-3.680***
	(0.676)	(0.823)	(0.973)	(0.625)
IM_rad_dic	0.547			
	(0.417)			
SNI_safe_dic		-1.790***		

		(0.620)		
IM_safe_dic			-1.390	
			(0.852)	
si_factor1				0.234
				(0.177)
sc_ski1_dic	0.639*	0.723**	0.722**	0.668*
	(0.344)	(0.345)	(0.340)	(0.341)
sex	0.038	-0.017	-0.021	0.073
	(0.384)	(0.391)	(0.386)	(0.383)
skill_self	0.780***	0.833***	0.863***	0.798***
	(0.246)	(0.241)	(0.247)	(0.246)
risk_factor1	0.754***	0.842***	0.773***	0.807***
	(0.196)	(0.201)	(0.193)	(0.194)
Observations	292	292	292	292
Log Likelihood	-127.428	-124.237	-127.042	-127.440
Akaike Inf. Crit.	266.857	260.474	266.085	266.881
Note:		*p<0.1;	**p<0.05;	***p<0.01

The results show that when the variable of social comparison of terrain is added to the regression, the effect of the dummy variable of individual norm of relative importance of doing radical lines is no longer significant. The same result applies for the effect of the dummy variable of individual norm of relative importance of focusing on safety. The social comparison of terrain is significant in all these regressions, indicating it having an important effect.

As different regressions and variables now had been tested, it was time for the final regression. The social comparison variable of comparing terrain was included as this was the effect that showed significance when the social comparison variables were tested earlier. Of the social and descriptive norms variables, the dummy variable with the individual norm of relative importance of doing radical lines was removed, due to this effect not being significant when tested in the final regression and the effect it had on the AIC. The result of the final regression is given in the table below.

Table 7: Final logistic regression

	Dependent variable:
	pref_slope
	FINAL REGRESSION
Constant	-1.089

```
                            (1.041)

si_factor1                  0.306*
                            (0.185)

sc_ski1_dic                 0.627*
                            (0.351)

SNI_safe_dic               -1.747***
                            (0.647)

avi_educ                    -0.105
                            (0.113)

IM_safe_dic                 -0.854
                            (0.866)

sex                         -0.041
                            (0.398)

skill_self                 0.942***
                            (0.265)

risk_factor1               0.810***
                            (0.204)

---------------------------------------------
Observations                  289
Log Likelihood             -121.694
Akaike Inf. Crit.           261.387
=============================================
Note:             *p<0.1; **p<0.05; ***p<0.01
```

The final regression showed the lowest AIC of the different regressions tested, indicating the best fit of the different models tested. Comparing terrain to others, the social norm of relative importance of focusing on safety, social identity as a skier and some of the control variables are variables that all together has significant effect on an individual's choice of a risky slope in avalanche terrain.

5.2 Possible problems with the regressions

The different variables representing the social, descriptive and individual norms, are in this thesis coded as dummy variables. These dummy variables represent "relative many or more in my social network" and "relative important or more to me" and by using them, the effect of the respondents choosing the anchors of the scale is lost. The respondents choosing "relative many" and "all" are both given the value 1 and those choosing "none" and "pretty few" are both given the value 0. This could cause loss of interesting information, but given the easy interpretation of the dummy variables and a small sample used to do the regressions, they were kept as dummy variables.

Due to the probability of the error term not having a normal distribution and checking the stability of the results, bootstrapping was tested on the final regression. This did not show considerable effect.

There was fear of heteroscedasticity affecting the results of the regressions. The logit model is sensitive to misspecifications and omitting an explanatory variable or presence of heteroscedasticity might cause the estimators to be inconsistent (Kennedy, 2003). The residuals of the final regression were plotted against each of the variables the regression contained, to check for signs of heteroscedasticity. The residuals did not show clear signs of heteroscedasticity and as there is no clear and good practical solution for solving the problem of heteroscedasticity in a logistic regression, this was not adjusted for.

There is no general accepted goodness of fit measure for logistic models (as R^2 for OLS regressions). There exists however other critical values which corresponds to the maximization of alternative adjusted forms of R^2. The Akaike information criterion (AIC) which is the chosen criteria used for model selection in this thesis, deals with the trade of between the goodness of fit and the number of explanatory variables. The Akaike information criterion tries finding the set of independent variables, which minimizes a specific function of the sum of squared errors and the number of independent variables. In the logit model the AIC is defined in terms of log- likelihoods (Kennedy, 2003). The model with the smallest AIC is preferred, as it is desirable to find the model that minimises the information loss when adding variables (Hill et al., 2012). The problem with the AIC is that it does not provide a good measure for the model in an absolute sense. If all the different models tested fits the data poorly, this information is not provided.

With a linear regression, the marginal effect of an explanatory variable on the dependent variable, is of much interest. In a logistic regression however, the marginal effect is not given by the explanatory variables coefficient, but as a function of that coefficient. The problem that arises with this is that for each observation, the marginal effect is different. A way of dealing with this is using the average value of the explanatory values, but when it comes to dummy variables this would cause problems. All the methods dealing with this problem can lead to misleading estimates, especially for dummy variables (Kennedy, 2003).

As discussed in this section, using a logistic regression and dummy variables comes with different problems. Heteroscedasticity and the interpretation of the marginal effects are

problems that comes with no easy fixable solution. Being aware of the shortcomings of the regression is therefore important. In end the the logistic function was deemed the best fit for the model, given the shortcomings of the linear probability model and the not probable normal distribution of the errors.

6 Discussion

6.1 Discussion of results

So far in 2017, we have already seen a number of avalanches. On the 16th of March a group of four Italian skiers triggered an avalanche in Gjerdelvdalen by Lyngseidet. One of the skiers was partially buried and dug out fairly quickly, but another was found after 2.5 hours and pronounced dead the next day (varsom.no, 2017). The accident was deemed as being caused by a typical terrain trap, which is the most common cause for avalanches in Norway. What makes trained and experienced individuals ignore obvious signs of avalanche danger?

The results in this thesis, showed the measures of positional preferences used in this thesis not to have a significant effect on an individual's choice of a risky slope. The importance of having relative more rides and relative more risky rides than your fellow skiers, and gain social status from this, does not provide a good explanation for the choice of a risky slope. Therefore, the hypothesis that individuals with social identity as skiers are positional of doing more and more risky rides, and this will lead to risky behaviour in avalanche terrain, does not hold in this sample. The possible link between social identity, the measures of positional preferences used in this thesis and risk taking behaviour in avalanche terrain does not appear to be strong, in this sample of skiers.

The other measure of desire for social status, social comparison, did however show very interesting results. Comparing the terrain you ski to others, shows a significant effect on the choice of a risky slope and considerable magnitude. Comparing yourself to others provides a frame of reference and exceeding the accomplishments of your comparison group could for certain individuals mean the gaining of social status and acceptance from your peers. Therefore, it is reasonable to assume social status to be an important determinant of risk taking behaviour among skiers in avalanche terrain. Those who find comparison of terrain important will be more likely to take risks in avalanche terrain, and this is probably derived from the desire of social status. It is interesting noticing the comparison of terrain is what shows considerable effect, and not social comparison in general. What is considered social status and areas where social comparison is important could therefore be closely related to social identity, as predicted earlier in this thesis.

It is also worth noticing the social identity factor, that shows considerable magnitude and statistical significance in the final regression. Individuals who find their social identity as a

skier to be an important part of their identity, will be more likely to chose riskier slopes. Social identity can be an important way for an individual to express who they want to be, their values and what is important to them. The choice of a risky slope can be made as to prove belongingness and importance of the social group of skiers, in contrast to other social groups in society. It might be considered that these individuals who feels being a skier is an important part of their identity, feels this belongingness to the social group of skiers and doing radical rides provides them with social status in itself. Their self esteem might be connected to them doing radical rides in general compared to others in society and being a member of the social group of skiers.

As the comparison of terrain and social identity both showed a significant effect on the choice of a risky slope, it was very surprising that the interaction variable of social identity and comparison of terrain did not. Individuals who have a strong social identity as a skier and find comparison of the terrain they ski to others to be important, will not be more likely to chose riskier slopes. It was also surprising that the interaction terms of social identity and the dummy variable of social norm of relative importance of doing radical lines, and social identity and the dummy variable of descriptive norm of relative many does ski radical lines did not show significance. Finding a good and plausible explanation for these results can be difficult.

Another surprising results was that most of the effects of the variables representing what the skiers in the respondent's social network think is important/does did not show significance. The social and individual norms regarding safety did show some interesting results however. The negative effect on the choice of a risky slope of relative many in the respondent's social network think focusing of safety is relative important did show significance, but not the effect of relative many actually does focus on safety. This results might be of interest for avalanche instructors. Talking to your fellow skiers about the importance of safety might be just as an efficient way of reducing unnecessary risky behaviour in avalanche terrain, as actually seeing your fellow skiers focus on safety. The negative effect of your fellow skiers thinking it is important focusing on safety actually shows larger magnitude than the effect of the individual motivation of focusing on safety, in the final regression. The importance of consensus among skiers about the importance of safety when venturing in avalanche terrain and talking about it can not be emphasised enough.

The dummy variable of individual norm of relative importance of doing radical lines was not

included in the final regression, due to this raising the AIC and not fitting the overall model. It did however show significance when first tested along the control variables, so it is worth mentioning. The result is in line with expectations but given the considerable magnitude, the effect is important to be aware of. Doing radical rides in avalanche terrain might provide individuals with much utility and this risk taking behaviour might therefore be individually optimal. This could be a possible explanation for why individuals ignore obvious signs of hazard. Doing radical lines might be so important for these individuals, they may see avalanches unlikely to be triggered due to their desire for skiing the slope. Emphasizing the fact that desire might make us see things as safe, even when they are not and reminding people that what may be individually optimal can cause major costs for others and therefore not be socially optimal, will always be important.

The skill of skiing and risk factor of the respondent shows considerable magnitude in the final regression, which is not a surprising result. The more skilled you are, more terrain and more demanding slopes you can handle. The low skilled respondents might not feel they have the sufficient skills to handle the riskier slopes and the results say the more skilled skiers are more inclined to chose the riskier slopes. The result is in line with expectations, but worth noticing. Blindly trusting your skills to keep you safe in avalanche terrain can be extremely dangerous. Reaching a certain skill level might make you start ignoring obvious signs of hazard due to excessive faith in your skills, not ignored by others with a lower skill level. The avalanche hazard can never be fully predicted and one can never be 100 % safe in steep avalanche exposed terrain, no matter the skill level. This effect is therefore important to be aware of.

The effect of the risk factor tells us that individuals inclined to take risks in life in general, are more likely to chose the riskier slopes. For risk loving individuals, the explanation could be that taking risk provides them with utility in itself. The problem for society is the costs associated with this risky behaviour. The work by Krister Kristensen et al. concerns risk accept and points out that accumulated risk can become to high, if individuals expose themselves for a small amount of risk many times. If skiers push their limits every time they go skiing, eventually something will go wrong (Kristensen et al., 2012).

6.2 Discussion of the measure of positional preferences

The positional preferences variables did not show a significant effect on the choice of a risky slope in this thesis. The interpretation of this tells us that people who are positional, does not

take more risk in avalanche terrain. Positional preferences is the utility gained from social comparison and having relative more than referent others, and the gaining of social status from this. Which makes the result that social comparison of terrain is an important determinant of risky behaviour in avalanche terrain interesting. An explanation of the poor results of the effects of positional preferences could be the way the questions in the survey used in this thesis are asked.

In the results of this thesis, around 20 % of the respondents choose positional societies for each good, while in previous work far more respondents have chosen positional (Alpizar et al., 2005, Carlson et al., 2007). Much of previous work have asked the respondents to choose between societies for an imaginary grandchild living in the future. Asking the respondents in this survey to chose for an imaginary relative might have provided different results and shown the respondents as more positional. On the other hand, this could view a wrongly image of positionality. Reasons for choosing positional for a relative could be the securing of a good position in society for your relative, while choosing not positional for yourself might be content with your relative situation as of today. Asking the questions of positionality in a way to get the best measure is a not an easy task, and this might have affected the results in this thesis.

The empirical analysis of this thesis, showed social comparison to provide the better explanation of why people take risk in avalanche terrain. The most plausible explanation behind the importance of social comparison of terrain, is the gaining of status from exceeding the frame of reference of others. Social comparison could therefore just be another measure of positional preferences and the desire of social status from this. Reasons behind social comparison providing the better measure of desire for social status, could also be the respondents view of their own preferences. Choosing the positional alternative and being concerned with having relative more than others, can perhaps for certain individuals seems as the “wrong” and not the morally “appropriate” answer. These individuals might therefore have chosen not positional societies, but still having admitted to social comparison and find social status to be important.

7 Concluding remarks

This thesis has investigated if skiers are driven by the desire for social status, when taking risks in avalanche terrain. In the ever-changing world of today individuality and belongingness is important, which can be expressed in the desire for social status and social comparison. This can lead to risky behaviour in groups that valorise this type of behaviour, and this risk taking behaviour might therefore be rational and privately optimal. The results from this thesis showed the comparison of the terrain you ski to referent others to have a significant effect on the choice of a risky slope, which is believed to be derived from the desire for social status. Problems arise however, if this makes people ignore obvious signs of hazard, as avalanches causes major costs for both society and individuals.

The results therefore seem to provide the explanation, that the desire for social status is an important determinant in risk taking behaviour among skiers in avalanche terrain. It is also interesting that comparison of terrain is what has an effect on risk taking in avalanche terrain and not social comparison in general. What is considered social status could therefore be closely related to social identity. Hopefully this result can be used to improve the avalanche education of the future and by doing this, future accidents can hopefully be prevented. The human factor and the desire for social status might make us see things as safe, even when they are not (Brattlien, 2015). Therefore, making skiers aware of the effect the desire for social status has on decisions in avalanche terrain, can be a useful tool. By making skiers aware of that fact that risky behaviour might be prompted by the need for social status and comparison, individuals can hopefully take this into account and ask themselves an extra time before skiing risky slopes; “Is skiing this exact slope really necessary and why am I making this exact choice?”.

The results in the final regression showed the effect of other skiers thinking focus on safety is important, having considerable magnitude. Discussion and talk among skiers about the importance of not letting the desire for social status cloud your judgement in avalanche terrain, might provide a good way of making this a common consensus. Emphasising the importance of not letting excessive faith in your own skills and your background of avalanche education cause unnecessary risky behaviour, will also be important. Listening to skiers with less experience of touring in avalanche terrain, might be just as important as listening to those with much experience, when skiing in the backcountry.

When Jordy Hendrikx visited Tromsø in the beginning of April he mentioned the importance of stopping up and thinking if you are uncertain about skiing a slope. Taking the time to dig a snow pit with your fellow skiers can prevent hasty and heat of the moment decisions. This will give you and your fellow skiers time to talk and discuss, and if you are still uncertain about skiing the slope after this time, you probably have your answer. Skiing in steep terrain and doing radical lines is not something we should not do. For many skiers this provides great joy and a sense of achievement. It is however important not to let these desires compromise on safety. By knowing that the human factor and the desire for social status affects our decision making in avalanche terrain and being aware, people can hopefully still be safe and enjoy the sanctuary of the mountains. The increasing popularity of randonee skiing and recreational activities in the backcountry has actually lead randonee skiing to being predicted as the new national sport of Norway by some (Haagensen et al., 2017), making it more important than ever to bring people safe home from the mountains

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8 Appendices

8.1 Description of hypothetical slopes

The Field

Characteristics:

Maximum / average slope: 35° / 25°

Aspect: NW

Vertical drop: 1000 meters

Terrain: Simple - A 100 wide concave snowfield with small ridges on each side. The first 20 vertical meters of the field have slope 33° - 35°. The rest of the field has slope 20° - 27°. The difficulty level is similar to easier "Expert" runs at a resort.

Snow: Soft. Mostly loose powder, but in some areas the wind may have created soft windslabs.

Dangers: The avalanche danger **on the upper part of the field** (20 vertical meters with slope 33°-35°) is **moderate** (level 2). In this section, human triggered small (size 1 - 2) avalanches are **possible**, especially at a **large additional load** (a group of skiers standing/skiing within 10 meters of each other or one skier falling). Below the top 20 vertical meters of the run, the avalanche danger is **low** (level 1) and the maximum slope is below 30°. On this part of the run, human triggered avalanches are **unlikely**. The expected avalanche type is a slab avalanche. The level of exposure is **low**. There are several safe spots on the ridges that surrounds the field on both sides. There are no cliffs or trees, and the run gets progressively flatter until it ends on a wide field.

Guide book description:

A nice and fun run. Nice view from the summit. Easy going skiing from top to bottom.

The Bowl

Characteristics:

Maximum / average slope: 40° / 30°

Aspect: N

Altitude: 1000 meters

Terrain: Challenging - A 500 m wide bowl that ends in a narrow gully at 300 masl. The run follows the bowl to the start of the gully, then traverses up on a ridge at 400 masl. The first 400 vertical meters of the bowl has slope 35° - 40°. The bowl is generally concave but has a

few convex rollovers. The lower part of the bowl and the ridge has slope 25°-30°. The difficulty level is similar to "Expert" runs at a resort, but the terrain is more challenging because of longer steep sections and some roll-overs.

Snow: Soft. Mostly loose powder, but in some areas the wind may have created soft windslabs.

Dangers: The avalanche danger **in the bowl** is **moderate** (level 2). In the bowl, human triggered small to medium (size 2 - 3) avalanches are **possible,** especially on the convex roll-overs at a **large additional load** (a group of skiers standing/skiing within 10 meters of each other or one skier falling). When you reach the ridge, the avalanche danger is **low** (level 1), and human triggered avalanches are **unlikely**. The expected avalanche type is a slab avalanche. Exposure **in the bowl is moderate.** The snowfield gets progressively more narrow and ends in a gully. The first safe spot is on the rigde at 400 meters.

Guide book description:

A very scenic run with great views. Nice and consistently steep for about 400 vertical meters.

The Chute

Characteristics:

Maximum / average slope: 45° / 37°

Aspect: NW

Vertical drop: 1000 meters

Terrain: Complex - a winding chute from the summit (1000 masl) to the fjord. The width of the chute varies between 5 and 35 m. There is a convex rollover in the middle of the chute. The difficulty level of the run is above that of an "Expert" run at a resort. The slope is steeper, and terrain (narrow chute) is more difficult to handle.

Snow: Mostly loose powder, but in some areas the wind may have created soft windslabs.

Dangers: The avalanche danger **in the chute** is **moderate** (level 2). Small to medium (size 2 - 3) avalanches are **possible**, especially on the convex rollover, at a **large additional load** (a group of skiers standing/skiing within 10 meters of each other or one skier falling). The expected avalanche type is a slab avalanche. Sluff avalanches are **likely**. The level of exposure is **high**. There are no safe spots until you are down by the fjord, there are cliffs on both sides of the winding chute, and the run ends in the fjord.

Guide book description:

Is this the run of all runs? It is certainly an adrenalin rush, and extremely scenic! As this is a no fall zone, the run is for expert skiers only.

8. 2 Descriptive statistics

8.2.1 Risk factor and social comparison factor

1 = strongly disagree, 2 = disagree, 3 = disagree to some extent, 4 = agree to some extent, 4 = agree, 6 = strongly agree

Table 8 A: Risk factor statistics

	St.dev	(min, max)
Risk factor	0.888	(-2.571, 2.458)

Table 9 A: Risk factor statistics 2

	1	2	3	4	5	6
I want to explore new strange places	1 0.33 %	8 2.67 %	13 4.33 %	63 21 %	126 42 %	89 29.67 %
I get restless from spending to much time at home	51 17 %	83 27.67 %	51 17 %	68 22.67 %	38 12.67 %	9 3 %
I like to do frightening things	44 14.67 %	107 35.67 %	52 17.33 %	70 23.33 %	20 6.67 %	7 2.33 %
I enjoy wild parties	70 23.33 %	62 20.67 %	25 8.33 %	42 14 %	54 18 %	47 15.67 %
I would like to go on a journey, with no knowledge of the duration or destination of the journey	15 5 %	52 17.33 %	33 11 %	57 19 %	84 28 %	59 19.67 %
I prefer friends who are exiting and unpredictable	20 6.67 %	63 21 %	85 28.33 %	88 29.33 %	39 13 %	5 1.67 %
I wish to try bungee jumping	35 11.67 %	65 21.67 %	71 23.67 %	92 30.67 %	30 10 %	7 2.33 %

I want new and exiting experiences, even though it might be illegal	4 1.33 %	21 7 %	19 6.33 %	70 23.33 %	110 36.67 %	76 25.33 %

Table 10 A: Social comparison factor statistics

	St. dev	(min, max)
Social comparison factor	0.922	(-2.513, 2.278)

Table 11 A: Social comparison factor statistics 2

	1	2	3	4	5	6
I often enjoy talking to others, about common opinions and experiences	2 0.66 %	4 1.33 %	12 3.99 %	71 23.59 %	176 58.47 %	36 11.96 %
I often compare my income to that of others	65 21.59 %	103 34.22 %	57 18.94 %	53 17.61 %	19 6.31 %	4 1.33 %
I often compare the terrain/lines I ski with that of others	18 5.98 %	63 20.93 %	51 16.94 %	92 30.56 %	65 21.59 %	12 3.99 %
To find out how well I did something, I compare what I have done with what others have done	13 4.32 %	53 17.61 %	54 17.94 %	116 38.54 %	56 18.60 %	9 2.99 %
I often compare myself to others, in regards to achievements in life	17 5.65 %	69 22.92 %	79 26.25 %	87 28.98 %	40 13.29 %	9 2.99 %
I often try finding out what others who face the same problems as me think	12 3.99 %	36 11.96 %	46 15.28 %	113 37.54 %	84 27.91 %	10 3.32 %
I rarely compare myself to others	11 3.65 %	56 18.60 %	113 37.54 %	63 20.93 %	53 17.61 %	5 1.66 %

I never compare my situation in life with others	23 7.64 %	80 26.58 %	101 33.55 %	49 16.28 %	45 14.95 %	3 1 %
I always pay attention to how I do things, in comparison to how others do them	16 5.32 %	69 22.92 %	65 21.59 %	103 34.22 %	41 13.62 %	7 2.33 %
If I want to learn more about something, I try finding out what others think of it	14 4.65 %	31 10.30 %	38 12.62 %	93 30.90 %	108 35.88 %	17 5.65 %
I look up to people who ski radical/steep lines	28 9.30 %	58 19.27 %	62 20.60 %	96 31.89 %	50 16.61 %	7 2.33 %
I often compare how well my loved ones are doing, in comparison to others	29 9.63 %	105 34.88 %	63 20.93 %	79 26.25 %	21 6.98 %	4 1.33 %
I always want to know what others have done, if they have been in a similar situation as mine	7 2.33 %	48 15.95 %	60 19.93 %	124 41.20 %	55 18.27 %	7 2.33 %
I often compare how well I do socially, to others	30 9.97 %	88 29.24 %	76 25.25 %	75 24.92 %	26 8.64 %	6 1.99 %
I look up to people with a lot of money	98 32.67 %	115 38.33 %	43 14.33 %	33 11 %	11 3.67 %	0

8.2.2 Social, descriptive and individual norms

Table 12 A: Social, descriptive and individual norm statistics

	Freq.	Percent
Relative/pretty/very important for me to get an adrenaline rush	99	67.11 %
Relative/pretty/very important for me to focus on safety	292	97.01 %

Relative many/very many/all in my social think it is important getting an adrenaline rush	137	45.51 %
Relative many/very many/all in my social think focusing on safety is important	286	95.02 %
Relative many/very many/all in my social does get an adrenaline rush	125	41. 53 %
Relative many/very many/all in my social does focus on safety	263	87.28 %