Student saving, does it exist?

A study of students' saving behavior, attitude towards saving and motivation to save.

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Spring semester 2011
Degree Project 30 hp

Summary

Swedish households are getting deeper in debt and house prices keeps on rising. This is what happened in USA and it was one of the major causes of the recent financial crisis. To avoid a similar crisis in Sweden we think one part of the solution is to make sure that those who are students today and soon will get jobs, buy houses, take loans etcetera have necessary knowledge to do so.

Students' saving is an area that almost completely lacked researchers' attention, and one goal with this thesis is to point out why it's an important subject and to increase interest among other researchers. We want to give other researcher a foundation to start from, to give an idea of what students saving looks like, so they can continue to explore this important subject.

Our research is using theories developed on private saving in American households as a background, and two psychological theories, The theory of planned behavior by Ajzen (1991) and Self-determination theory by Deci and Ryan (2000) as a foundation.

This thesis primary focus is on researching students attitude towards saving, students attitude towards stocks and students motivation towards saving. This is researched by distributing a Likert Scale based questionnaire to two groups, business students and technical energy students, a total of 133 students. The answers were collected in two classrooms and all students agreed to fill in the questionnaire leaving us with no non-response bias.

The result was very positive and quite surprising. A majority of the students in our study have a positive attitude towards saving, a slightly positive attitude towards stocks and they are motivated to save. Our conclusion is that although the result is positive students saving and students knowledge about saving can be further improved by more education.

Acknowledgements

We thank our supervisor Anders Isaksson for his feedback and support through the whole thesis process. We would also like to thank all the students who answered our questionnaire and the teachers who let us borrow their students. A special thanks goes out to Magnus Westerman for his expert advice on questionnaire design, and those students who gave us valuable advice and critique on the first edition of our questionnaire.

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1 Problem Background

Private savings is a subject that is often discussed in the Swedish media, the past couple of months the focus has been mainly on how the households will be able to manage an increase in interest rates. A lot of focus is on how to fix this problem, how to avoid a housing bubble and so on. This is of course important issues; however we have a more long term perspective. We focus our research on private saving among students, because they are the ones that soon will earn money, make financial investments, and their ability to do so is related to how well they save.

In research made by Finans Inspektionen on private saving in Swedish households it shows that 36 % of young people under the age of 25 always have money left at the end of the month, and that 22 % often do. Only 9 % answered that they never have money left at the end of the month. (Finans Inspektionen, 2010 ppt)

In the same research they found that 27 % of people below 25 own stocks, compared to the total average of all ages which is 33 % this is a pretty high number. The percentage of young people in this research that own funds are 59 %, this is even higher than the total average of 57 % (although the total average is brought down a lot because the percentage of people over 65 that owns funds are only 46 %) (Finans Inspektionen, 2010 ppt)

Being younger than 25 is not the same as being a student but this information suggest that there should be a quite high interest among students for financial investments and there are also potential to increase or create an interest among those who have capital but aren't active in their saving.

Statistic over stockownership 2010 in Sweden shows that about 11 % of the people who owned stocks were between 16-30 years old. (Euro Clear 2011) This is slightly inconsistent with the large number from FI's research that 27 % under 25 own stocks, this is most likely because parents buy their children stocks, for example 4 % of stockholders in Sweden are between 0 and 5 years old.

Some may argue that even though statistic show that a lot of young people have money left at the end of the month it's not enough for them to invest in financial investments. Students may not have much money to spend on saving but what they have is time, time to increase their knowledge about saving and a long saving horizon, and that is enough. Burton Malkiel (2011 p. 359) argues in his bestselling book *A random walk down Wall Street* that younger people should have a bigger proportion of there savings in riskier assets such as stocks. This is because they have longer saving horizons and they have likely many years of steady income in front of them that could cover potential losses.

With a long saving horizon you don't necessarily need a big income to save. Supposedly Albert Einstein has said that the greatest invention ever made is compound interest, and that it's the 8th wonder of the world. If Einstein said it or not doesn't change the fact that compound interest is a very powerful phenomenon. For example by saving 250 kr a month at an average interest rate of 10 % it would take 36.3 years for them to grow into a 1 000 000 kr (Stock magazine 2011) 250 kr is something that most student's easily could afford to save, in one month it's equal to about 6 lunches or 25 cups of coffee at the university. This shows that you don't

necessarily have to have a lot of money to save, time and compound interest is also important factors.

A lot of researches have been made on the area of private saving during the 20th centenary. Keynes (1936) was the first to present the consumption function for private consumption and saving. Keynes (1936 p. 66) argued that consumption depends mostly on income, and as income increases so will consumption, although at a slower rate. Consequently when income increases a larger proportion of income will be saved. However Keynes argument was disproved, Kutznet (1952 p. 507) found that between 1869 and 1928 the average savings ratio was quite stable in the USA even though the average income increased a lot during this period. This proved that saving didn't increase although income increased, which showed that saving wasn't only determined by income, and this lead to new theories of consumption. Duesenberry (1949), Modigliani & Brumberg (1954) and Friedman (1957) independently developed three different hypotheses that focused on explaining the consumption function.

Duesenberry (1949) argued that what determines how much people consume and save is not income, but instead it's determined by how much neighbors and friends consume. Duesenberry also argue that once a certain level of consumption and standard of living has been reached it's irreversible. It's hard or even impossible to start consuming less and go back to a lower standard of living again. (Turvey 1950 p. 452) Modigliani & Brumberg (1954 p. 32) had another explanation, they stated in their hypothesis that the amount saved depend on a person's age and their point in life. Also they argued that the primary reason for saving is to manage long term variations in income and to handle unanticipated events that affect income and needs.

Friedman (1957 p. 26) argued that people's consumption is determined by expected future income. If a person expects to earn more in a near future she will consume a higher proportion of her money than a person that is more insecure about future income. Towards the end of the 20th centaury theories have shifted more towards behavioral psychology since saving is a behavior and it's among other factors affected by beliefs, attitudes and motivation, as well as self-determination and social norms.

Two prominent psychological theories that explain behavior is the theory of planned behavior by Icek Ajzen (1991) and self-determination theory by Deci and Ryan (1985). The theory of planned behavior focus on four factors that determine behavior, attitude towards the behavior, social norm, perceived behavioral control and intentions. (Ajzen 1991 p.182). Self-determination theory focuses on how different kinds of motivation determine and affect a behavior. (Deci & Ryan 1985 p. 8)

Even though a lot of research have been made on the subject of private saving most of it have focused on American households, very few if any have focused on saving among students, especially students in Sweden. The general idea is probably that students don't save because they don't have enough capital, but as mentioned above saving isn't only determined by income.

1.1 Problem Formulation

We limit our research to students at Umea University and focus on factors that might influence the students when it comes to private saving and financial investments. We will research students saving behavior to see if they save and if they own any

financial instruments. Our main focus will be on students' attitude towards saving and students motivation towards saving. We will also research students' attitude towards stocks.

With this in mind we formulate the following research questions:

- *If and how students save?*
- *What attitude towards saving does students have?*
- *What motivation towards saving does students have?*
- *What attitude towards stocks does students have?*

1.2 Purpose

The purpose of this thesis is to increase knowledge about students saving, more specifically their attitude towards saving and towards stocks, and their motivation to save. We will also investigate if students save in the form of financial instruments such as stocks and funds. By doing this we hope to make it clear why this is an important area of research that deserves more attention in the field of social science. More knowledge about students saving is also of great value to banks that have many students as their customers.

Students saving behavior is an area that almost completely lack researchers attention and we hope through this thesis point out why students is an important group to focus on and inspire other researchers to continue to explore this topic. Even if this area lack researchers interest it's something that been showed interest by Aktiefrämjandet, which is a Swedish foundation consisting of Aktiespararna, Fondbolagens Förening, Fondhandlareföreningen, NASDAQ OMX and Unga Aktiesparare. They have together launched a project called Ung Privatekonomi with the ambition to increase knowledge and interest about private saving and financial investments among high school students. (Ung Privatekonomi 2011)

Dagens Nyheter (2010) writes in an article that 46 000 Swedes have unpaid SMS-loans. On October first 2010 the required down payment on houses in Sweden was raised from 10 % to 15 % of the total price. (Finans Inspektionen 2010) During the 3rd quarter 2010 the increase in Swedish household's dept reached new record levels despite increasing interest rates, in the 4th quarter 2010 the dept increased at a decreasing rate but is still very high. (SCB 2010, 2011) According to Veckans Affärer (2011) electricity prices have increased by 80 % since 1999.

Students are the ones that soon will have jobs and will be faced with most of the things mentioned in the previous paragraph; they will enter the house markets, take loans and maybe struggle with increasing electricity bills, which mean they will need savings or at least knowledge about how to save.

To investigate students saving we will first go through financial theories and previous research on the area of saving, and then expand our approach to include psychological theories about behavior. By increasing the knowledge about students' saving and their attitudes towards saving, combined with our conclusions about what could be done to increase interest among students, we hope to contribute to the process of improving the financial stability of future Swedish households.

2 Theoretical Framework

This chapter will give a theoretical background to our problem. The chapter will be divided in two parts. First focus will be on financial theories and hypotheses on the consumption function. The second part will focus on psychological theories covering attitude and motivation that affect saving.

2.1 Financial Theories

2.1.1 Absolute income hypothesis

The aspiration to analyze people's consumption behavior is not something new it's been a focus of many researchers for most of the 20th centaury. Most researchers for instance, Friedman (1957), Ferber (1973), seem to agree that John M. Keynes first originated the idea of a consumption function. Keynes (1936 p. 66) argues that consumption is a reasonably stable function and that consumption depends mostly on income. As income increase so will consumption, although at a slower rate. Consequently when income increases a larger proportion of income will be saved.

"For the satisfaction of the immediate primary needs of a man and his family is usually a stronger motive than the motives towards accumulation, which only acquire effective sway when a margin of comfort has been attained. These reasons will lead, as a rule, to a greater proportion of income being saved as real income increases." (Keynes 1936 p. 66)

This seems like logical reasoning, if your salary is increased you may consume a little more and save the rest. Empirical evidence of the time supported this theory at least in shorter periods. It was later discovered that for longer periods this hypothesis wasn't supported. Kutznet (1952 p. 507) found that between 1869 and 1928 the average savings ratio was quite stable in the USA even though the average income increased a lot during this period. This contradicts the absolute income hypothesis that says more income should mean a higher saving ratio. These findings lead to a wave of new theories trying to explain people's consumption behavior, and these theories are still relevant today and of use to our research.

2.1.2 The Relative Income Hypothesis

James Duesenberry developed the Relative Income Hypothesis (here on referred to as the RIH) in 1949 and it makes two major statements, the first is that a person's consumptions do not depend on her absolute income but of how much the people she associates with consume. The second statement is that the level of consumption is irreversible over time, that is, once a level of consumption and a certain standard of living has been reached it's very hard to go back to a lower level of consumption. (Turvey 1950 p. 452)

When the RIH surfaced it attracted a lot of attention for a few years and it was tested and supported by other researcher, but after that it has been giving a lot less attention and focus have instead been on the permanent income hypothesis and the life cycle hypothesis discussed below. (Ferber 1973 p. 1305) This doesn't necessarily mean it's a bad and outdated hypothesis, Kosicki (1987 p. 431) found in his research support for the RIH and argues that even though it's an old hypothesis empirical evidence shows that it's still relevant. The RIH has also raised interest in the field of psychology,

Easterlin (1995 p. 44) concludes that *"...increasing the incomes of all doesn't increase the happiness of all"* only increasing your own income relative to others would increase your happiness, which is consistent with the RIH.

The reasons why RIH lost it's appeal to most economists in the 60's is something that can only be speculated about, Palley (2010 p. 54) believe one of the reasons may have been that it's focus on relative income and relative consumption made it relatable to communism, at times of the cold war and the politics that followed this may have turned economic researchers towards other theories. Another explanation Palley (2010 p. 53-54) mentions is that the RIH wasn't as suitable for teaching and it didn't clearly state how to measure and test it. This is most likely because it focused on more on psychological aspects than on financial data compared to other theories of the time.

One of the things that makes the RIH interesting for research on students is that it suggest that a low income does not make a person less likely to save as long as income is not low relative to it's peers. (Kosicki 1987 p. 67) However even if it would be interesting to test if students consume based on how much their friends consume, it would be hard to draw any conclusions from a questionnaire.

We would have to know who their friends are and how they consume, most people probably don't know if they consume as much as their friends. To simply assume that students only associate with people from their own program would also not be right. Even if we found that students save as much as the people they associate with it could also be that they have the same income, since most student have very similar income due to financial aid. Because of these obstacles we leave this to be tested by future researchers and focus on the second part of the RIH, which is that the level of consumption is irreversible. Students that have been working before they started their education should have gotten used to a higher standard of living and should consume more than students that started without working first.

The RIH explains the consumption function as current income relative to previous peak income, and in equation form it looks like this:

Equation 1.1 $$\left(\frac{C}{Y}\right) - \alpha + \beta \left(\frac{Y}{Y^0}\right)$$

Where

C	=	Consumption
Y	=	Income
Y^0	=	Previous peak income
α & β	=	Parameters to be measured

By definition this equation shows that the consumption function is irreversible since the consumption to income ratio (C/Y) is higher when current income (Y) is smaller than previous peak income (Y^0) (Singh & Kumar p. 343)

Accepting the relative income hypothesis suggest that students that have worked before starting their studies should have had a higher past income than their current income. During the period they worked they would according to this theory have gotten used to a higher standard of living and a higher consumption rate. When they

started studying they should consume a higher proportion of their income than students that haven't worked before starting their studies.

2.1.3 Permanent Income Hypothesis

The permanent income hypothesis (here on referred to as the PIH) originally established by the Nobel Prize winner Milton Friedman (1957) states that a person's consumption is not based solely on what he earns but also on his expected income in the future. What this theory in its simplest form suggests is that a person that expects to earn more in the future will spend a higher percentage of his income than a person that is more insecure about future earnings.

Friedman (1957 p. 21) suggests that a person's income can be split into two parts, permanent income and transitory income. Permanent income includes education, personal qualities, profession, experience and so on, everything that affect a person's expectation of future earnings. Transitory income includes factors that are unexpected and less predictable that may affect a persons income in the short run, for example financial crises and sickness. For students such unexpected income could be working extra for a limited period, wining some money in a student competition or receiving money on their birthday.

The PIH can be explained by the following equations:

(2.1) $c_p = k(i, w, u)y_p$

(2.2) $y = y_p + y_t$

(2.3) $c = c_p + c_t$

Where

c_p	=	Permanent consumption
c_t	=	Transitory consumption
y_p	=	Permanent income
y_t	=	Transitory income
y	=	Measured income
c	=	Measured consumption
i	=	Interest rate
w	=	The ratio between human capital and income
u	=	Other factor that affect peoples willingness to consume versus save
k	=	The ratio of permanent income to permanent consumption

(Friedman 1957 p. 26, 222, 238)

The first equation describes the relationship between permanent income (y_p) and permanent consumption (c_p). It indicates that the relationship between income and consumption is independent of each other, but a fraction (k) of permanent consumption depends on interest rate (i), wealth (w) and other factors (u) that affect people's preference to either save or consume (Friedman 1957 p. 26, 222).

Equation 2.2 and 2.3 describes the relationship between permanent and transitory factors and how they together make up the measured income and consumption. These equations on their own doesn't give any significant result when tested empirically, so in order to be able to test these equations the following specification needs to be added to the hypothesis:

(2.4) $\rho y_t y_p = \rho c_t c_p = \rho y_t c_t = 0$

Where
ρ = correlation.

Since the correlation is assumed to be zero it suggest that unexpected income and unexpected consumption is independent. The implication of this assumption is that consumers save their unexpected income and it doesn't affect their consumption. This is one of Friedman's (1957 p. 26. 27, 222) main points about the PIH.

Many tests have been made over the years to test the PIH with varying result. Liviatan (1965 p. 47-48, 50) tested cross-section data from two American surveys and one Israeli survey and found empirical evidence that current income better explain consumption than permanent income do. In a quite recent paper Carrol (2001 p. 2-3) argues that the original form of the PIH created by Friedman better explains the propensity to consume than following theories. He also argues that even with today's advances in mathematics and the use of computers to analyze data the PIH is still definitely relevant.

The PIH was developed over 50 years ago on American households which is quite far from our research on students, but it still makes some interesting points that could help us in our analysis of student saving behavior. First of all the ratio between human capital and income (w in the first equation) that suggest people consume based on their future income and their non-human wealth. For students this would indicate that those who just started their studies consume less and save more than students who are at the end of their education. New students have less human capital, less knowledge from education, and they are further away from receiving an increase in income.

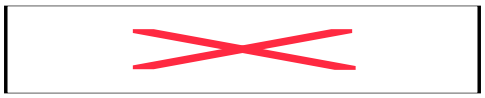
Another thing related to this is students' age, a higher age probably means more experience, which would mean a higher human capital to income ratio. Age is something Friedman (1957 p. 26) mentions as one of two important other factors (u in the first equation) that affect consumption. The other one being transitory income which could also be of relevance to our study. According to The Permanent Income Hypothesis students that receive unexpected income from for example winning a case competition, working extra for a few weeks or receiving money on their birthday should save it and not consume it.

2.1.4 Life Cycle Hypothesis

Approximately at the same time as the permanent income hypothesis was developed by Friedman, a similar hypothesis was created by another Nobel price winner Franco Modigliani and his associates called the Life Cycle Hypothesis (from now on referred to as LCH). The LCH can be divided in two parts where the first one assume that the amount saved does not depend on current income, instead it depend on a persons age and point in life. Further it's assumed that the primary reasons for saving is to manage long term variations in income that happen during a persons life, and to manage more arbitrary events that affect income and needs. (Modigliani & Brumberg 1954 p. 32)

The second part of the LCH focus on retirement and how people save during their life in order to consume and spend it when they retire (Modigliani & Brumberg 1954 p. 32), however this falls outside the scope of our research and we will focus on the first part. Modigliani (1985 p. 153) states that what proportion a consumer save and

consume, independent of age, depend on her life resources and not on current income (where life resources are present value of income and possible inheritance that have been obtained). From this he concludes that a consumers saving rate over shorter periods, such as a year, depend on how big the difference is between current income and average life resources. In equation form it can look like this:

Equation 3.1 

Where

c = Consumption
y = Income
y^e = Average expected lifetime income
a = Assets in beginning of age-period t
t = Age/time factor
N = Earning span
L = Economic life span, earning span + retirement span

(Modigliani & Brumberg 1954 p. 4)

Equation 3.1 shows the individual consumption function and the factors that determine current consumption, and it show that *"...current consumption is a linear and homogeneous function of current income, expected average income, and initial assets, with coefficients depending on the age of the household"* (Modigliani & Brumberg 1954 p. 10)[1]

Modigliani and Brumberg (1954 p. 28) emphasis the importance age has on consumption. In the case of an increase in expected income, along with an increase in current income would according to the LCH increase the life resources more for a young person than an old. This is because the young person would receive the increased income for more years than the older person, which should lead to the younger person consuming more of the increase in income than the older person would. Modigliani & Brumberg (1954 p. 30-31) argues that there are lots of motives for younger people to focus on acquiring assets that in turn can be used to acquire durable goods and used for emergencies.

In their article from 1954 Modigliani and Brumberg (p. 6) discuss motives for saving, which is a part of our purpose and highly relevant for our research. One of these motives is the precautionary motive, which suggests that consumer save to meet unforeseen expenses and drop in income. The precautionary motive is something that is also discussed by Keynes (1936 p. 126), apart from saving for emergencies he also include the desire to have capital for unexpected opportunities. In our sample of students this could be saving for emergencies like an unexpected trip home or a stolen bicycle. In the case of an unexpected opportunity it could be finding better housing or buying a whole semester worth of used course literature.

Another motive for saving is that preferred consumption doesn't match income, for example saving for a vacation. A third motive is that, because of uncertainty, a consumer requires to have some equity in order to get a loan to finance for example a house. (Modigliani and Brumberg 1954 p. 5-6). From the first October 2010 the

required down payment on houses in Sweden was raised from 10 % to 15 % of the total price. (Finansinspektionen 2010) This increase in down payment makes this motive for saving even more important, especially for most students since this increase especially affects those who haven't entered the housing market yet.

2.1.5 Risk taking and age

The LCH emphasize the importance age has on saving and how it affects the consumptions behavior. Something related to this is risk taking and age, Malkiel (2011 p. 359) argue that since younger people have a longer saving horizon they should have a bigger proportion of their savings in riskier assets such as stocks.

Malkiel (2011 p. 371-372) uses an example of Mildred, a 64 year-old widow that can't work because of arthritis and Tiffany a 26 year-old single woman that just finished her MBA at Stanford. Mildred is depending on her saving portfolio; she can't work and wouldn't be able to compensate a loss in her portfolio with income. She also doesn't have a long saving horizon, so she needs a safe portfolio. Tiffany on the other hand have a long saving horizon and she will be able to compensate losses in her portfolio with her income, so a risky portfolio with a larger proportion of stocks is better suited for her. In this case it's quite obvious that these two people have a different tolerance for risk.

It's clear why it's important to have an income to cover potential losses so you don't have to lower your standard of living just because the stock market goes down, but why is a long saving horizon an argument for greater risk? Malkiel (2011 p. 362) argues that since it's impossible to know exactly when it's the right time to enter the stock market, the risk in stocks decreases the longer you hold them. Malkiel uses the chart below (Figure 1.) to explain why.

The chart shows how a well-diversified portfolio performed between 1950 and 2009 depending on how long your saving horizon was and when you entered the stock market. For example if you had a saving horizon of one year and timed it correctly you could have earned 52,62 % in return but if you were really unlucky and bought stocks right before a major financial crisis you could have lost 37 % in one year. If you would have held the portfolio for 25 years the yearly rate of return would only vary between 7.94 % and 17.24 %, so even you were really unlucky and entered the market before a major crisis you would still get a yearly average return that is higher than investing the money in bonds. Over investment periods of 30 years stocks have outperformed bonds in 99.4 % of the periods since 1802 (Malkiel 2011 p. 364)

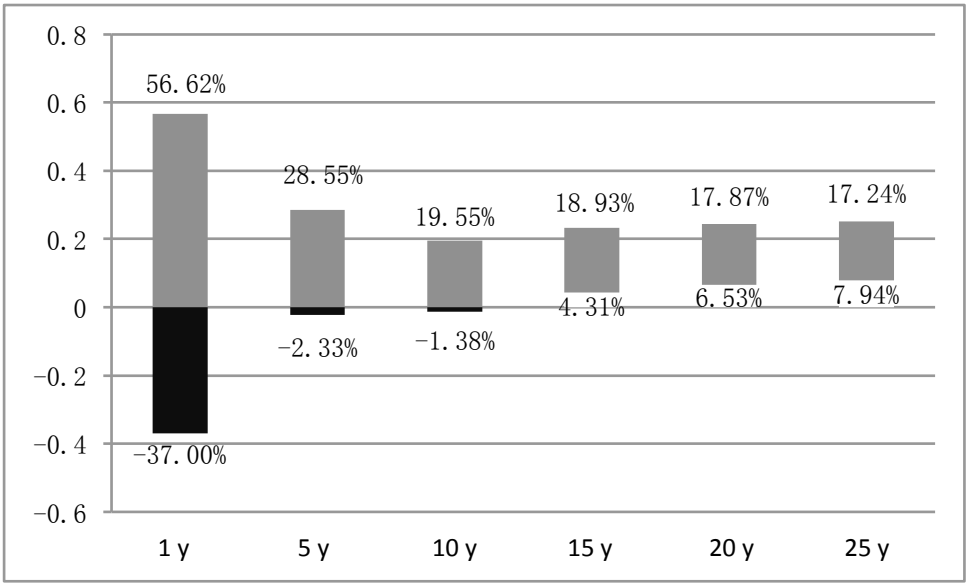


Figure 1 Range of annual return rates on common stocks for various time periods (Malkiel 2011 p. 363)

Malkiel (2011 p. 377) suggest people in their mid-twenties to have a portfolio consisting of 5 % cash, 15% bonds, 10 % real-estate and 70 % stocks, where the stock part consist of one half domestic (US) stocks and one half international stocks. These recommendations are based on American conditions, and although there are a lot of tax-differences between countries the main point that Malkiel make, that younger people should have a larger proportion of the their saving in stocks, makes as much sense in US as in Sweden.

Most students don't have much income so maybe they don't feel like they can afford to invest in stocks, or in any saving at all for that matter, however they definitely have long saving horizons.

Jagannathan & Kocherlakota (1996) does not agree that younger people should invest more in stocks than older people. They say that there are three main arguments for younger people investing more in stocks. First longer saving horizons makes stocks more suitable since they are less risky in the long run and are likely to outperform bonds. Stocks are a good way for young people to meet large expenses in midlife such as college tuition for their children. Younger people have a longer expected period of income and can thus recover from temporary down periods in the stock market. Jagannathan & Kocherlakota (1996 p. 2) argue that only the last of these three arguments make economic sense.

We will focus on the first argument since it's most relevant for Swedish students. Jagannathan & Kocherlakota (1996 p. 3) found that over 65 years (1926-1990) bonds outperformed stocks in 20 of these years, however stocks outperformed bonds in all possible consecutive 20-year periods. They continue to argue that this doesn't mean that stocks will always outperform bonds for longer periods and uses statistical models to test this. With their model the authors found that in one year the probability of stocks outperforming bonds was 60 % and over a 30-year period this percentage was 95 %. So far everything they found supports that younger people should invest more in stocks since they have longer saving horizons, however they continue to argue that this isn't true if you take in to account that household have the opportunity

to rebalance their stocks portfolio and that household are not only concerned if they suffer losses but also how big they are, and show this with the help of statistical models. (Jagannathan & Kocherlakota 1996 p. 4)

Jagannathan & Kocherlakota (1996) don't really offer any concrete arguments why stocks isn't better than bonds for longer saving horizons and the statistical models they use doesn't for example take in to account transaction costs. They also don't give any suggestion to an alternative strategy. What they basically say is that stocks may not always outperform bonds in the long run but it will most of the time, which is pretty much what Malkiel (2011) says too. We think that if even skeptics have problems finding evidence that people with longer saving horizon is better suited to choose stocks, it shows this argument's strength.

2.2 Psychological Theories

Consumption behavior is very complex and as has been showed here a lot of quite different theories have been developed on the subject, some even contradict each other. For example there is clear difference between LCH that assume people to take more or less rational and informed decisions when it comes to saving and the RIH that assume saving behavior is not rational and happen over time through habit formation. Modigliani and Brumberg (1954 p. 33) end their article about the LCH in the following way:

We would be the first to be surprised if all the implications of the theory turned out to be supported by future tests. We are confident, however, that a sufficient number will find confirmation to show that we have succeeded in isolating a major determinant of a very complex phenomenon.

Private consumption and saving is indeed a complex phenomenon and in order to find out what students attitudes and motivation towards saving are we clearly have to step out of our comfort zone of financial theories and also focus on psychological theories. Saving is a behavior and research on behavior is a major part of modern psychology.

2.2.1 Beliefs, attitudes and (saving) behavior

What affects students saving behavior, or any behavior towards an object, can be broken down to beliefs, attitudes and intentions.

Attitude is in a sense a very general concept that have been linked to everything from for example prejudice and stereotypes in discriminatory research to brand loyalty and product attributes in consumer behavior research. This has created confusion in the area of attitudes and there are a lot of different definitions. (Fishbein & Ajzen 1975 p. 1) Jung (1921) define attitude like this: "*a readiness of the psyche to act or react in a certain way*" (Jung, [1921] 1971: par 687)

In a more recent article Eagly and Chaiken (1993 p. 1) define attitude as *"a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor"*

Even if there are a lot of different definitions of attitude Fishbein & Ajzen (1975 p. 5) argue that this doesn't necessarily hurt the result. If two researchers with different definitions of attitude have the same view on the relationship between attitude and

other variables such as age, intelligence etcetera, they can be considered to agree on the meaning of attitude even though they don't agree on the definition. The definition we refer to when are talking about attitude is the one by Eagly and Chaiken (1993 p. 1)

According to Fishbein & Ajzen (1975 p. 12) belief is the information a person has about an object, and this belief links the objects to some kind of attribute. An example related to our research could be "financial investments are complicated", where "financial investments" is the object and "complicated" is the attribute. Beliefs can vary in strength depending on how strong the person feels about them. In the example used above the attribute "complicated" can be either something that is easily over come or something that feels almost impossible to overcome. It's also common to have both positive and negative beliefs about an object, so the same student could in addition have the belief that "financial investments is a good way to save", thus attitude can be seen as the sum of a persons beliefs about an object. (Fishbein & Ajzen 1975 p. 12, 14)

Behavior intentions is how a person is planning to behave in regard to an object, for us an example could be that a student intend to learn more about financial investments. Just like beliefs a person's intention to behave in a certain way can vary a lot depending on how strongly she feels about it, everything from "maybe ill learn more about financial investments if I get the time" to "tomorrow I'll go to the library to borrow books about financial investments". These intentions are affected by a person's attitude and beliefs, and all these together lead to a behavior (see figure 1), in our example this behavior could maybe be buying a book about investments or buying an equity fund. (Fishbein & Ajzen 1975 p. 12)

2.2.2 Theory of planned behavior

Theory of planned behavior is a theory of psychology which was proposed by Icek Ajzen as an extension of the Theory of Reasoned Action. Ajzen found that people do not behave of their own will all the time, yet, it is controlled somehow. Therefore, he added one new item to the Theory of Reasoned Action, which is perceived behavior control. The extent theory helps to understand how people change the way they behave and moreover, Ajzen pointed out that the human behavior is a result after thinking.

Ajzen stated that there are three factors that influence the intention and thus, affect human behavior.

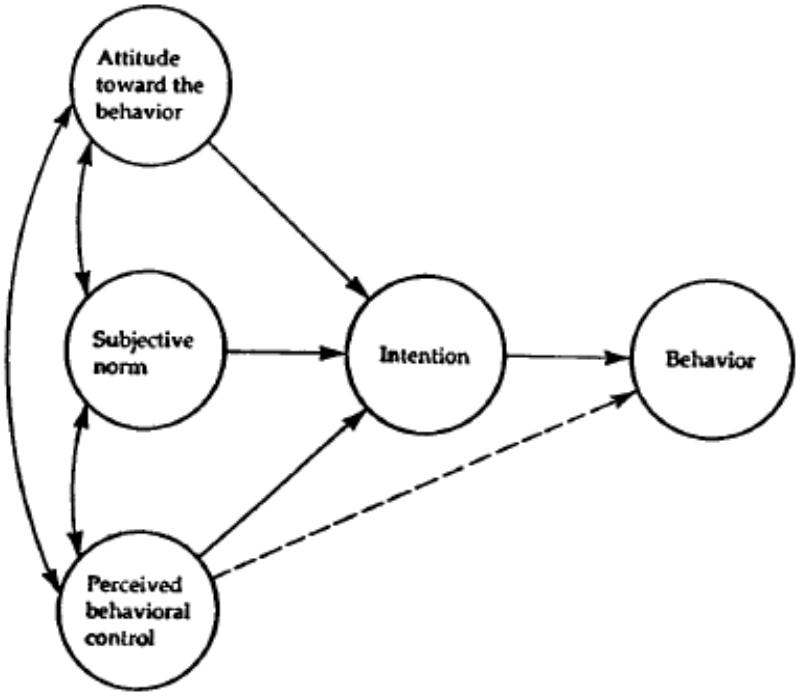


Figure 2 Theory of planned behavior, how the different factors are connected and affect each other (Ajzen 1991 p. 182)

2.2.3 Attitude toward the behavior

"It refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question." (Ajzen 1991 p. 188) Ajzen stated an equation on attitude toward the behavior as follow:

$$A \propto \sum b_i e_i$$

Where

A = Attitude
b = Beliefs
e = Outcome evaluations
(Ajzen 1991 p. 191)

This equations show that attitude towards an object is decided by the sum of each belief about this object and the personal assessment of the belief's attribute. This relationship between beliefs and attitudes has been discussed above so we continue with the next factor.

2.2.4 Subjective norm

It refers to the perceived social pressures that influence one's behavior, whether to behave in a certain way or not. According to Ajzen (1991 p. 195) subjective norm depend on normative beliefs and the motivation to behave in accordance to these beliefs. Normative beliefs are how important people in a person's life would react to

his/her behavior, would they agree or disagree with this behavior? In equation form it looks like this:

$$SN \propto \sum n_i m_i$$

Where

SN = Subjective norm
n = Normative belief
m = Motivation to comply
(Ajzen 1991 p. 195)

In our case normative beliefs for students could for example be pressure from parents that they should save money for a down payment on an apartment. The student's motivation in this case could vary depending on where she wants to live, if her parents have the possibility to help her financially and borrow her the money needed. As we mentioned before you can't get a mortgage for more than 85 % of the property's market value, this was earlier 90 %, which should give students extra motivation to act in accordance with in this example their parents. These social pressures can also be negative (relative to saving), a student may feel social pressure from friends to consume instead of save, for example take a last minute trip or to go out to eat at a restaurant. The motivation to do this kind of things with friends is most likely very high, which make them likely to occur.

Social norm as a factor affecting saving behavior is closely related to the relative income hypothesis discussed in part one of his chapter. The relative income hypotheses focus on the effect the people a person is associating with have on her saving behavior. (Turvey 1950 p. 452) The similarities between these two theories make clear that social norm is an important aspects when it comes to behavior and especially saving behavior.

2.2.5 Perceived behavioral control

It refers to how a person perceives her necessary resources and opportunities to behave in a certain way. Perceived behavioral control is determined by control beliefs and perceived power of these control beliefs. A control belief, for example how easy or hard it is to trade with stocks, can be based on a person's own experience, as well as friends and family experiences of this behavior. In equation form it looks like this

$$PBC \propto \sum p_i c_i$$

Where
PBC = Perceived behavioral control
c = Control beliefs
p = Perceived power
(Ajzen 1991 p. 195)

If a person have opportunity and feel like they have the knowledge needed to perform a particular behavior, say investing in stocks, they are likely to do so. If they on the other hand feel insecure about investing in stocks because their friends recently lost money on the stock market then they are less likely to invest in stocks. Empirical

evidence from other studies support this, Bandura et al (1977 p. 136) found evidence that show how confident a person is about successfully performing a behavior increase the likelihood of her performing it. For students this would imply that a persons belief about how hard saving in stocks is affects the likeliness of this behavior occurring. More knowledge about this would then make the task of saving in stocks easier which would make it more likely to occur. If we in our empirical study find that most students think stocks are complicated, an increase in the education on this area should according to this theory increase the amount of students saving in stocks, this is interesting since a major part of our purpose is to increase saving among students.

As seen in figure 2 all three of these factors affect intentions that in turn affect behavior. Intentions can be seen as how motivated a person is and how much effort she is willing to put down to perform a certain behavior. This is what ultimately determines if the behavior is performed or not. If there isn't enough motivation a person wont perform the behavior. There also has to be an opportunity and the person considering performing the behavior must feel it's possible, which is shown by the dotted line in figure 2. (Ajzen 1991 p. 181-182)

The theory of planned behavior is of much help to our research. We can conclude that in order to understand students saving behavior we need to find out what their attitudes and beliefs are about saving. We need to consider how social pressure may affect students' decisions when it comes to saving. Also we have to investigate students perceived behavioral control in connection to financial investments and saving.

Intention or motivation is an important part of the theory of planned behavior discussed above and to better understand students' motivation toward saving we will now further explore theories of motivation.

2.2.6 Self-determination theory

Self-determination theory (SDT) was developed by Deci & Ryan (1985) and it's a theory about how motivation affects personal development and wellbeing. SDT takes an organismic approach, which basically means that people are considered to be rational in their behavior.

An organismic theory begins with the assumption of an active organism; it assumes that human beings act on their internal and external environments to be effective and to satisfy the full range of their needs. Deci & Ryan (1985 p. 8)

These internal and external environments mentioned in the quote can also be seen as motivation to behave in a certain way. Motivation can in its most basic form be broken down in two parts, intrinsic motivation and extrinsic motivation. Intrinsic motivation is when you do something you truly want to because you are interested and think it's enjoyable; examples are play, sports and leisure activities. Extrinsic motivation is when you do something because it leads to specific outcome. (Deci & Ryan, 1985 p. 32, 35) An example could be that you read a book to learn something because you are curious and interested (intrinsic motivation), or you do it because your teacher tells you to and you don't want to suffer negative consequences that a bad result on a test may bring (extrinsic motivation).

According to Ryan & Deci (2000 p. 55-56) it's especially important to understand intrinsic and extrinsic motivation and how to use them when dealing with students and education. This thesis is not about educating students but as we seen in the theory of planned behavior motivation is an important determinant of behavior, and by finding out students motivation toward saving we hope to get a clearer picture of how saving among students can be increased.

Intrinsic motivation is something that is with us all the way from birth, it's even more noticeable in children since they have fewer responsibilities they are more playful, curious and excited to learn without the need for incentives. This is not limited to childhood but something that is an important part in a person's personal development all through life. Although this is something that comes from within it can be used to make a task more motivating by focusing on its intrinsic properties. (Ryan & Deci 2000 p. 56-57) Intrinsic motivation can be enhanced in some ways but since those students that have an intrinsic motivation to save, business students for example, probably already do so we move on to extrinsic motivation.

Extrinsic motivation can be seen as a bad way to motivate; to simply do something because you're told may not be that appealing, but Ryan & Deci (2000) argue that extrinsic motivation can vary a lot depending on how its formed. For example a student could read a book about financial investments because it will be on a test, and she doesn't want to fail on the test so she has to do it again. Or a student could read the same book because she thinks it may help her save money for that trip she always wanted. The first student is simply complying with the teacher's demand, while the second student's motivation involves a feeling of choice and a positive goal. Both students are extrinsically motivated, they do it because they want something out of it and not simply because they are interested and enjoy it. The students' reasons for reading the book differ in the level of autonomy, which is an important factor when it comes to motivation. (Ryan & Deci 2000 p. 60)

Saving is not something that is intrinsically motivating for most people so the question is how can motivate this behavior? The SDT offer an interesting point of view on this problem. Ryan & Deci (2000) focus on internalization and integration as a way of dealing with this question. The two authors argue that *"...the concept of internalization describes how one's motivation for behavior can range from amotivation or unwillingness, to passive compliance, to active personal commitment."* and continue by saying, with more internalization *"...come greater persistence, more positive self- perceptions, and better quality of engagement."* (Ryan & Deci 2000 p. 60)

Ryan & Deci (2000 p. 61) developed a sub theory to the SDT to explain this called the Organismic Integration Theory (OIT). The OIT classifies different kinds of extrinsic motivation and the factors that either endorse or get in the way of internalization and integration of a certain behavior. Figure 3 shows the different categories of extrinsic motivation, where to the far left amotivation represent a total lack of motivation to perform a behavior, and each step to the right represent a category that reflects a increase in self-determination.

Figure 3 Organismic Integration Theory, different categories of motivation (Deci & Ryan 2000 p. 61)

External regulation means that you do something to simply obtain a reward or satisfy an external demand, this kind of regulation is usually perceived by a person as being controlled. (Ryan & Deci 2000 p. 61) For example paying the electricity bill, it's not something you feel motivated to do but you have to and you get a reward in the form of electricity.

The next category is introjection where the motivation lies in doing something to avoid anxiety or to attain a reward in the form of pride or enhanced self-esteem. The motivation and pressure to perform this behavior is both internal and external. (Ryan & Deci 2000 p. 61) One example could actually be saving that can bring both a feeling of pressure and anxiety. A lot of people would probably feel anxiety if they start to run out of money several days before the 25th, on the other hand saving could give a sense of pride if you managed to save up for a new computer. This category is also related to doing something for someone else's sake, like a students saving because her parents want her too.

In the next category identification the extrinsic motivation make a person feel less controlled and more self-determined. A person recognizes the importance of a certain behavior and therefore is in line with its regulations. (Ryan & Deci 2000 p. 61) This can also easily be connected to saving, a person see the importance of saving in order to do achieve personal goals in the future like buying an apartment or taking a long trip, and therefore is motivated to save.

Integration is the last and the most self-determined category of extrinsic motivation; it's when a behaviors regulation has been completely synchronized with your internal self. This happen when you identify more and more with the positive reasons for performing a behavior and eventually it feels natural (Ryan & Deci 2000 p. 61) In the example of saving this would be when saving feels completely natural and it's something you do with ease without reflecting much about it.

In our research we will use these categories of extrinsic motivation and see how the distribution over the categories is for students at Umeå University when it comes to saving.

2.3 Theoretical summary and testing

Private saving is a complex phenomenon that many researchers have explored in an effort to determine the most important factors. We have illustrated some of these studies above, and we can conclude that although they share a lot of similarities there are also quite different. In order to test private saving among students we need to make some limitations and sum up the most important factors from these theories that are relevant for our research, and limit us to those which can be tested by a questionnaire.

Although Duesenberry (1949), Modigliani & Brumberg (1954) and Friedman (1957) focus on different factors they all agree that saving isn't only determined by income, which is something that Kutznet (1952) also found in his empirical research. This is important because it shows that students wont necessarily start saving just because they get a job when they are finished with their studies.

The three hypotheses RIH, LCH and PIH all make interesting points and they can be of great help to explain our result; however they are not easy to test. They all include

advanced mathematical models and to test them would require a massive amount of data over several years. To even test one of them would cover the span of a whole thesis. We also don't think it would be possible to choose specific parts and develop hypothesis that could be tested on students. These theories will however be of great use in the analysis of our result. For hypotheses development we focus on the psychological theories instead that we think are more suitable for testing students' saving and they are also more appropriate to test with a questionnaire.

The theory of planned behavior focus on beliefs and attitudes, subjective norm and perceived behavioral control, and how these factors affect intentions and in turn behavior. (Ajzen 1991) Self-determination theory focuses on different kinds of intention and motivation, intrinsic motivation and extrinsic motivation. Extrinsic motivation is divided in to subgroups that represent different levels of autonomy and self-determination. (Ryan & Deci 2000) What these two have in common is that they both focus on factors that affect and lead to a behavior.

In our research we will test saving behavior, however some students may work during the summer or work extra and some may not so it may be hard to compare students saving behavior. Some may save while they work during the summer, others may not work but save actively and so on. No matter if students work or not their beliefs and attitudes towards saving, along with their intentions should not be affected and can thus be compared more easily. These are factors that are interesting to analyze, because they are what ultimately lead to saving. These factors also give a deeper understanding of why students save or not, compared to just testing actual saving behavior. To test this we formulate the following hypotheses:

Hypothesis 1: A majority of students have a positive attitude towards saving.

Hypothesis 2: A majority of students have a positive motivation towards saving.

Hypothesis 3: There is a positive correlation between attitude towards saving and motivation towards saving.

We agree with Malkiel's (2011) that younger people should have a bigger proportion of their savings in stocks since they have longer saving horizons and they have longer period of expected income from working. Apart from testing attitude towards saving we will also test students' attitude towards stocks.

With these aspects in mind we formulate the following hypotheses about students' attitude towards stocks.

Hypothesis 4: A majority of students have a positive attitude towards stocks

Hypothesis 5: There is a positive relationship between attitude towards stocks and stockownership

Our questionnaire will be formed in a way to first test saving behavior, to basically see if and how students save. The main focus of the questionnaire will be on investigating students' attitudes towards saving and towards stocks, as well as motivation towards saving. To do this we will use the self-determination theory and the theory of planned behavior as a theoretical foundation.

To test differences between background variables and our result, we formulate the following hypotheses for attitude towards saving, attitude towards stocks and motivation towards saving.

H_0 = There is no difference between genders
H_1 = There is a difference between genders

H_0 = There is no difference between business students and technical energy students
H_1 = There is a difference between business students and technical energy students

Exactly how we plan to measure these factors and how the questionnaire will be shaped will be discussed in the practical method in the following chapter.

3 Method

3.1 Preconceptions

We have both studied finance on master level and have good knowledge about the financial aspects of saving. We are also both students at the end of our education and have experience in the problems and possibilities that are connected with saving and being a student. Our educational background to the area of psychology is limited to a basic course in psychology taken by one of us, however by reading a lot of research papers and books on the subject we have made up for some of the lacking educational experience.

Even if our educational background on University level is quite similar our cultural background is different, with one of the authors growing up in Sweden and the other one growing up in China our preconceptions of private saving is likely to be somewhat different. In China people are used to save money in the bank in order to use it for unforeseeable emergencies or save the money for their children. In the last ten years Chinese people have adopted some of the western ideas that it could be beneficial to put a proportion of their money into the stock markets instead of putting everything in the bank with low interest. More and more young people in China start to join the stock market. We also have different background when it comes to stocks, one of the authors have owned stocks for long time and still keeps on trading with stocks while the other one has never owned stocks.

3.1.2 Literature search

When searching for relevant research we have primarily used the databases provided by the Umeå University Library. We used Business Source Premiere, which offer full text articles from over 2100 journals covering educational fields such as marketing, finance, management and accounting (Business Source Premiere). Another database we used a lot is JSTOR, which is highly trusted and popular in the academic world with more than 1000 academic journals. (JSTOR). When searching for articles we have to the extent possible used peer-reviewed articles. We have also frequently used the reference provided in the articles to find more research, and this has guided us to other relevant articles and books. The books we have used are with few exception of academic character written by professors and experts in the field. Exceptions are course literature that we have used when creating our questionnaire.

When searching the databases we have used key words and phrases, to cover them all here wouldn't be appropriate but here follows some of them: *Private saving, Attitude towards saving, Consumption function, Theory of planned behavior, Life cycle hypotheses, Permanent income, Self determination theory, Likert scale, External motivation and etcetera.*

3.1.3 Deductive approach

There are two ways to conduct the structure of the thesis, one is deductive and the other one is inductive. The inductive approach is to observe the environment first and then analyze what it is found, then present the findings and therefore get a conclusion (or theory) of the research. On contrast, the deductive approach is to display the

theory first, and then get the observation of the study, thus, get the findings based on the theory. As for our research, we searched for information and theories related to private savings and investment, and proposed hypothesis based on the theory and what we have learnt and observed, then we will conduct a questionnaire and analyze the data so that we can test the result based on the theory. Thus, the method we applied is deductive method.

3.1.4 Epistemological considerations

Epistemology has natural science as foundation, which consists of positivism and interpretivism. Interpretivism shares a view that the subject matter of the social sciences—people and their institutions—is fundamentally different from that of the natural sciences (Bryman & Bell 2007 P17). Yet, positivism is based on natural sciences, which is the approach adopted in our research. The theories and information we used are found from academic resources and the authors did not put untested ideas into the theories. The theories applied are in order to find out if the reality and the factors we listed bring an influence on students' private savings. The reality exists objectively, since no organizations, people and social interactions affect the factors and students' responds to the factors. The researchers are value-free, objective or neutral to object of study. The questions are asked in a questionnaire and the answers are presented after statistical processing.

3.1.5 Ontological considerations

Ontology can be categorized into objectivism and constructionism. Objectivism is an ontological position that implies that social phenomena confront us as external facts that are beyond our reach or influence (Bryman & Bell 2007 P22). Our research belongs to the former while the latter suggests that individuals have the power to affect the society. We consider that the phenomena of students saving money as independent of social actors, i.e. the interviewees. We do not misjudge or translate the answers into our own consideration. The answers of the questionnaires are presented and analyzed the way it is without side influence. We believe that one single person or answer cannot affect the whole research, the result is based on a large sample of students selected randomly. No single questionnaire or answer has the impact to bring an influence of the whole private saving of students. It is the society that has the impact. Besides, each student in the survey receives the same questions on the questionnaire, and the questionnaire is strictly structured. The interviewees cannot interpret, develop or revise any questions listed. The received answers are not interpreted developed or revised either. They are independent and viewed as external facts for the researchers. There is a chance of repeatability for the results of the research.

3.1.6 Research strategy

The strategy applied in our research quantitative method. We will first collect data from our questionnaire given to students and then with the help of descriptive statistics. We will use a correlational method; we will investigate the correlation between attitude, motivation and actual saving behavior and also investigate if there is any correlation between age, gender, subject etcetera and saving.

The complete process of quantitative research has the following stages (Bryman & Bell 2007 P11):

1. Theory
2. Hypothesis
3. Research design
4. Devise measures of concepts
5. Select research site(s)
6. Select research subjects/respondents
7. Administer research instruments/collect data
8. Process data
9. Analyze data
10. Findings/conclusions
11. Write up finding/conclusions

Besides, there is a possibility to have an additional stage at the end, which is Recommendations, Reviewing theories or Creation of a new theory. Yet, this stage is often viewed as belonging to qualitative approach. As for our research, we will add recommendations for the ones who want to do a further research based on private savings after our analysis.

3.1.7 Sample and population

To recap our objective is to research students' at Umeå University saving particularly their saving behavior and their attitude and motivation towards saving. To do this we will use a questionnaire.

Our first plan was to use a stratified sample of students at Umeå University, that is, to make sure our sample have the same gender distribution as the population, as well as the same distribution over the four faculties that exist at Umeå University. Due to time constraint and difficulties of using a stratified sample of this sort we have chosen to make a cluster sampling instead where we select two large groups of students from different faculties. (Dahmström 2005 p. 262, 279) These groups are a class of 81 business students and a class of 52 students studying energy technology. This makes our sample a total of 133 students and the population business and energy technology students. Of these 133 students 51 are women and 82 are men. Since we are only researching two specific groups of students our result will only be representative for these groups and not for all students at Umeå University.

A stratified sample would make a more comparable result that would better represent all the students at Umeå University. However by focusing on two large different groups of students we can test these groups more thoroughly and compare them, how they save, their attitudes towards saving etcetera. By doing this we will hopefully find some interesting results that make other researchers explore this subject further by investigating other groups of students in different geographical areas. Student saving is something that researchers showed very little attention in the past and this thesis will hopefully make a good basis for further research.

We chose the group because of their differences, business students belong to the social science faculty and technical students belong to the science and technology faculty. Their studies are very different which are likely to affect their views on

private saving. Business education focus a lot on subjects that are connected to private saving, this is likely to affect students' attitude towards for example how difficult it is to invest in stocks. This could also be interesting from an educational point of view if business students have a more positive attitude towards saving this could mean that more education would increase private saving, it could also be that business students are more interested in economy in general and thus have more positive attitudes towards saving, this will be discussed more in the analysis.

Some critic against our choice is that both groups of students are expected to get large incomes in the future. This may affect their motivation to save money now since they will be able to assemble quite large savings rather quickly after getting a job. If we had more time, or would have planned our thesis process more effectively, we would have included another group such as teachers that have a lower expected income relative to the groups we included. Another critic against our sample is that it includes a majority of men, which will mean that their attitudes will be over represented in the result. This is simply because the groups consist of more men than women, especially the group of technical students.

3.1.8 Loss of data

The loss of variable data was very small, loss of variable data are questions that isn't answered. This is likely due to the time and effort we put down to test each statement and the questionnaire in general, and also likely because we focused on keeping the questionnaire short.

Our loss of data due to people in the sample population that didn't answer the questionnaire is also very small. A common problem in quantitative research like this one is non-response bias. Non response bias occur when the respondents for some reason doesn't want to participate in the study, and a high non response bias lower the credibility of study (Mohadjer, Bell, Waksberg 1994 p. 7). Because of our approach to ask students in classrooms we got almost no non-response bias at all since all the students in the classrooms accepted to fill in the questionnaire. This increase the credibility of our study and our result is highly representative of the groups we are researching. Even if the students in the class rooms answered our questionnaire some indirect loss of data occurred since a number of students for unknown reasons was registered for the different classes but wasn't in the class room at the time of our survey.

Some loss of data also occurred from students answering the questionnaire in a way that obviously wasn't truthful, for example only answering the middle alternative. This kind of lost data was limited to a just a few respondents.

3.2 Measuring saving behavior

An important part of the purpose of this thesis is to measure saving behavior among students, to see if students save or not. It's also important for us to have something to compare attitude and motivation to, for example to see if there is a correlation between a positive attitude towards stocks and actual stock ownership. To test students saving behavior we will start our questionnaire with a question with different statements about saving, and the student will be asked to check each alternative that is true for them (see appendix 1). This should give us a general idea if students save, and

also how they do it. We have purposely kept it general and avoided specifics about amounts and such that may be a sensitive matter not well suited for a questionnaire.

3.2.1 Measuring attitude towards saving

The task of measuring attitude is definitely a challenge, in a literature review over psychological research Fishbein & Azjen (1972 p. 492) *"...found almost 500 different operations designed to measure "attitude.""* We are however confident that by going through the process of measuring attitude step by step we will get data that we can analyze and that these data will be valid, reliable and replicable, however before discussing these criteria we will go through our questionnaire development in detail.

Ultimately all research, especially research with questionnaires, comes down to single-response measures. A single-response measure is simply an observation of a subject's response to a question, it usually involves the subject being asked to make a judgment towards something. This kind of measure involves three parts, the judgment, the response format and the concept. (Fishbein & Ajzen 1975, p. 53-54)

The format is how the question is formed and how the answer is measured. It can be presented in many different ways, everything from yes or no questions to multiple choice and putting a mark on a line between two choices. The concept is the object in which the question is referring to, in our case the concept will in some questions be saving. The judgment is what the subject answers to the question, in other words the judgment he/she puts towards the object.

A concept can be either unidimensional or multidimensional, unidimensional means a concept can be measured on a single line, for example height or weight. Multidimensional means a concept can't be successfully measured by just one single line, instead multiple dimensions is needed, an example is academic achievement that should at least be divided into verbal and mathematical achievement. To simply rate academic achievement on a line from low to high would misrepresent those who are great at math but lousy verbally. (Trochim 2006)

If saving is unidimensional or multidimensional is a complicated question, simply put you could argue that you either save more or less, but you can also be active or passive in your saving. However since we are currently focusing on measuring attitude towards saving a more important question in this context is whether attitude is unidimensional or multidimensional? Most models that measure attitude are unidimensional and it seems logical to assume that attitude towards something is somewhere between negative and positive, so we conclude that attitude is unidimensional.

3.2.2 Likert Scale

The next step is to choose a model and after evaluating different alternatives we have decided to use the Likert Scale, one of the most common and highly used methods to measure attitude. It was developed by Dr. Rensis Likert and first published in a report named "*A Technique for the Measurement of Attitudes*" in 1932. (Bertram) The Likert Scale have been developed and evolved through the years but in its usual form it asks respondents to indicate how much they agree or disagree with a statement. Usually a five-point scale is used with these alternative answers: *Strongly Disagree, Disagree,*

Neither, Agree, Strongly Agree. Each alternative is assigned a number for coding purposes, for example 1-5, where strongly disagree is 1 and so on. (Bertram). Scales can consist of more than 5 answering alternative (7, 9 or even 11 sometimes), this is to give an increase in differentiation. For our study we have chosen to use a 5-scale model, since we think it's enough for the extent of our research.

It's also quite common to use an even number of alternatives eliminating the neutral one and forcing the respondent to either agree or disagree with the statement. Lietz (2009 p. 261-262) points to research that show how an even amount of answering alternatives, opposite to some beliefs, actually give less validity and reliability. One argument for an even number of alternatives is the so called "satisfying hypothesis" that unmotivated respondents would think it was easier just to choose "neither" instead of pick an alternative for or against a statement, however empirical evidence favor the uneven number of answer so this is what we will use in our research.

The Likert Scale is an ordinal scale, which means the answers can be categorized to a hierarchical order, but the absolute difference between answers can't be measured. (Shiu, Hair, Bush, Ortinau 2009 p. 392) For example strongly agree doesn't mean that you agree twice as much as if you answer agree, and also a mean can't be used correctly since an average of 4.5 would then be "agree and a half" which definitely isn't a valid measure. (Kuzon, Urbanchek, McCabe 1996 p. 266)

Ajzen (1975 p. 108) states that Likert Scale's, among other attitude scales, have been empirically tested by several researchers and showed high reliability. The Likert Scale is one of the most popular scales to use when testing attitude because of its user and respondent friendly qualities, but as any research method it has its limitations. Shiu et al. (2009 p. 422) argue that the Likert Scale doesn't measure people's complete attitude. What the Likert Scale really measures is cognitive components of people's attitude and thus only part of their attitude. They continue to argue that the Likert Scale miss out on important behavioral components of people's attitude. We are aware of this limitations and we will also apart from students attitude research their behavior and motivation and hopefully capture some of the components that the Likert Scale miss.

The first step in using a Likert Scale is to generate a large numbers of statements (50 - 100) about saving that can reflect one's attitude. Examples of statements towards saving could be: "Saving is time consuming" and "Saving is a way of reaching future goals". The next step is to classify each statement as either "favorable" or "unfavorable" towards saving. In the coding favorable statements are given 5 for strongly agree and 1 for strongly disagree, and for unfavorable statements the coding is reversed, strongly disagree is given a 5 etcetera. (Shiu et al. 2009 p. 422) In our example the first statement that saving is time consuming is unfavorable and the second one about reaching future goals is favorable. This process of making a group of statements about saving is consistent with The Theory of Planned Behavior and Ajzen's (1991 p. 191) explanation of attitudes as being the sum of person's beliefs about an object. Each statement in the Likert Scale is describing a belief about saving, and by summing up a person's positive and negative beliefs we get an idea of their attitude towards saving.

When the researched have been done and the data is collected you sum the numbers from each respondents answers and this total sum will give an idea of their attitude towards saving. We will have 8 questions about attitude towards saving so the total sum can range from 8 to 40 where a high number (above 24) would indicate a positive attitude towards saving and a low number (below 24) would indicate a negative attitude toward saving.

3.2.3 Creating the Likert Scale

To create the Likert Scale for our questionaire we used a group of six judges. First we (the authors) created 64 statements, 20 about attitude towards saving, 21 about attitude towards stocks and 23 about motivation towards saving. Then we had the group of judges consisting of three male and three female students rating each statement on a 5-point scale as being favorable or unfavorable towards the concept (the concepts being saving, stocks and motivation). The scale had the following answering alternative: *Strongly unfavorable, Unfavorable, Undecided, Favorable and Strongly favorable.* Each alternative was given a number from 1 (strongly unfavorable) to 5 (strongly favorable) and for each statement we summed the score from each judge and got a result between 6 and 30. We then selected those statements with the highest and lowest scores, since they represent statements that are clearly favorable or unfavorable towards the concept, and used them in our final questionnaire (see appendix 1). Those statements with low scores will be reversed when coding, that is answering for example "strongly disagree" to "saving is boring" would yield a 5 while answering "strongly disagree" to "saving is fun" would yield a 1. The final questionnaire has also been tested on a small group of eight students to make sure it's clear and easy to understand.

3.2.4 The final statements

Our Likert Scale starts with eight questions testing students' attitude towards saving. (See table 1 below) Individually questions in a Likert Scale aren't valid enough to be analyzed. Just because a student strongly disagree that saving is boring doesn't mean she has a positive attitude towards saving. In order to analyze these questions we will first sum the answers to all eight questions as mentioned before, but we will also use sub scales to investigate related statements. Out of these eight questions we will create two subscales that are likely to show high correlation.

The first subscale will consist of questions 1, 4 and 6, these statements where specifically designed to reflect students' attitude to rather consume now and save later when they have a job. The second subscale will consist of questions 2, 3, 5 and 8 and they are supposed to test a more general attitude towards saving.

1. I can't afford to save.
2. Saving is time consuming.
3. Saving is fun.
4. I would save more if I had a bigger income.
5. I don't need to save
6. I rather consume now than in the future
7. Saving is a way to reach my goals.
8. Saving is boring.

Table 1, Questions in our Likert Scale designed to test attitude towards saving

3.2.5 Attitude towards stocks

Apart from researching students' attitudes towards saving we will also research their attitude towards stocks. This is because stocks are suitable for young people with long saving horizons and a long career in front of them**.** Attitude towards stocks will be tested in the same way as attitude towards saving only the concept will change from saving to stocks.

Attitude towards stocks will be tested by five questions (see table 2 below). We will sum the result from these question and we wont use any subscales for this part. These questions are designed to capture the riskiness of stocks as well as students general attitude towards stocks as a way to save money. Question 11 is also designed to capture perceived behavior control, which is part of the theory of planned behavior discussed in the theoretical framework. We don't feel that it's possible to separate general attitude towards stocks with riskiness towards stock and that's why we won't use any subscales here.

9. Stocks are a good way for me to save money.
10. Stocks are too risky for me.
11. It's complicated to buy and sell stocks.
12. It is/seems exciting to invest in stocks.
13. Stocks are a good choice for long term saving.

Table 2 Questions in our Likert Scaled designed to measure attitude towards saving

3.2.6 Testing Motivation

In our Likert Scale part of our questionnaire there will also be questions testing students motivation towards saving. As mentioned in the theoretical framework we will use the self-determination theory as a foundation to our research. As far as we know this theory have never been used to test motivation towards saving, however a scale to test academic motivation among students have been developed based on the self-determination theory called The Academic Motivation Scale (here on referred to as AMS). AMS was developed in France by Vallerand, Pelletier, Blais, Brière, Senécal and Vallières (1992) and it showed promising result from the beginning. It has been recently evaluated by Fairchild, Horst, Finney and Barron (2005) and it future some methodological aspects that we can use in our research. The AMS consists of a 28 items scale with seven sub scales, where the sub scales test amotivation, three types of external motivation and three types of internal motivation.

(They have expanded Ryan & Deci's (2000) categories with three different types of intrinsic motivation)

We will take a slightly different approach, we will focus on the four kinds of external motivation by Ryan & Deci (2000) discussed in the theoretical framework, external motivation, introjection, identification and integration (also see figure 2) and create a subscale for each of them consisting of three items each.

This means that we will not include amotivation. This is simply because we think that very few students would fall under this category and if we are wrong in whit this assumption it should be clear from the result anyway, hypothetically a student that is amotivated to save should strongly disagree with all statements that reflect motivation towards saving. With the same argument we also exclude the other extreme intrinsic motivation. The last category of external motivation, integration, is also very close to intrinsic motivation. Another reason for these limitations is that we want to keep the questionnaire as short as possible so that the students responding to it stays motivated and take the time to answer all the questions.

Below in table 3 you can see the questions in our Likert Scale that is designed to measure students' motivation to save.

14. I follow financial news on TV and/or in magazines.
15. I save only because I have to
16. Saving is something I enjoy to do
17. I would feel a sense of pride if I had more money than usual left at the end of the month
18. By learning more about saving I would be more successful in my saving
19. Saving is something that feels like a natural part of my everyday life
20. I feel social pressure to save
21. By learning more about saving I would save more.
22. I save money for a reward in the future, like a trip or a new computer.
23. My parents want me to save

Table 3 Questions in our Likert Scaled designed to measure motivation towards saving

External motivation is doing something for a reward or to avoid something negative (Figure 3), this is represented by question 15 and 22. Question 22 is self-explanatory and saving only because you have to suggest that the student save only to comply with some external demand, she is not really motivated but saves anyway.

Introjection is characterized by doing something to get approval from your self and others (Figure 3). Introjection is covered by questions 17, 20 and 23. If a student agree to feeling a sense of pride if she have more money than usual at the end of the month suggest that the student save for approval from her self. Question 20 and 23 represent external pressure from others, these questions are also chosen to represent the subjective norm category from the theory of planned behavior. As stated before Ajzen (1991) suggest that a person's motivation and attitude is affected by how important people in her life approve or disapprove with her action.

Identification is signified by a person recognizing the importance of in this case saving and is then motivated in a more self-determined way (Figure 3). This will be tested by questions that reflect students will to learn more about saving, these questions are 14, 18 and 21.

The last category intergration, which is the most self-determined type of external motivation, will be tested by questions 16 and 19. Intergation suggests that you indentify so much with positive aspects of a behavior that it starts to feel natural. If a student agrees with both enjoying saving and that saving feels like a natural part of their everyday life suggest that they fall under this category.

3.3 Quality criteria

To test the quality of the research, there are several criteria applied which are reliability, validity and replication or reproducibility.

3.1 Reliability

Reliability refers to whether the work is repeatable. It is used to test if the measures that are devised for concepts in business and management such as organizational effectiveness have consistency over period of time. It is mentioned by Bryman & Bell (2007) that reliability is particularly applied when quantitative research is the method since the researchers are more interested in testing the stableness of the measure (Bryman & Bell 2007 P40). We highly believe that our research is replicateable and the results are reliable. The research is done by steps according to the research strategies and the samples are randomly but averagely proportioned chosen within each department of Umea University. If one would choose to conduct the research again within Umea University, the result should be yield to the same. Yet, if the policies were to change in the future about the amount of student loan or the provider of the student loan, or other changes that related to students' allowance, the result might be different given that the conditions are different.

We will test the internal reliability of our questionnaire by using Cronbach's alpha, which is an estimate of how closely related the tested items are as group. The test give a number between 0 and 1 and a group of items can seen as reliable when above at least 0.7 (Christmann & Aelst 2005) Cronbach's alpha can be defined like this:

$$\alpha = \frac{N \cdot \bar{c}}{1 + (N-1) \cdot \bar{c}}$$

Where N is number of items and $\bar{c}$ is the average correlation between items. A higher number of items would equal a higher α and so would a high correlation between items (Small and Grey 2006). Gliem & Gliem (2003 p. 83, 88) argues that a very common mistake when using a Likert Scale is to test internal reliability using Cronbach's alpha but then analyze individual items. The reliability is connected with the summated scales and subscales and the concept should only be analyzed from these scales and not individual items.

Statements are very closely related to beliefs discussed in the theory of planned behavior. Several beliefs make up an attitude and the same basic idea is behind using several statements to measure attitude. Fishbein and Ajzen (1975 p. 12, 14) states that it's common to have both negative and positive beliefs about an object. This suggest that a correlation between items may not be a good measure of reliability because a low correlation could just reflect peoples different beliefs. Correlation between items is a positive thing however a scale with low Cronbach alpha could also be a good measure of the object.

3.2 Validity

As for the other criterion, validity, it is concerned to be the most important criterion to test the quality of a research. It refers to whether the measured result of the study can reflect or be connected to the content of the research (Bryman & Bell 2007 P41). One is supposed to apply certain suitable measures to test the results and the results should be displayed with valid measures so that the research can be considered to be accurate. To test the validity of our questionnaire, we conduct the face validity method. Face validity, which refers to validity tested by other people by discussions, especially the ones who are in the field of a certain study or the ones with experiences. They can judge whether the measures are good for the targeted study and provide with suggestions to improve (Bryman & Bell 2007 P41). We asked eight people within the university who have conducted questionnaires for opinions, and it was tested that our questionnaire is suitable for the purpose of our research. Therefore, we high believe in the validity of our research.

Attitude and motivation are especially hard to measure sine they are intangible thought patterns that are hard to break down in numbers, unlike for example behavior that is something you either do or don't do. Apart from face validity we will also demonstrate that our scale has convergent validity, that is show the scale's relatedness to other measurements that should affect the same variable. (DeCoster 2000 p. 8) For example show correlation between variable such as high attitude and high motivation towards saving. Correlation will be tested by using Spearman correlation test and Pearson correlation test.

3.3 Replication

Another important quality criterion is replication. It is closed related to reliability and can also be called external reliability. Sometimes researchers choose to replicate some works done before. Thus, it is important for them to find a way to conduct the research again. It highly requires that the previous work is replicable (Bryman & Bell 2007 P41). In order to make our research as replicable as possible we have thoroughly described each step of the process and explained every decision and assumption that affect the end result.

One disadvantage with the Likert Scale and any scale measuring attitude and motivations is its lack of replicability due to some subjective steps that needs to be made in the creation of the scale. The most significant step that affect replicability is choosing which statements to include in the questionnaire and rating them favorable or unfavorable, a different set of judges may give a different outcome. Our research is replicable in the sense that if you use the same statements to test students at Umeå University you should get a similar result unless of course any other variables change that affect students' attitudes etcetera.

4 Result and analysis

4.1 Saving Behavior

Population	Total	Males	Female	Business.	Energy.
Number of students	**133**	82	51	75	58
Percentage of students	**100 %**	61,7 %	38,3 %	56,4 %	43,6 %

Table 4 Descriptive statistic over our population

Our first part of the questionnaire focused on student saving behavior where our goal was to see if and how students save. The result showed that a large majority of the students had at least some kind of savings and only 2.3 % of the students asked said that they don't save.

Below in table 5 the percentage of students who answered that the following statements are true when it comes to their savings is presented. The respondents could check more than one alternative. (Business. is business students and Energy. is Technical Energy students.) Numbers are in percentage, numbers marked with * signify that there are no statistically significant differences within the groups gender and class.[1]

Statements	Total	Males	Female	Business.	Energy.
I own stocks	**42,9**	47,7	35,3	52,0	47,3
I have bought stocks in the last 6 months	**18,0**	27,6	5,9	21,8	12,7
I own funds	**70,7**	68,3	74,5	61,5	65,4
I have bought funds in the last 6 months	**18,0**	26,8	3,9	23,1	10,9
I have savings in my bank account	**96,2**	96,3*	96,1*	96,0*	96,4*
I don't save	**2,30**	**	**	**	**

Table 5 Percentage of students who own stocks and funds etcetera.

In the table we can see that the percentage of students who own stocks and funds are quite high, 42,9 % and 70,7 % respectively. Comparing these numbers to those mentioned in the problem background, that 27 % below 25 owns stocks and that 59 % below 25 own funds (Finansinspektionen 2010 ppt), it's clear that they are very high. This may be because business students own more stocks and funds than average people under 25. It's apparent from table 1 that business students save more in stocks than technical energy students, however the number of students who own funds in the two different groups only differ by a few percentage points and energy students actually own a higher percentage of funds than business students. To get a more

[1] Numbers marked with ** are so small that the respondents anonymity may be compromised if they are written out.

nuanced picture of students saving behavior we added the questions if they bought stocks or funds in the last 6 months and both these numbers are 18 %. We can see that more men and more business students have bought both stocks and funds in the last six months which suggest that they are more active in their saving.

Looking at differences between genders we see that a higher percentage of men than women own stocks, 47,7 % of men compared to 35,3 % of women. In the case of funds this relationship is reversed, 68,3 % of men and 74,5 % of women own funds. A lot more men than women have bought stocks and/or funds in the last 6 months. This result might suggest that women are more risk averse than men, since stocks are considered to be riskier than funds.

In table 5 we didn't include the two statements concerning other financial instruments that were part of the saving behavior questions. This is because very few students had other financial instruments.

It's surprising to see that so many students in our study own stocks and funds, and to see that only 2,3 % answered that they don't save at all is very positive. One explanation, based on Duesenberry's (1949) relative income hypothesis, to why so few answered that they don't save can be that students mainly associate with other students in the same situation. The relative income hypothesis state that consumption is not based on your own current income but on the consumption of those you associate with. Most students have a very similar income and this is likely to make students to have similar interests and perform activities with friends that are not that expensive. By associating with other students they are keeping the costs down and are able to save with out giving up anything socially. An opposite example would be if a student has mostly friends that were working. Friends that several times a month go out to nice restaurants. Then the student would have to give up a social activity in this case having dinner with her friends several times a month or to give up saving, because several visits at nice restaurants is not possible on a normal student budget.

Another hypothesis discussed in the theoretical framework was the permanent income hypothesis developed by Fridman (1957), it suggest that an important determinant of consumption is expected income. If someone is expected to earn more in the future they will consume more now. This is the case for all students and especially for the two groups in our study. Most business students will get a MBA and when they are finished with their studies they are expected to receive a high income relative to most students. The students studying technical energy will likely become civil engineers and are expected to get an even higher income than business students. This should according to the permanent income hypothesis mean that the students in our group consume more and save less than average students. Modiliani's (1985 p. 153) also state a similar thing in the life cycle hypothesis that people consume based on life resources and not on current income. The students in our group are expected to get a well paid job and work for a long time which make there expected life resources high relative to average students which also supports that the students in our group should save less than other students.

Our result over all is a lot more positive than we expected it to be and to think that it would be even more positive for students in general doesn't seem that likely but only further research can answer this question.

4.2 Likert Scale

Our Likert Scale consisted of 23 questions testing attitude towards saving, attitude towards stocks and motivation towards saving. The result is showing a positive attitude and motivation towards saving, and it shows some interesting and quite unexpected aspects of students saving. Due to lack of reliability in some scales we had to modify them by removing some questions.

4.3 Attitude towards saving

Attitude towards saving was supposed to be tested by 8 statements. With a Cronbach's alpha of 0,61 this scale isn't a reliable measure of attitude towards saving. As discussed in the method chapter Cronbach's alpha measures the correlation between the individual items in the scale, and a high correlation means that the statements measure the same thing, in this case attitude towards saving. In order to get a Cronbach's alpha above 0,7 we removed those items with the lowest correlation. We removed *I cant afford to save, I don't need to save* and *Saving is time consuming.* The reason these questions weren't correlated with the rest may be because they don't reflect attitude in a good way. From the result it looks like no matter what attitude towards saving students have most students still disagree with the statement *I don't need to save,* which make it a bad statement for measuring attitude.

When we removed these three questions we got a Cronbach's alpha of 0,72 for the scale with the five remaining questions, and this is enough to consider the scale a reliable measure of attitude towards saving. In figure 6 below you can see the result.

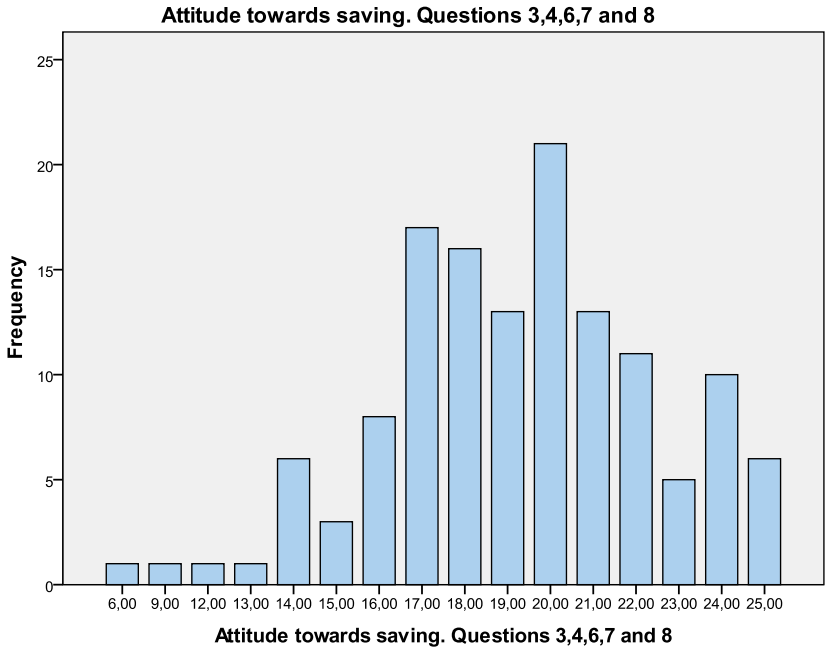


Figure 4 Result from the part of Likert Scale designed to measure attitude towards saving

The mean for all students in our test is 19,26 and the median is 19. Our modified scale has five questions, which give a potential range between 5 and 25 where 15 can bee seen as a neutral attitude towards saving, a number below 15 as negative and a number above 15 as positive. Since the mean is 19,26 this shows that a majority of the

students in our sample have a positive attitude towards saving. This is also very clear when looking at figure 6, most students 84,2 % have a summed score that is equivalent to a positive attitude towards saving, a score above 15, and only 7,5 % students have a negative attitude towards saving. We previously formulated the following hypothesis.

Hypothesis 1: A majority of students have a positive attitude towards saving.

With a statistical significance of 0,00 we can confirm this hypothesis, and conclude that students in our study have a positive attitude towards saving. A T-test (see appendix 3) for our study show that we can say with 95 % confidence interval that the mean is between 18,7 and 19,8 which is a lot more than 15 and it's therefore comparable to a positive attitude towards saving.

If we look how attitude towards saving is distributed between genders (Figure 5) we see that male students result are peaking earlier than female students, which suggest that women are more positive towards saving than men.

To test if there is any difference between women and men's attitude towards saving we have performed a T-test for equalities of the mean between genders. We can confirm that there are no significant equality between women and men. A significance of 0,12 is not within the 95 % confidence interval we use and we can there by reject the null hypothesis:

H_0 = There is no difference between genders

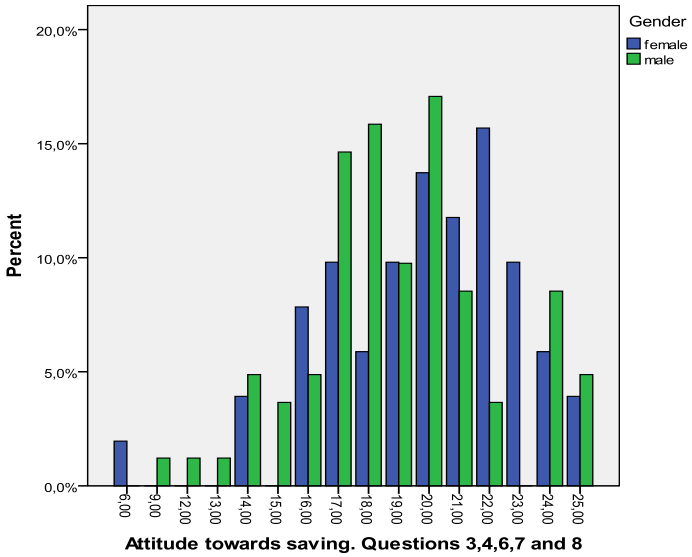


Figure 5 Attitude towards saving distributed between genders

Between the two classes we tested, attitude towards saving seem to vary a bit. The most significant difference between the two groups is that business students are dominating in the two highest ranges of numbers 23-25, while technical energy students are a majority in the 20 and 21 range. This can also be seen in the mean between the two groups, business students have a mean of 19,5 while technical energy students have a mean of 19,0.

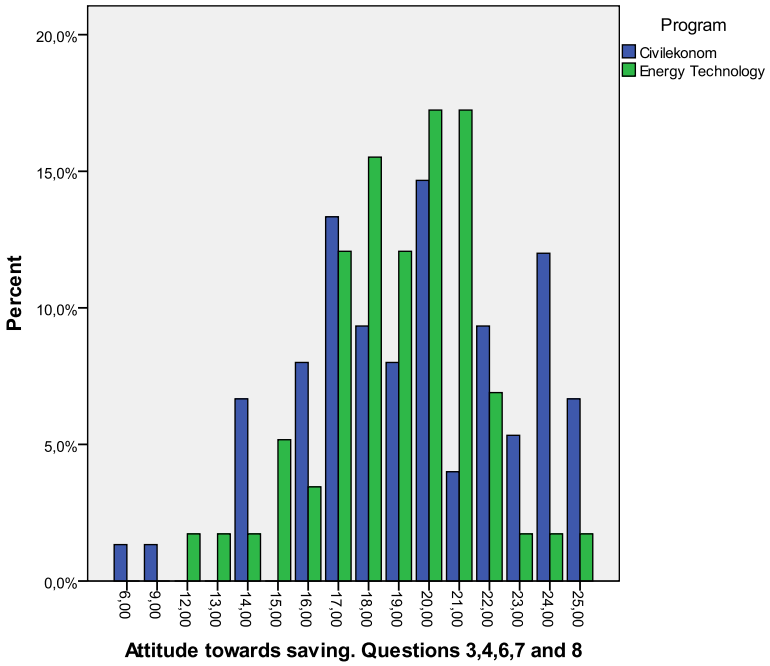


Figure 6 Attitude towards stocks distributed between business students and technological students

Our T-test (appendix 3) for equalities between the two different groups confirm that there is no significant equality between the groups, with a significance number of 0,37 it's not within the 95 % confidence interval and we can reject the null hypothesis and conclude that there is a difference.

> *H_0 = There is no difference between business students and technical energy students*

We stated in the method that we were going to use two subscales to test different aspects of attitudes towards saving, but these are not reliable enough to be analyzed so we have decided to discard them.

The result show that the students in our test don't just have a positive attitude towards saving, it shows that as much as 90,2 %. do This is a far bigger percentage than we expected to see. It's very positive to see that so many have a positive attitude towards saving, although it makes you question if the result is too big to be reliable?

If we look at the individual statements that make up the attitude we see that *I would save more if I had a bigger income* is the statement that students answered in the most positive way to. It has a mean of 4,61, median of 5 and a Mode 5. This kind of result isn't surprising when researching students since they are expected to get a higher income later so the result is most likely reliable, the question is if this is a good statement to measure attitude? The answer is no. It doesn't reflect a person's attitude towards saving, no matter if you have a positive or negative attitude towards saving you may still agree that you would save more if you had a bigger income. Another thing is that it's hard to know if it's a positive or negative thing to agree with this statement, in our scale we coded it as a good thing, but it could reflect a negative attitude towards saving if you feel that you need more money to be able to save at all. Even if it's not a good measure of attitude it is a very interesting question that reflect aspects that were discussed in the theoretical framework in the permanent income

hypothesis and the life cycle hypothesis that people consume based on their expected income and there point in life.

Removing this item gives a Cronbach's alpha of 0,7 so it's still just within our range. With only four items min is 4, max is 20 and the middle is 12. The result showed a statistically significant mean of 14,7 which is equivalent with students in our study at average having a positive attitude towards saving. By dividing the two means with the number of statements, so we can compare them, we get 3,67 for the scale with four items and 3,85 for the scale with five items. This shows that removing the question lowers the mean and thus the students' attitude towards saving. With the scale consisting of five statements 90,2 % of the students have a positive attitude towards saving and with the fourstatement scale 81,2 % of the students have a positive attitude towards saving. With the discussion in the previous paragraph in mind we think the four item scale is a better measurement, and that 81,2 % is the number that represent the proportion of students in our study that have a positive attitude towards saving.

We can see in the result that women have a more positive attitude towards saving than men. It's relatively small difference even if it's statistically significant, it could possibly reflect that women are more risk averse than men and thus have a more positive attitude towards saving, another argument for this is that more men than women in our study are owning stocks, while more women than men are owning funds as seen in table 4. Since stocks are considered more risky than funds this further support that women in our study may be more risk averse than the men.

If we look at the differences between the two groups we see that business students have a more positive attitude towards saving than technical energy students. From the result we observed that business students dominated the highest numbers, which suggest that more business students have a very positive attitude towards saving. This isn't that surprising since some business students are likely to work with private saving in banks and other financial institutions while this is more unlikely among technical energy students. This result that business students have a more positive attitude than technical energy students could also explain why women have a more positive attitude than men since most of the women in our study are business students.

4.4 Attitude towards stocks

A scale consisting of 5 questions tested attitude towards stocks. This scale showed a Cronbach's alpha of 0,783, which is the highest of all our scales. This means that our scale is a reliable measure of attitude toward stocks. The result is showed in figure 7.

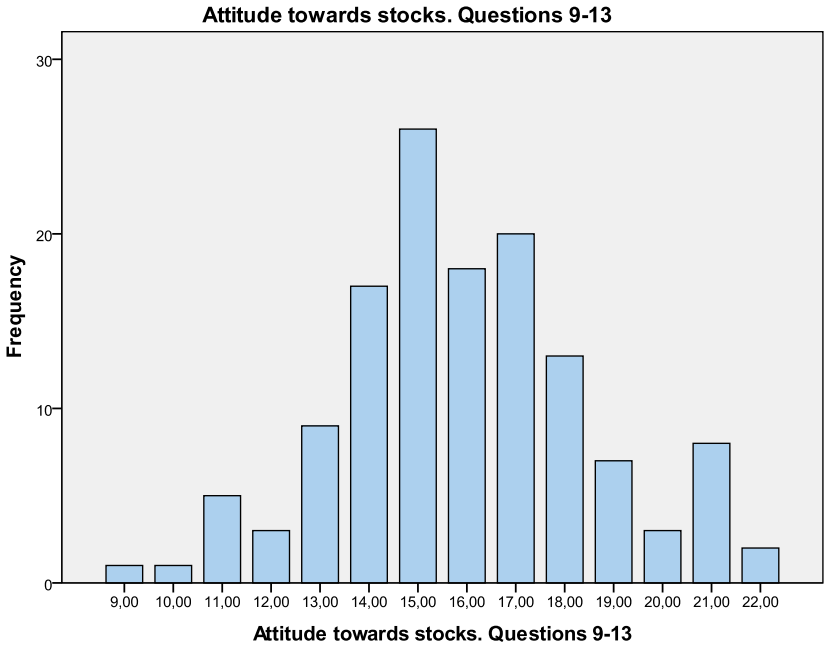


Figure 7 Result from the part of the Likert Scale designed to measure attitude towards stocks

With 5 questions the result for each respondent can vary from 5 to 25. The mean is 15,95 and the median is 16, this suggest a slightly positive attitude towards stocks among the students in our sample. We formulated a hypothesis to test attitude towards stocks.

Hypothesis 4: A majority of students have a positive attitude towards stocks

Even though attitude is only slightly positive it's still statistically significant. With a 95 % confidence interval the mean is between 15,5 and 16,4 (appendix 3). Even if it's by just half a percentage point it's still over 15 and we can accept hypothesis four that a majority of students in our study have a positive attitude towards stocks.

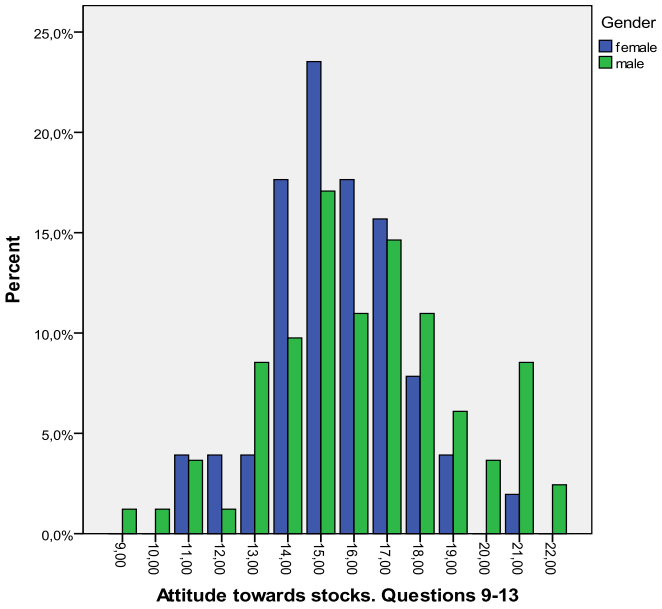


Figure 8 Attitude towards stocks distributed between genders

In figure 8 it's visible that men have a slightly more positive attitude towards stocks than women, it's especially clear in the most extreme values above 20. This can also be seen in the mean for the two variables, male 16,3 and female 15,5. This is also confirmed with our T-test, with a 95 % confidence interval there is no significant equality between the women and men, and we can reject the null hypothesis. [2]

A similar bar chart over differences between programs (figure 9) show that attitude towards stocks vary very little between students studying business and students that study technical energy. Our T-test show with a significance number of 0,02 that we can accept the null hypothesis with a confidence interval of 95 %, and this confirm that there is significant equality in the means between business students and technical energy students when it comes to attitude towards stocks.

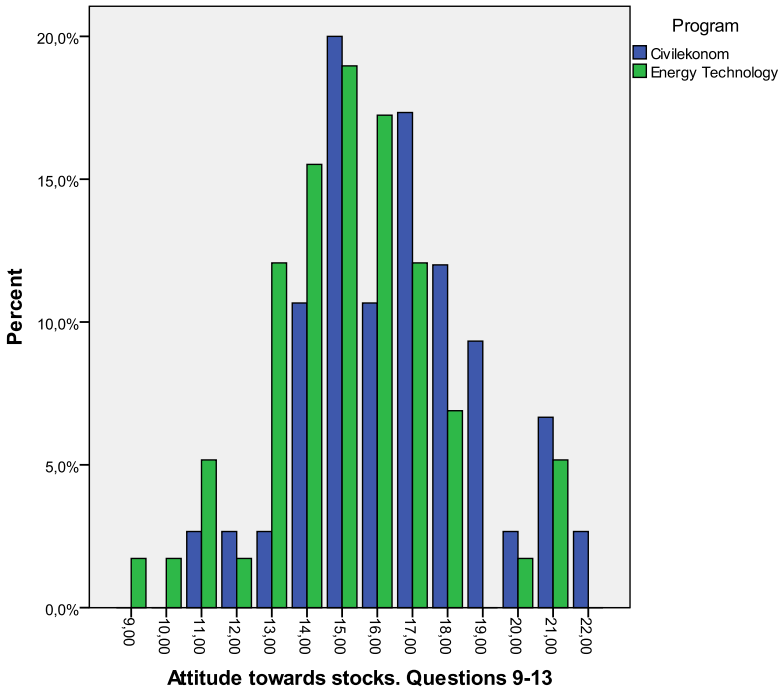


Figure 9 Attitude towards stocks distributed between business students and technological students.

By measuring the correlation between attitude towards stocks and actual stockownership we have tested to see if there is a significant relationship. This will let us now if can accept or reject the following hypothesis.

> *Hypothesis 5: There is a positive relationship between attitude towards stocks and stockownership*

We tested the correlation by both performing a Spearman correlation test as well as a Pearson correlation test. The result shows that at a confidence level of 0,01 there is a positive correlation between attitude towards stocks and stock ownership with both tests. The Pearson test showed a correlation of 0.362 and the Spearman test showed a correlation of 0,311. We can thereby accept hypothesis 5, and state that there is a positive relationship between attitude towards stocks and stockownership in our study.

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[2] It's worth noticing that with a confidence interval of 90 % there is significant equality between the men and women's mean, the significance number was 0,09 (appendix 3)

From the result we see that among the students we tested there is a slightly positive attitude towards stocks, men have a more positive attitude towards stocks than women especially in the extreme values and there were almost no difference between business students and technical energy students.

In the part Risk taking and age we described Malkiel's (2011) arguments why younger people should have a large portion of riskier assets in their saving portfolio. The arguments and evidence Malkiel (2011) presents are highly logical and we are of the same opinion that younger people should have at least a portion of their saving in stocks. To see that the overall attitude towards stocks in our study is positive, even so slightly, is very positive, even more so when we look at the actual stock ownership of 42,9 %.

It's interesting to see that there is a difference between men and women's attitude towards stocks, as well as actual stock ownership. 47,7 % of men and 35,3 % of women answered that they own stocks, this is a quite significant difference. However this is not surprising and if we compare it to distribution of total stock ownership in Sweden presented in the graph below we can see that our result is similar to that of the total numbers.

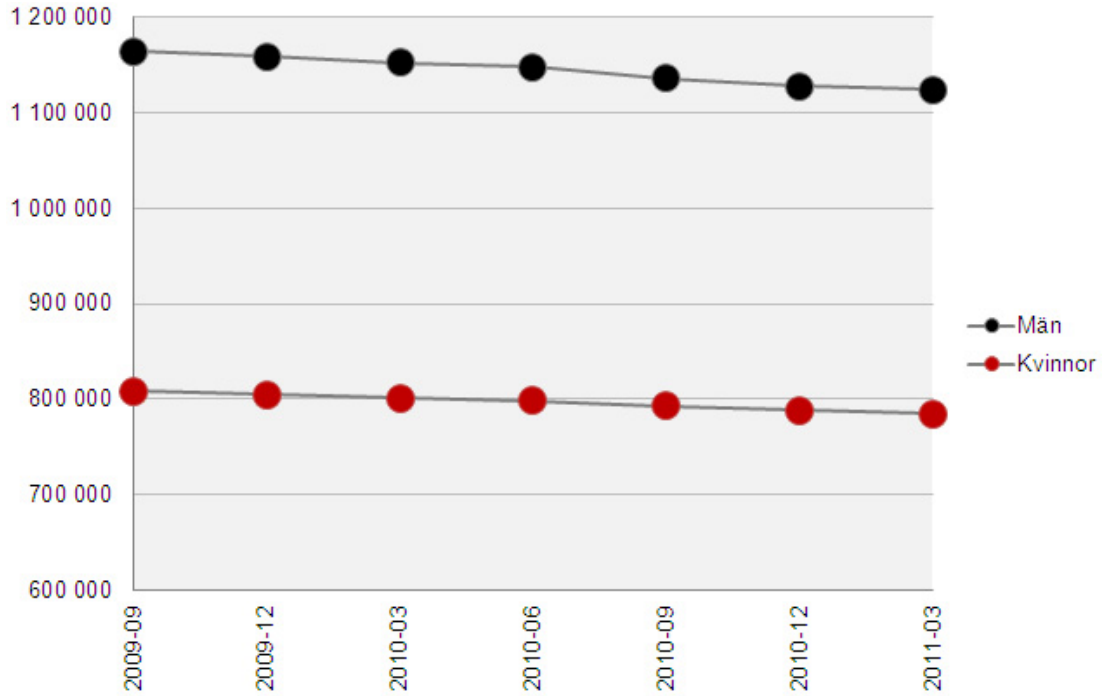

Figure 10 Number of stockowners in Sweden distributed between women and men (Euroclear) black=men red=women

In figure 15 we can see that in Sweden there is about 800 000 female stock owners and about 1 100 000 male stock owners, in percentage this is 42,1 % women and 57,9 % men. By calculating the same percentages from table 4 we get a very similar result 42,5 % of women and 57,5 % men are stockowners. So the distribution between genders when it comes to stockownership is the same in our small group as in Sweden, but why are more men than women owning stocks? We can see that men have a slightly more positive attitude towards stocks than women, which could be one explanation. This together with the fact that a higher percentage of women than men

in our sample are owning funds (74,5 % women 68,3 % men) suggest that women are more risk averse than men.

This is also supported by question 10 *Stocks are too risky for me* 50,0 % of men answered disagree or strongly disagree to question 10, while only 31,4 % of the women answered that they disagree to some extent to this question.[3]

Another quite surprising result is that there is almost no difference at all between the two classes we tested when it comes to attitude towards stocks. We expected to see a much more positive attitude among business students since they have chosen to study something that is closely related to stocks. One explanation for this lack of difference between the groups could be that a large majority of technical energy students are men while only a slight majority of business students are men, and since we established in discussion above that men have a more positive attitude towards stocks this could affect the result.

Even if the result are more positive than we would have thought there is still a lot of students that have a negative attitude towards stocks and don't own any.

It's also positive to see that 70,7 % of students own funds. Although the percentage of who bought funds in the last 6 months is only 18 %, the same goes for students who bought stocks in the last 6 month. It's possible that in the majority of cases it could be parents buying their children funds and stocks. This is discussed in the problem background where we present statistics from Euroclear (2011) that 4 % of stockholders in Sweden are below 5 years old. These numbers support that a large numbers of students may not have bought their stocks and funds on their own. On the other hand 6 months isn't that long when it comes to stock and fund ownership so it's also likely that some students may have bought stocks a year or several years ago. Since most students don't have a big enough income to invest often in fund and stocks because of brokerage commission connected with purchase its even more likely.[4] The reason we put *...in the last six months* is because questions in a questionnaire should focus on the present and recent history for the result to be reliable. If this study would have been made closely after the summer when a lot of students work and get a higher income the percentage of students who bought stocks and funds in the last six months may have been significantly higher.

From our correlation tests we see that there is a clear positive relationship between attitude towards stocks and stockownership. The correlation is around three and a half depending on which test is used, and this supports Ajzen's (1991) theory that attitude is a important factor when it comes to what leads to a behavior. The theory of planned behavior is such an established and well tested theory, and it's more a fact than a theory that attitude helps determine behavior, so another way to put it is that our study is supported because its result is inline with what is accepted as a fact in the field of psychology. Since attitude towards stocks and stock ownership is connected it would be possible to increase stockownership by somehow making students attitudes towards stocks more positive.

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[3] For more information and critic about analyzing individual items we refer to the discussion on p. 52-53

[4] There is usually a minimum brokerage fee that make buying stocks and funds for small amounts relatively more expensive

If we look at one of the particularly interesting individual statements that make up the attitude towards stocks scale, *It's complicated to buy and sell stocks*, we see with a mode of 4 that most students agreed to this question. Again this isn't a reliable measure of attitude since it's only one statement. We can without a doubt say that most students in our questionnaire agree to this statement. The reason why this question is interesting is because it's designed to represents perceived behavioral, one of the four factors in Ajzen (1991 p. 195) theory of planned behavior.

Ajzen (1991 p. 195) argue that If you feel you have enough knowledge about something and feel secure about it you are more likely to go through with it, this have also been empirically proved in a study by Bandura et al (1977 p.136). Since a majority of students in our study agreed to that stocks is complicated to buy and sell, it should be possible to increase their perceived behavioral control by educating them more on the subject and thus increase the likeliness of them investing in stocks.

4.5 Motivation

The motivation scale consisted of ten statements and these statements were primarily designed to capture the different categories of external motivation. This may be the reason for why this scale doesn't have a high enough Cronbach alpha. The highest possible Cronbach alpha we get by removing the statement *I save only because I have to* and it's then 0,63. This is below 0,7 which is the limit that we decided to use in the method chapter.

We also discussed critic against Cronbach's alpha in the method chapter and we think this is a case where a lower number than 0,7 can be tolerated. If one person agrees with two statements and another one agree with one and disagree with the other doesn't necessarily mean the scale is not measuring motivation, it could also mean that these two people have different opinion about these statements. 0,63 is also pretty close to 0,7 so there is still a high correlation between the items.

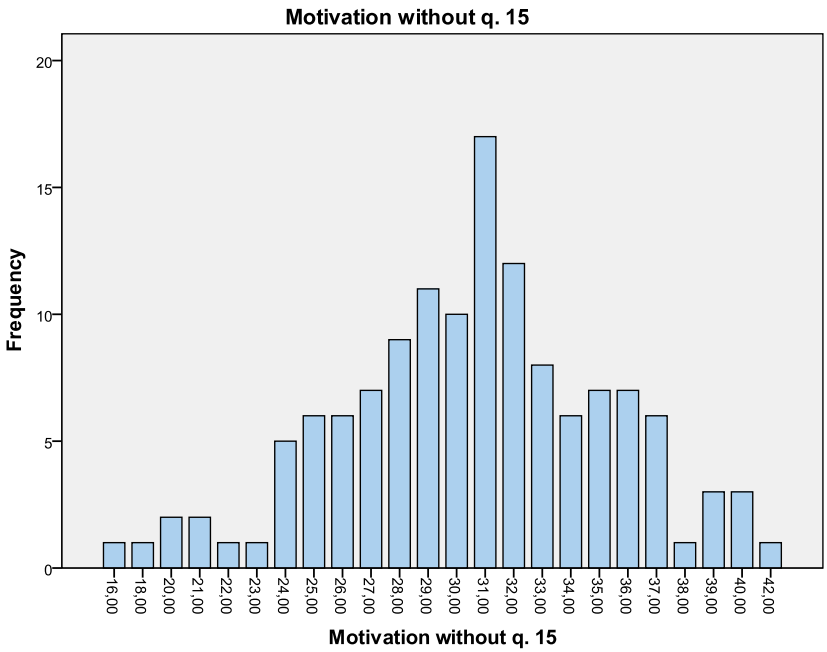

Figure 11 Result from the part of the Likert Scale designed to measure motivation towards saving

Nine statements gives a possible interval between 9 and 45, with a turning point from negative to positive at 27. We can see from the figure that motivation towards saving is positive. The mean is 30,5 and which is equivalent to a positive motivation towards saving. Even if the motivation scale isn't reliable according to the Cronbach Alpha measurement we can see if the result we got is statistically significant enough to accept the hypothesis we formulated.

Hypothesis 2: Students have a positive motivation towards saving.

The T-test (appendix 3) show that the mean for motivation towards saving is 30,5 and with a 95 % confidence interval it's between 29,7 and 31,4, and we can thereby accept the hypothesis. Another hypothesis was formulated related to the relationship between motivation and attitude towards saving.

Hypothesis 3: There is a positive correlation between attitude towards saving and motivation towards saving.

This was tested by a Spearman and a Pearson correlation test, and the results are a positive correlation of 0,47 and 0,43 respectively. Both results are significant at 99 % confidence interval. Based on this result we accept hypothesis three.

Without going in to specific details we can say with statistical significance that women and business students have a slightly more positive motivation towards saving than men and technical energy students.

To test motivation from self-determination perspective we developed four subscales designed to capture external motivation, introjection, identification and intergration. None of these subscales showed a high enough Cronbach's alpha to be considered reliable. This is as we discussed before most likely because of how the statements are formulated. Even if parents want you to save it doesn't mean you feel social pressure to save, and that you would or wouldn't feel a sense of pride if you had more money

than usual at the end of the month. What we are looking for are those students who agree to some sense with all three statements, because it would then suggest that they fall under the category of introjection. If a student agrees with all statements in a subscale the correlation would be high and thus the result can be seen as reliable, and if a student doesn't agree then the result is discarded.

To get the result from the questionnaire we took the average score of each sub scale measuring motivation for every student. Since some of the subscales used different amounts of statements we used the average score to get a more comparable result. We then identified the sub scale with the highest number for each student. If none of the subscales showed an average score of 3.67 or higher the result was seen as not being reliable enough and was then discarded. If a student had the same score for two sub scales we looked at that specific case and weighted some questions higher then others. For example say a student had an average score of 4 on identification and a 4 on intergration. If the student answered "strongly agree" to *Saving is something I enjoy to do* and "neither" to *Saving is something that feels like a natural part of my everyday life*, and on the identification scale answered "agree" to all three statements, we put the student in the identification group. This is because answering "agree" to all statements represent a kind of motivation more than answering "neither" and "strongly agree"

Although this kind of subjective decisions hurts the replicability of the study, we felt it was necessary to keep the result reliable. To put a student in two different categories would make chance a too big factor and it would possibly skew the result, and also the frequency would rise above the total numbers of students in the sample.

Below in figure 11 the result is presented.

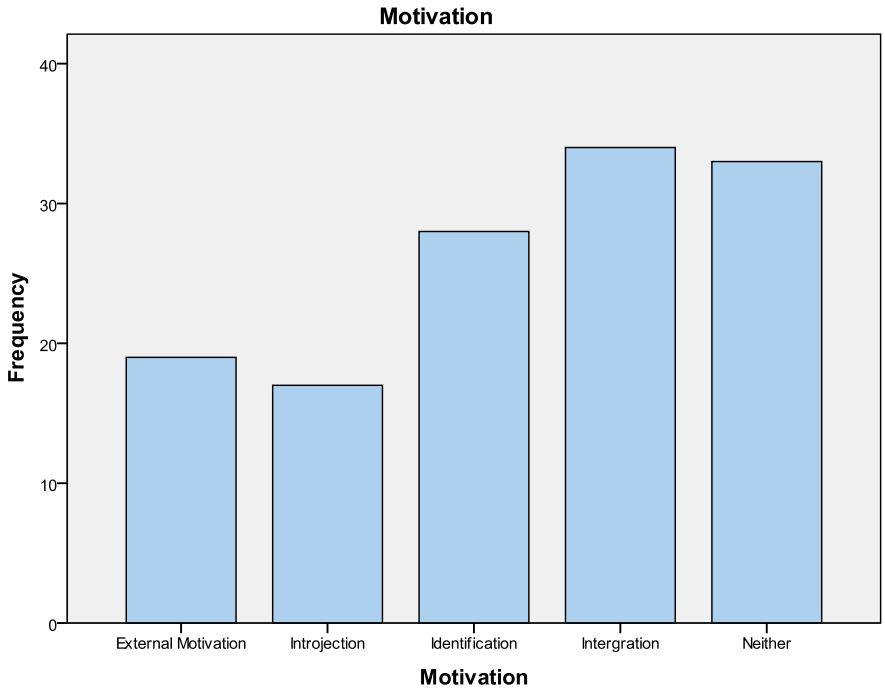

Figure 12 Students distributed over different categories of motivation

The category labeled Neither is those students who didn't get a score of 3,67 or above at any of the four subscales measuring motivation, 24,8 % of the students qualified for this category. This doesn't necessarily mean that all these students are amotivated to save or even unmotivated, however it's possible to assume that in our sample these students are less motivated to save than the students in the other categories.

It's clear from figure 13 that a majority of the students in our sample are leaning towards a more internal type of motivation. The biggest motivational category is intergration where 25,6 % of the students ended up, and identification was a close second with 21,1 % of the students. Introjection was the smallest with 12,8 % and external motivation represent 14,3 % of the students.

The result from the motivational part of the Likert Scale show overall a positive result, almost half the students tested, 46,7 % ended up in the two categories that represent the most self-determined aspects of motivation. This is inline with the high percentage of students who save in stocks and funds and the very low percentage who doesn't save at all.

By looking at figure 2 in the theory of planned behavior part of the theoretical framework we see that what determines intention according to Ajzen (1991 p. 182) is attitude towards the behavior, subjective norm and perceived behavioral control. We have already determined that a large majority of students in our study have a positive attitude towards saving. The large numbers of students with a positive attitude towards saving affect motivation in a positive way, which is one explanation to a majority of students' 73,8 %, is motivated to at least some extent by our measurement.

Perceived behavior control was described before as how a person perceives her necessary resources and opportunities to behave in a certain way. Perceived behavioral control have been discussed in connection with stocks, and we determined that the result suggest that it's quite low. When it comes to saving in general we can, by looking at questions like *I cant afford to save* that had a median and a mode of two, assume that most student have opportunity to save, and since saving in it's most basic form is not consuming we can definitely assume that students have enough knowledge resources. If we look at *I would save more if I had a bigger income* which has the highest median and mode (5) of all questions we can assume that most students don't feel they have the necessary financial resources to save. With all these aspects in mind we conclude that the students perceived behavior control when it comes to saving is somewhat average, and this ambiguity suggest that some students have a low perceived behavior control which could explain some of the 24,8 % who didn't qualify for any of the different categories of motivation.

The third factor determining intention according to Ajzen (1991 p. 195) is social norm, how influential people in a person's life would react to a certain behavior. This was tested by *My parents want me to save* which got an median and mode of four. This suggests that students may be more motivated because their parents want them to save. This is also connected to Duesenberry's (1949) relative income hypothesis that put a lot of focus on the importance of other people's opinions when it comes to saving.

We can conclude that our positive result when it comes to motivation is supported by Ajzen (1991) theory of planned behavior if we look at the three different factors

determining motivation. A positive attitude towards saving, an average perceived behavioral control and a somewhat positive social norm, it seems logical with a motivation that distributed as in figure 13 where 73,8 % of the students is motivated to some extent.

If we look at the different categories more specifically we see that the biggest category is intergration which is interesting. Intergration represent the most self-determined category and it's when you identify so much with the positive sides of a behavior that it feels completely natural. (Ryan & Deci 2000 p. 61) To see that so many students in our sample are represented by this category is surprising and also very positive. The general opinion seems to be that students don't save because they don't have enough income, this result show that for 25,6 % of the students in our study saving is something they enjoy to do something that feels natural. Possibly, because they don't have a big income saving is even more present on a daily basis which makes it more natural. On the other hand we don't have any other groups in society to compare this result with so we don't know if this percentage is relatively big or small compared to other groups and the general motivation towards saving in Sweden.

Identification is closely related to integration in the sense that a person recognizes the importance of a behavior and is then comfortable with its regulations. The difference is that it's not as natural and may not be as enjoyable at all times. (Ryan & Deci 2000 p. 61) This is the category that we expected to be the biggest one, because there are many important reasons to save, for emergencies, a house, a trip and etcetera but this also mean that you have to give up some consumption now in order to consume later which can be hard sometimes. This category is the second biggest with it's 21,1 % however as mentioned before to see that so many students matched the intergration category best, and that they find saving enjoyable and natural is a positive surprise. One explanation why this is the case is that most students associate with other students that are in the same situation and have a very similar income which could make it easier and more natural to avoid consumption. This is also what Duesenberry (1949) states in the relative income hypothesis that people consume based on how much their friends consume and not based on their current income.

The result from the motivation scale can be criticized since the subscales didn't show a high enough Cronbach's alpha. The specific result for the intergration and the identification categories is further supported by statement six and seven from the attitude scale *I rather consume now than in the future* that got a median of three and a mode of two and *Saving is a way to reach my goals* that got a median and a mode of four. The most frequently answered alternative to the first question was disagree which supports that a lot of students don't mind giving up consumption now. The most frequently answer to the second question was agree which supports both categories discussed above since it shows that a lot of students see the positive affects that saving can bring.

Introjection was the category with the smallest amount of students. This category is characterized by doing something to avoid anxiety or to satisfy your own or others demands. (Ryan & Deci 2000 p. 61) One of the reasons why this category so small is that although a lot of students agreed to that their parents want them to save and that only a few agreed to that they feel social pressure to save. These two questions should measure the same thing. It could be that students have different opinions on these two

questions. We think it's more likely that the question about social pressure is seen as something negative, like something you don't want to feel which may be why many students disagreed with this. It can also be that this question is poorly formulated by us, what means by social pressure is not obvious and social pressure is a quite general phrasing, a more specific question may have been better.

The introjection subscale included three question and the third one was *I would feel a sense of pride if I had more money than usual left at the end of the month* which actually got the second highest mean, 4,12 (median is 4 and mode is 4), of all the statements in the questionnaire so the reason why this category is so small is almost solely because of the question about social pressure and the reasons discussed above.

External regulation, doing something simply for a reward or to satisfy a demand (Ryan & Deci 2000 p. 61), is also quite small with its 14,3 %. This is low because only a few students agreed to the statement *I save only because I have to* which is part of this subscale. We purposely chose this statement because it represents external regulation in good way, to only include statements about doing something for reward or to satisfy a demand would likely have made this category bigger but that wouldn't be inline with how Ryan and Deci define external regulation.

It's positive to see that this group is relatively small, this type of external regulation make people feel controlled and it's much easier to something because you want to than because you have to. This kind of motivation is still better than no motivation at all, and it's a normal that motivation to perform a behavior varies between individual. Everyone can't like to save but everyone can see the benefits that saving can bring and the problems that may occur by not saving.

Those who didn't qualify into any of the categories discussed above can't be seen as unmotivated as before, however they did only agree to very few of the statements measuring motivation. This suggests that these students motivation to save is at least quite low and some of these are likely not motivated at all. This is something that we think also could be improved by more education about private saving.

According to Ajzen (1991) motivation is what ultimately determines a behavior and with Swedish households getting deeper in depth it's more important than ever for younger generations to have savings. If not it's likely that Sweden will suffer the same problems as USA did in the recent crisis, if a housing bubble or some other crisis occurred in Sweden. It's also necessary for students and young people in general to save money if they ever want to be able to buy a house or an apartment without help from their parents. By educating students about these and other reasons for saving everyone should be at least in the motivational category external regulation.

Even if our result is very positive a lot of students are motivated to save, there are still 24,8 % who didn't qualify for any of the categories. According to the permanent income hypotheses this "neither" group could actually be a lot bigger for the two groups we tested than it is for all students, because both these groups are expected to earn a lot more in the future their motivation to save now may be lower than other groups that have a lower expected future income.

4.6 Factor analysis

We would like to know which of the factors listed in our Likert Scale part of the questionnaire affect savings the most, or which component is more likely to influence students' saving behavior. Therefore, we conduct statistical test of factor analysis which is a method aiming on reducing data. It requires a large set of variables to carry out in order to deduct or summarize the factors into a smaller group of data. This method is especially used for the development and evaluation of tests and scales (Pallant, 2010, P181) Since we are using Likert scaling (which is included in our method chapter), we thought it would be suitable to analyze with factor analysis.

Yet, first, we will apply scientific approach to testify whether the data are good for factor analysis or not. Thus, we checked Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO). In order to know if factor analysis is appropriate, it is important to get a number of KMO over .6 and test Bartlett's Test of Sphercity value is significant. Besides, it is also necessary to check correlation coefficients in the Correlation Matrix table that many of the figures should be .3 or above. (Pallant, 2010, P181)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,714
Bartlett's Test of Sphericity	Approx. Chi-Square	892,347
	df	253
	Sig.	,000

Table 6 KMO and Bartlett's test result

From table 5 we can see that KMO is 0.714 which is over 6 and Bartlett's Test of Sphericity is equal to zero, meaning it is significant. And we found many numbers of correlation coefficients which are over 0.3 in the chart of Correlation Matrix. Since we have 23 variables, the chart is pretty large from SPSS, so we did not show it in this paper.

The substance of factor analysis is to extract components from many factors, but how to determine how many components to extract? According to Kaiser's criterion (Pallant, 2010, P181), we can measure it by analyzing the data from the output. The components we are interested in are the ones that have an eigenvalue above one. By using SPSS, we found there are 7 components that have a value over one and they explained more than 60 percent of the total variance, which is a good result (the chart can be found in our appendix). Yet, researchers are likely to find that there are too many components extracted from Kaiser's criterion. Therefore, it is also important to check the Screeplot given by SPSS. (Pallant, 2010, P181) Our Screeplot figure is showed below:

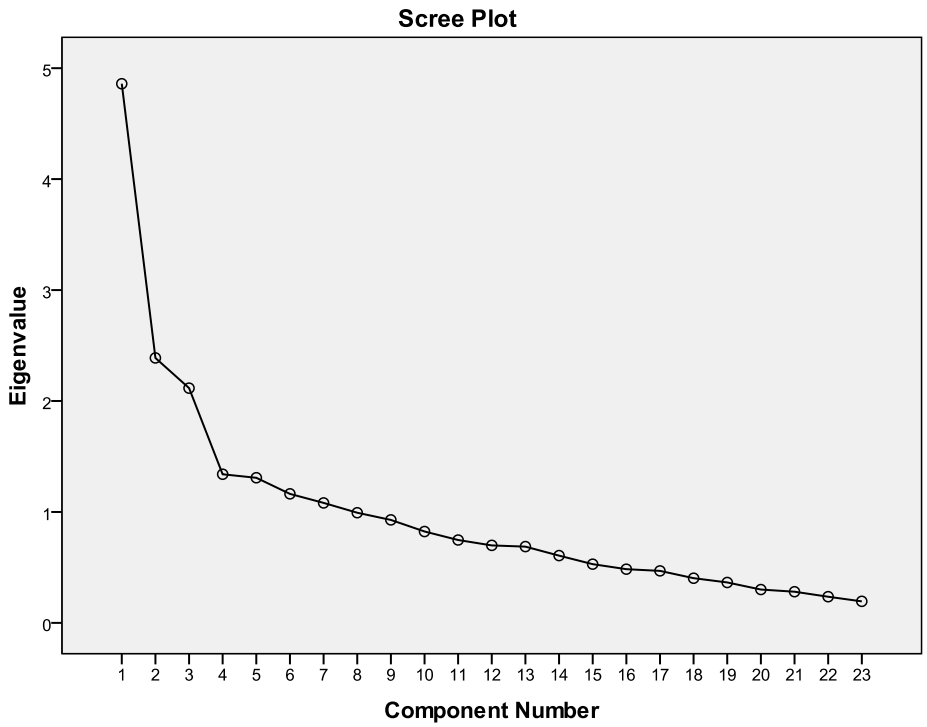

Figure 13 Scree Plot showing the different factors Eigenvalue

As it is showed in the line-graph, on the X-axis is component number and on the Y-axis is eigenvalue. It is obvious from the graph that the first factor has the highest eigenvalue which means it contributes the most the original variable. Besides, the second factor also has a high eigenvalue as well as the third one and the fourth one. And the rest of the factors explain the variable with a low eigenvalue. Thus, we decided to choose four components instead of seven given by Kaiser's criterion, the Screeplot gives a better explanation or extraction. Yet, by choosing four components, the total variance explained would decrease since the components reduced by 3. And the figure of total variance explained now is 47 percent which near 50 percent so it can still be considered to be a decent number for factor analysis. Besides, we checked Component Matrix table (appendix 2) and it shows that most of the items load in the first, second and the third one and very few of them load on the last ones. So it is rational for us to choose 4 components from the 7 choices.

After choosing the number of components, we can redo the analysis for the Pattern Matrix which is what we need for the factor analysis. And the chart is showed below in table 8

Pattern Matrix[a]

	Component			
	1	2	3	4
Saving is fun	,712			
I rather consume now than in the future	,691			
Saving is something that feels like a natural part of my everyday life	,655			
Saving is something I enjoy to do	,647	-,312		
Saving is a way to reach my goals	,532			
Saving is boring	,525			
I would save more if I had a bigger income	,514			
Stocks are too risky for me		-,793		
I follow financial news on TV and/or in Magazines		-,744		
Stocks are a good choice for long term saving		-,720		
Stocks are a good way for me to save money		-,707		
It's complicated to buy and sell stocks		-,686		
It is/seems exciting to invest in stocks		-,607		
I save only because I have too			-,690	
I cannot afford to save			-,605	
I feel social pressure to save			,552	
Saving is time consuming			-,451	
My parents want me to save				,734
By learning more about saving I would save more				,586
I don't need to save				,545
I save money for a reward in the future, like a trip or a new computer				,483
By learning more about saving I would be more successful in my saving		-,408		,482
I would feel a sense of pride if i had more money than usual left at the end of the month	,351			,467

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 17 iterations.

Table 7 Result from the factor analysis, presented in a pattern matrix

From the chart we can see that the first seven factors are in the first component (from "saving is fun" to "I would save more if I had a bigger income". And the second component include from "stocks are too risky for me" to "it is/seems exciting to invest in stocks". And the third component includes four factors whereas the last component includes six. What we need to do now for factor analysis is to generalize or to conclude these factors in different components into categories or to put it in another way, as groups of people. And an important factor to take into consideration of generalizing is the loading proportion, when the loading proportion is high it means that the factor has more ability in explaining the component, and therefore, we will summarize the component more towards that trend for the factors.

From the first seven factors we see that they are all somehow related to the character of saving. Most of the students' think that saving is fun and they feel saving is a natural thing to do, they would like to save if there is a possibility. And from the table we can see that "saving is fun" is a very important factor since it has more loading points than the other factors and students have a positive attitude towards saving in general, so we can generalize the first group of people as "fun savers". We can get from the table that there consists a lot of fun savers, which means that students generally have positive attitudes towards saving.

The next six factors are all associated with stocks, buying stocks is a way to time money even if it's risky. We can see that the loading proportion is rather high and negative in this component; each factor has a high negative loading rate. And the similarities between these factors are that they are related to risk, many students think that buying stock is risky and complicated. Therefore, we can name this group "risk haters". And from the result, we can say that many of the students are afraid to take risks or they can't afford to take risks.

The next factors of the component showed some negative attitudes towards saving. The negative numbers suggest that students in this group disagree that they save because they have to and that they can afford to save. Furthermore, students in this category agree that they feel social pressure to save, thus we name the third component "social pressure savers".

As for the last component, we can see that most of the items can be included into motivations. Students save because their parents want them to save or because they save for a reward or for a sense of pride. There are more loading points on the first factor in this component and we can see that it takes up a big proportion in explaining the component. Therefore, we name this component as "parent pressure/motivation savers".

By using factor analysis, we concluded four groups of savers; they are "fun savers", "risk haters", "social pressure savers" and "parent pressure/motivation savers". We can see that there are different reasons for saving but they might also be overlapped, for example, "fun savers" might also be "risk haters" and "fun savers" might save under peer pressure or social pressure. The idea behind factor analysis is to identify some general information or main components of the studying subject.

From the answers of the questionnaire we obtained it is obvious that most students like to save even a large proportion do not have extra money except from the student loan. According to the Self-determination theory (Deci & Ryan, 1985) we mentioned before in the theory chapter that it can be split into two parts, one of them is intrinsic

motivation, which is something comes with us since birth. We can see that students like to save because they think saving is part of their everyday life. Thus, we can dig that there is a possibility for students to increase their savings in the savings account for people would follow their interests.

According to Malkiel (2011), which we mentioned before in the theory chapter, that younger people should have a bigger proportion of savings in stocks because they have longer saving horizons and longer period of expected income from working. It is also mentioned by Malkiel (2011) that it becomes less risky to own stocks if they can hold it for a longer period. The component "risk haters" don't seem to know about this or they don't agree.

In the theory of Planed Behavior Theory (Fishbein & Ajzen 1975), one of the factors affect people's behavior is subjective norm, which refers to social pressure that influence one's behavior. And in the Self-determination theory (Deci & Ryan, 1985), we emphasized on describing extrinsic motivation of external regulation, introjections, identification and integration. We can get from the factor analysis that social pressure and extrinsic motivation indeed affectes students saving behavior, yet, it is not as strong as the intrinsic motivation. Students would have a clearer goal to save when they know that they want to buy something or go for a trip. Yet, it would be difficult to give a motivation for students to save because people have different motivation with time, preference, environment, peer pressure and so on. What we can do is to provide them with knowledge of saving and investing. When students know how to invest, they would also have a goal to save money so that they would have the capital to invest in, which could be a part of motivation.

4.7 Individual items

In the method chapter we stated that Gleim & Gleim (2003 p. 83, 88) argue that a common mistake when using a Likert Scale to test attitude is to test the internal reliability for the scale by using Cronbach's alpha and then analyze individual items. Despite this very logical and sound argument we will now present some individual items that show some interesting result. We want to point out however that these individual items can't be seen as representative of students attitude towards saving. We do however think they show interesting aspects that is relevant to show, even if they are not reliable on there own when it comes to for example attitude they still give an idea of the students opinion on these specific statements.

We have chosen to present those four statements with the most extreme result, that is those with the highest and lowest average score. These questions are:

- I would save more if I had a bigger income (Mean 4,61, Median 5, Mode 5)
- I don't need to save (Mean 1,58, Median 1, Mode 1)
- I would feel a sense of pride if I had more money than usual left at the end of the month. (Mean 4,12, Median 4, Mode 4)
- By learning more about saving I would be more successful in my saving (Mean 3,84, Median 4, mode 4)

By presenting the average score we are making another common statistical error discussed before in the method chapter, since we used an ordinal scale averages shouldn't be used since 4.5 would be agree and a half which isn't a valid measure (Kuzon et al. 1996 p. 266). With this is mind we want to make it clear that these

averages where used only by us to select the most extreme numbers. We also want the reader to get an idea of how many students answered in a strongly positive or negative way, for this purpose we also include median and mode that are more suitable for an ordinal scale.

Some individual items have already been analyzed and discussed. Out of these presented above *I don't save* and *By learning more about saving I would be more successful in my saving* haven't been mentioned. These point to some interesting aspects that is relevant to discuss.

The first one *I don't need to save* was removed from the original attitude scale because it result didn't correlate enough with the other statements. It got the lowest mean of all statements 1,58, and a median and a mode 1 (this is without reverse coding). This means that most students in our study disagreed to this statement, and even if it was removed from the attitude scale this low numbers support the result we got that student have a positive attitude towards saving.

The other question *By learning more about saving I would be more successful in my saving* got a mean of 3,84 and a median and a mode of 4. This is interesting because it suggest that there should be some interest among students to learn more about saving. We also had another question about learning *By learning more about saving I would save more* which got a slightly lower mean of 3.35 (median is 3 and mode is 3). It gives a less positive view of the possibility to increase saving by more education. We are however confident that more education on the subject would increase saving, especially by those who doesn't save at all which is very few in our population.

5 Conclusions

The result is much more positive than we expected. We can conclude that a majority of students in our study have a positive attitude towards saving, they have a positive attitude towards stocks and their motivation towards saving is also positive. We have also seen that there is a positive relationship between attitude towards saving and attitude towards motivation, as well as a positive correlation between attitude towards stocks and actual stock ownership. This means that we can accept all the main hypotheses we used presented in the table below.

		Reject	Accept
Hypothesis 1: A majority of students have a positive attitude towards saving.			X
Hypothesis 2: A majority of students have a positive motivation towards saving.			X
Hypothesis 3: There is a positive correlation between attitude towards saving and motivation towards saving.			X
Hypothesis 4: A majority of students have a positive attitude towards stocks			X
Hypothesis 5: There is a positive relationship between attitude towards stocks and stockownership			X
Attitude towards saving	H_0 Gender	X	
	H_0 Program	X	
Attitude towards stocks	H_0 Gender	X	
	H_0 Program		X
Motivation towards saving	H_0 Gender	X	
	H_0 Program	X	

Table 8 Compilation of hypotheses used through the thesis

We see that all the hypotheses about gender and program can be rejected except for program and attitude towards stocks. This means that in all the other cases there is a significant difference between women and men, and business students and technical energy students.

Women have a more positive attitude towards saving and are slightly more motivated to save; while men are have a more positive attitude towards stocks. This also reflected in statistics over stockownership in Sweden, and the best explanation we got is that women are more risk averse than men.

Our result shows that we can accept all the main hypotheses with statistical significance, however it's important to mention that attitude and motivation is very hard to measure due to its intangible characteristics. We have put a lot of work into making the questions as good as possible and we have studied other research to get an accurate measure of attitude and motivation, however it's still problematic to say that someone have a positive attitude towards saving because how this person answers to five questions. Another interesting aspect concerning our result is that attitude and motivation can also be seen as relative, how does students attitude towards for

example saving compare to other groups and Sweden in general? We can say that with our measure a majority of students in our population have a positive attitude towards saving, this doesn't necessarily mean that they have a positive attitude towards saving relative to people in general. With this discussion in mind we encourage other research to continue and further develop our research.

Our result can't be seen as representative for all students in Sweden or even at Umeå University since it focused on two specific groups. This is a subject that almost totally lacked researchers' attention and we think that our thesis is a good foundation for other researchers to explore this subject further. It is an important subject, sooner or later there will be another crisis and how well today's students plan their private economy in the coming years may turn out to be what determines how well Sweden cope with the next crisis. Just today (2011-05-17) there was an article about a Swedish organization, Bostadskreditnämneden, informing about the dangers of Swedish households increasing depth and a (too) hot housing market. (Åkesson, 2011).

We have seen that the result from our study is very positive; most students have a positive view on saving. Even if this result is positive we there is a need for more education on the subject. Young people should learn more about the dangers of too much debt and the positive attributes of saving. We mentioned in the purpose Aktiefrämjandet project to teach high school students about private saving and financial investments, and this is a great initiative. We think that it also should be in the Swedish governments' interest to increase interest and knowledge about private saving, and that it should be a part of the general curriculum.

We have seen that most students have a positive attitude towards saving which should indicate that they are interested to learn more about saving. There is also of course a group of students who's not motivated to save and who have a negative attitude towards saving. These groups are especially important to focus on. By looking at the psychological theories from the theoretical framework we can see that a lot of determinants of saving can be changed with more education.

Perceived behavioral control is increased when a person feel like she have the necessary knowledge to perform a behavior (Ajzen 1991), and in a simplified manner one can say that motivation goes from amotivation to more self-determined types of motivation when a person realizes the benefits of a behavior (Deci & Ryan 2000). Both perceived behavioral control and motivation should thus increase with more education.

5.1 Theoretical and practical contributions

Very little research has been made on the area of students saving and this thesis should make an excellent starting point for further research, this will be discussed more under the next heading. Our thesis and our result can also be used to lobby politicians for the need of more education on private saving.

Our thesis is also of great use for banks that have students as customers. By learning more about students' attitude and motivation towards saving they can adjust their products and marketing to better fit the students' preferences. Our results show for example that men have a more positive attitude towards stocks than women, and that female students own more funds than male students. This information could be used

in banks marketing towards students, for example when targeting men they could emphasize on products with high rewards and high risks, and when targeting women they can focus on products with less risk and more diversification.

5.2 Further research

One of the main purposes of this thesis was to make other researchers interested in this subject, and since it's an area that lacked researchers' attention before there is a lot of further research to be done. We will now summarize based on our result what we suggest other researchers to explore about this subject.

If we were to write another thesis or further develop this one we would have focused on a more generalized and bigger group of students, preferably a big enough sample to represent Sweden but to cover all the different groups of students at a diversified school like Umeå University would be of great interest. It would also be very interesting to focus on other populations than students to have something to compare our result with. Some examples are pensioners, high school students and baby boomers.

We have only included two psychological theories the theory of planed behavior and the self-determination theory. There are likely a lot of other psychological theories that we have overseen because of our very limited background in field of psychology. Other theories may explain additional aspects of saving behavior that could give a different perspective of saving and lead to other conclusions.

More research is needed on the problems that may occur in the future if nothing is done to increase knowledge and interest about private saving among students and young people. What would happen to today's students in two-five years if there were another financial crisis, if households' debt continues to increase, if house prices fall, if the interest rates go up etcetera? More education is the solution we suggest to these problems and more research is needed on the effectiveness of education to increase knowledge and interest about private saving. Does more education really have the positive effect that we argue it would?

In our result we have also found significant differences between genders when it comes to attitude towards saving and stocks, as well as motivation towards saving. This is something that would be interesting to further explore and see what implications it has on society and if there is anything that could be done to reduce these differences.

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Appendix 1 Questionnaire

This is a questionnaire designed to research students' saving behavior, attitude and motivation towards saving, and attitude towards stocks. The result from this questionnaire will be presented in a student thesis. Your answers will be treated confidentially.

☐ Female ☐ Male
Age _____
Program

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1. Check the box if the following statements are correct when it comes to your private saving, you can check more than one alternative.

☐ I own stocks
☐ I have bought stocks in the last 6 months
☐ I own funds (fonder)
☐ I have bought funds in the last 6 months
☐ I have savings in my bank account
☐ I don't save
☐ I own other financial instruments (like futures or options)
☐ I have bought other financial instruments in the last 6 months

2. Please rate how strongly you agree or disagree with the following statements by circling a number.

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
1. I can't afford to save.	1	2	3	4	5
2. Saving is time consuming.	1	2	3	4	5
3. Saving is fun.	1	2	3	4	5
4. I would save more if I had a bigger income.	1	2	3	4	5
5. I don't need to save	1	2	3	4	5
6. I rather consume now than in the future	1	2	3	4	5
7. Saving is a way to reach my goals.	1	2	3	4	5
8. Saving is boring.	1	2	3	4	5
9. Stocks are a good way for me to save money.	1	2	3	4	5
10. Stocks are too risky for me.	1	2	3	4	5
11. It's complicated to buy and sell stocks.	1	2	3	4	5

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
12. It is/seems exciting to invest in stocks.	1	2	3	4	5
13. Stocks are a good choice for long term saving.	1	2	3	4	5
14. I follow financial news on TV and/or in magazines.	1	2	3	4	5
15. I save only because I have to	1	2	3	4	5
16. Saving is something I enjoy to do	1	2	3	4	5
17. I would feel a sense of pride if I had more money than usual left at the end of the month	1	2	3	4	5
18. By learning more about saving I would be more successful in my saving	1	2	3	4	5
19. Saving is something that feels like a natural part of my everyday life	1	2	3	4	5
20. I feel social pressure to save	1	2	3	4	5
21. By learning more about saving I would save more.	1	2	3	4	5
22. I save money for a reward in the future, like a trip or a new computer.	1	2	3	4	5
23. My parents want me to save	1	2	3	4	5

Thank you very much for your time and participation.
/Joakim Tuvesson and Shiyu Yu

Appendix 2 Factor analysis, Component Matrix Table

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,860	21,129	21,129	4,860	21,129	21,129
2	2,388	10,383	31,511	2,388	10,383	31,511
3	2,116	9,199	40,711	2,116	9,199	40,711
4	1,340	5,825	46,535	1,340	5,825	46,535
5	1,308	5,687	52,222	1,308	5,687	52,222
6	1,163	5,057	57,279	1,163	5,057	57,279
7	1,081	4,702	61,981	1,081	4,702	61,981
8	,993	4,317	66,297			
9	,928	4,036	70,333			
10	,824	3,581	73,914			
11	,747	3,247	77,162			
12	,699	3,038	80,199			
13	,687	2,989	83,188			
14	,606	2,637	85,825			
15	,529	2,301	88,126			
16	,484	2,105	90,231			
17	,469	2,038	92,269			
18	,403	1,751	94,020			
19	,364	1,584	95,603			
20	,300	1,306	96,909			
21	,281	1,221	98,131			
22	,236	1,026	99,156			
23	,194	,844	100,000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
Saving is fun	,738		-,352				
Saving is something I enjoy to do	,693						
It is/seems exciting to invest in stocks	,639					,357	
Stocks are a good way for me to save money	,630	-,386					
Stocks are a good choice for long term saving	,603	-,439					
Stocks are to risky for me	,563	-,534					
By learning more about saving I would be more sucessfull in my saving	,547		,349		-,302	-,367	
I follow financial news on TV and/or in Magazines	,540	-,492					
Saving is a way to reach my goals	,534	,377					
Saving is boring	,532	,337				,308	
Saving is something that feels like a natural part of my everyday life	,457			-,387			,450
I rather consume now than in the future	,421	,404					
I save money for a reward in the future, like a trip or a new computer	,333	,330					
It's complicated to buy and sell stocks	,382	-,558					
I would save more if I had a bigger income	,339	,390					-,378
I feel social pressure to save			,573			,506	,307
By learning more about saving I would save more			,548		-,399		
I save only because I have too	,349		-,500	,421			
I would feel a sense of pride if i had more money than usal left at the end of the month	,364	,389	,425				
My parents want me to save			,396	,489			
I don't need to save			,325	,313	,538		
Saving is time consuming					-,405		,323
I cant afford to save			-,346	,480	,336		,498

Extraction Method: Principal Component Analysis.

a. 7 components extracted.

Appendix 3 Student t-test and test for equality

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Attitude towards saving. Questions 3,4,6,7 and 8	67,770	132	,000	19,25564	18,6936	19,8177
Attitude towards stocks. Questions 9-13	70,952	132	,000	15,95489	15,5101	16,3997
Motivation Questions 14-23	78,119	132	,000	32,98496	32,1497	33,8202

		Levene's Test for Equality of Variances		t-test for Equality of Means between male and female						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Motivation total	Equal variances assumed	.992	.321	1.688	131	.094	1.46	.862	-.25046	3.162
	Equal variances not assumed			1.627	93.788	.107	1.46	.894	-.32071	3.232
Attitude towards saving. Questions 3,4,6,7 and 8	Equal variances assumed	.051	.821	1.585	131	.115	.921	.581	-.22834	2.071
	Equal variances not assumed			1.562	101.017	.122	.921	.590	-.24898	2.091

		Levene's Test for Equality of Variances		t-test for Equality of Means between male and female						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Attitude towards stocks. Questions 9-13	Equal variances assumed	7.290	.008	-1.711	131	.089	-.78551	.45913	-1.69379	.12277
	Equal variances not assumed			-1.855	129.191	.066	-.78551	.42335	-1.62310	.05208

		Levene's Test for Equality of Variances		t-test for Equality of Means between business and technical students						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Motivation total	Equal variances assumed	.816	.368	1.927	131	.056	1.62437	.84284	-.04297	3.29170
	Equal variances not assumed			1.913	119.047	.058	1.62437	.84915	-.05704	3.30577
Attitude towards saving. Questions 3,4,6,7 and 8	Equal variances assumed	7.110	.009	.897	131	.371	.51448	.57339	-.61981	1.64878
	Equal variances not assumed			.940	129.361	.349	.51448	.54753	-.56879	1.59775
Attitude towards stocks. Questions 9-13	Equal variances assumed	.244	.622	3.163	131	.002	1.38759	.43874	.51965	2.25552
	Equal variances not assumed			3.161	122.511	.002	1.38759	.43894	.51870	2.25647