Master's Thesis

"The Impact of Ownership Identity on Educational Quality"

Name: Charlie Widenfors
Student Number: S116083
Supervisor: Robert Spliid
Programme: Finance and Strategic Management
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Copenhagen Business School

Abstract

Sweden has a unique education system compared to the rest of the world. The government funds privately owned schools without any profitability restrictions. A heated debate regarding morality and the quality of the education is frequently covered in both media and the research field. The discussion has so far focused on the quality of independent schools in comparison to the conventional public schools. However, this study provides a more nuanced perspective on the debate as it focuses on the identities of the owners of the schools and compare educational results in terms of grade point average and Scholastic Aptitude test to identify differences and optimality.

The study uses data from all 1316 upper secondary schools in Sweden and investigates the relationship between students' educational results in terms of grade point average and SweSAT with the different ownership identities. The data is analysed through an OLS regression and tested against two different hypotheses. Firstly, comparing public schools with independent. Secondly, comparing the different ownerships identities within independent schools with each other as well as public schools. The OLS model is used to run the regression and estimate the relationship between owner identity and educational results. To be able to ensure that the differences in the regression is actually due to difference in ownership, controlling variable for socio-economic status and financial resources are applied.

The results indicate that there are differences between students' results in terms of grade point average and SweSATs depending on school ownership. When comparing public and independent schools, the results indicate with significance that public schools are better, both in terms of grades and SweSATs. After comparing ownership identities amongst the school types, there is significant data that suggest that public schools are superior to other ownership identities measure din SweSAT scores. However, no significant result can be identified in terms of grade point average.

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2 Introduction

In 1992, the Swedish parliament passed a reform that created a unique educational system that has been under constant debate ever since. The reform made it possible for non-public schools to receive government funding which made private schools very attractive to operate. Since then, the number of independent schools have grown significantly, especially on the upper secondary school level. Before the reform, only a few independent schools existed, but approximately 33.2% of all upper secondary schools today are independent schools (The Swedish National Agency for Education, 2019). Scandals in the upper secondary school sector have frequently been reported as massive profits have been handed to shareholders, private equity funds have run schools to bankruptcy, and students have been lured with expensive computers and high grades (Erixon, Arreman & Holm, 2011; Holm, 2013).

The primary intention of the reform was to improve the educational quality by stimulating competition between schools (Swedish Teacher Union, 2018). Previous research is inconsistent in whether or not the reform has achieved its intended purpose and there is a constant debate on whether public or private schools provide the best education. Some argue that public schools provide better education in terms of student test results (Tyrefors, Hinnerich & Vlachos, 2016), others emphasize on the high degree of grade inflation among independent schools (Wikström & Wikstöm, 2005). Additionally, scholars also discuss the ethical obligations operating a school as a profit driven company as it both threatens the quality of the education and is morally questionable (Erixon, Arreman & Holm, 2011).

Scandals aside, there is research that suggest that the reform have achieved the intended positive outcome as students on average achieve higher educational results than before (Böhlmark & Lindahl, 2015). Scholars also argue that independent schools outperform public schools, even after adjusting for differences in socio-economic factors such as family background, foreign heritage and access to information technology (Myrberg & Rosén, 2006; Sahlgren & Sanandaji, 2016). Some also suggest that there is a positive correlation between student results and the school's profitability which give another dimension to the ethical debate (Heller, Sahlgren & Jordahl, 2018).

Furthermore, the number of independent schools was not the only aspect that increased since the reform was passed. The reform made is possible for different types of ownership identities to own and operate a school, which provided a considerable increase in the variation of ownership identities for independent schools (Friskolornas Riksförbund, 2018). Previous research has focused on comparing public with independent schools, but no one has previously looked at the ownership form of different independent schools.

There is a wide spread of different types of ownership amongst independent schools. A non-profit foundation ownership probably has entirely different ownership characteristics, goals and objectives compared to a privately-owned school (Thomsen & Pedersen, 2000). Thus, the debate regarding public and private ownership can be much more nuanced than just comparing public and independent schools. Never before has anyone researched the differences in the ownership identities of the independent schools and compared them with each other as well as with public schools. There might exist an optimal owner in terms of educational quality and thus, this is an important and interesting topic to research. From a theoretical standpoint there is no optimal ownership identity for any given organization, but considering the ownership characteristics of an organization, an ownership identity is more or less suitable for a given company under certain conditions (Hansmann, 1996). A school is not directly comparable to a normal company but given the special characteristics of a school, an optimal owner might be found. And as no research has been conducted on the differences in ownership amongst independent schools in Sweden, this paper aims to contribute to the debate and provide a more nuanced perspective regarding optimal school ownership to this highly disputed topic.

2.1 Problem Statement

The debate regarding independent versus dependent schools seems endless. Depending on the specific research design and education level, scholars seem to come to ambiguous conclusions. The discussion needs a new and more nuanced perspective. By looking at differences among the independent upper secondary schools' ownership identities, a more detailed analysis can provide the politicians and society with a better understanding and substantial information for future decisions regarding the Swedish education.

In order to contribute and compare to the discussion it is suitable to use similar research designs and measurements and apply the perspective of ownership identities. As several authors have

used either Swedish Scholastic Aptitude Test (SweSATS) or Grade Point Averages (GPA) to compare the students' results. This study will have a comprehensive approach and use both measurements and investigate their relationship to ownership identity. In order to investigate this relationship this paper will aim to answer the following research question:

"Which is the optimal ownership identity for upper secondary schools in Sweden in terms of students' GPA and SweSAT scores?"

2.2 Limitations

Firstly, this study is limited by geographical scope as it solely focuses on the Swedish educational sector. If the geographical scope were to increase to cover the Nordics, the results might be entirely different. Especially since the Swedish educational system is quite unique and differ from other countries. Furthermore, only one level of education is analyzed, and the paper ignores the effect on other school levels such as primary school, middle school, high school and university. The distinction between these different levels will be described in more detail in section 2.4.

Moreover, the study only investigate the effects of ownership on GPA and SweSATs during one year time. Hence, no time period differences are considered. The Swedish educational system builds on two semesters for every school year, which is why the selected time period considers the fall semester of 2017 and the spring semester of 2018. Other years and semesters are excluded as educational ownership is deemed to change rarely. It is not an industry where it is common to buy and sell companies to the same extent as in other industries. Moreover, the scope of the paper must be limited somewhere to provide a more in-depth analysis.

Furthermore, only the lowest level of the SweSATs is analyzed. All students have to take the SweSATs for the lowest level of mathematics, Swedish and English. There are SweSATs for more advanced levels in these three subjects, but these scores are ignored. It is not reasonable to compare test scores for more advanced courses which is not taken by everyone with lower level courses that is mandatory for every student. This paper is further limited to a quantitative method which is only focused on numerical data. Qualitative aspects such as students' and teachers' psychological wellbeing and their opinion regarding their owners are outside the scope of this paper.

2.3 Structure

The thesis is structured into five different sections as visualized below. Section 1 is the introduction of the thesis where the background and relevance of the study is argued for. The background then lead to the problem statement where the research question and the scope of the study is presented

Section 2 is presents previous research and is divided into two sub-sections. The first goes through the previous theoretical research and argues for the relevance of the selected theories. The second covers relevant previous empirical research within education and ownership.

Section 3 explains the approach on how the research question is intended to be answered. It covers aspects such as sample selection, data gathering, regression design as well as a validity section where the robustness of the research is discussed.

Section 4 firstly presents the results from the regression and declare whether or not the two hypothesis can be either rejected or accepted. Secondly, the results are analyzed and discussed from the theoretical and empirical standpoint that was presented in section 2.

Section 5 sums up the analysis and result and conclude if the research question can be answered. Additionally, the conclusion argues for further development within the research field and how other researchers can use the data presented in this study.

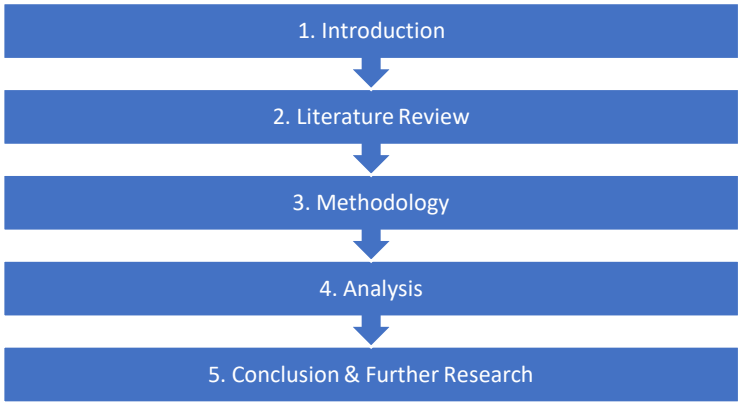

Figure 1. Thesis structure. Source: Own Contribution

2.4 Swedish Educational Background

Education in Sweden is mandatory for students from 6-16 years of age and all education from elementary school to university level is tuition free. The educational system in Sweden is divided into elementary school, middle school, high school, upper secondary school and university level (The Swedish National Agency for Education, 2019). Elementary school, middle school and high school are often categorized together as primary school and will be referred accordingly in this paper. However, as explained in limitations, the main focus of this paper will the upper secondary school.

Furthermore, primary school students are graded from the sixth to the ninth grade by the scale of A-F. Students use their grades from the senior year of primary school to apply for upper secondary schools. To be able to be eligible for upper secondary school studies, students need to have passed the classes in Swedish, English and Mathematics. The upper secondary school students are graded on the same scale as primary school student, but they apply for university studies using an accumulated grade score of their three years of studies.

The Swedish primary school system consists of three different types of schools: public, private and independent schools (The Swedish National Agency for Education, 2019). Private schools are not administered by local, regional or national authorities. These schools can choose to admit students on any qualifications the schools find relevant. Moreover, private schools do not receive any public funds and are financed mainly by tuition fees. Public schools on the other hand, are 100% funded by public capital and the municipalities are responsible for the education (The Swedish National Agency for Education, 2019). Since the amount of private schools represents only a small proportion of the schools in Sweden, they will not be covered in this study.

Independent schools however, are not administrated by government authorities, but they are mainly funded by the government through taxes. Independent schools can have several different types of ownership structures such as foundations, non-profit organisations and limited liability companies. Independent schools have existed in Sweden since 1983 but it wasn't until the independent school reform in 1992 that they received public funding. The new educational reform gave independent schools 85% of that a public school receives (Swedish Teacher Union, 2018). As a result, it was much easier to start and run an independent schools compared to

before. Since then, the number of independent schools have increased exponentially. The exact amount that a public school and an independent school are given is determined on municipality level and can differ slightly between the 290 municipalities. However, the municipalities have restrictions from the government regarding the school funding which makes the differences in municipalities school funding quite small. Moreover, there is a government authority named "the school inspection" whose main task is to monitor schools in terms of educational quality and administer new applications for schools. This authority monitors both public and independent schools and answers to the government (The Swedish School Inspectorate, 2019).

The amount of private schools represents only a small proportion of the schools and the ones who are non-public schools are partially funded by the government.
Furthermore, independent schools are allowed to provide education in both primary school and upper secondary school. The schools' admission processes are the same as for public schools and they can't make exceptions. Initially, the conditions for independent schools were unregulated, but as of 1994 the government demands that a class needs to consist of at least 20 students and that the implementation of an independent school cannot have significant negative implications on the public education in the municipality. Moreover, the independent schools have to follow the national curriculum in the same way as public schools (The Swedish National Agency for Education, 2019).

The independent school reform was intended to increase the number of schools and the increased number of schools would stimulate market competition, which would increase efficiency and educational quality over all. Whether or not the reform has achieved its intendent, effects are highly debated and literature regarding this discussion will be reviewed in the following sections.

Furthermore, as this study aims to investigate the upper secondary school level it will mainly consider the previous literature that cover this level of education. However, literature regarding other educational levels such as elementary and high school will be considered as well. Some of the schools are active in upper secondary school level as well as elementary- and high school which makes it interesting to consider literature from all levels. Moreover, there are similarities in in terms of legislation hence parallels to be drawn between the different levels of education.

3 Literature Review

3.1 Previous Theoretical Research

In the following section, previous theoretical literature will be covered. The three theories that are deemed relevant and will be disclosed below are: Stakeholder Theory, Agency Theory and Ownership Theory. These theories are chosen sine they jointly will provide a holistic analysis of the data that can provide good basis for the conclusion. The ownership theory argues for which type of ownership identity that is the most suitable for a given company and is thus helpful in order to determine the optimal owner for a Swedish upper secondary school. As will be disclosed in the following sections, the ownership theory incorporates the agency theory as one of the aspects that determine the optimal owner. Therefore, will the agency theory be used and covered in the literature as well. Moreover, a school as a research object is different than a conventional company as it is a part of the society's welfare system, which involve various parties that are effected and interested by the school's operations besides shareholders. Such as the government and the society as a whole. In order to take into account the complicated dynamics of ownership and the interest of many involved parties, the study has also used stakeholder theory.

3.1.1 Stakeholder Theory

3.1.1.1 History and Development

The term stakeholder was first coined in an internal memorandum at Stanford Research Institute in 1963. The term was intended to emphasize the importance of considering other parties than stockholders in corporate decision making. These other parties were labelled as stakeholders and referred to employees, customers, suppliers, lenders and society (Freeman, 1984). The researchers at Stanford Research Institute further argued that unless executives understood the needs and concerns of these stakeholder groups, they could not shape objectives that would receive sufficient support for continued survival of the firm (Freeman, 1984). Furthermore, the importance of stakeholder management was further developed by Mitroff (1983) before Freeman (1984) published his first book "Strategic Management: A Stakeholder Approach" which was when stakeholder theory started to gain traction among scholars. Freeman is often considered to be the "father of stakeholder theory" and his work have been cited and discussed by numerous of authors (Laplume, Sonpar, & Litz, 2008).

Freeman stakeholder theory was a strategic approach as it intended to explain that managers needed to consider all stakeholders in order to stay profitable and secure long-term survival of their firm (Freeman, 1984). However, later on, Freeman started to integrate moral philosophy into stakeholder theory (Freeman & Gilbert, 1988; Evan & Freeman, 1988). This lead to criticism as stakholder theory now paradoxically was both the means to ends as well as ends itself (Goodpaster, 1991). As a reponse, Freeman partially agreed with the criticis but he also argued that stakeholder theory mixes business and morality, which is one of its strenghts (Freeman, 1994). Stakeholder theory has also been used in various aspects and definitions in marketing, human resource management, finance, businees ethics, CSR and corporate governance (Miles, 2017; Laplume et al., 2008).

As the theory extended into other fields, it started to become complex and as a result of this complexity, there is widely different opinions regarding the theory in terms of definition and applicability (Miles, 2017; Donaldsson & Preston, 1995; Laplume et al., 2008). One of the most renowned contrubtions to the stakeholder theory is Donaldsson & Preston's (1995) explenation and categorization of the essence of stakeholder theory. Donaldsson & Preston (1995) framed the theory into three different parts: normative, descriptive & instrumental. The first two perspectives concernes actual facts whereas the normative dimension is explicitly moral and concernes ethics. The discriptive perspective is emperical and describes and explaines corporate characteristis and behaviours with stakeholders. The instrumental perspective represent the conventional strategic dimension of the stakeholder thoery as it explaines that in order to be successful one have to manage the stakeholder relations. The instrumental perspective has been criticized for lacking the moral aspect of business (L'Etang, 1995). Which the normative perspective acknowledges as it focuses on the moral and philosophical perspective and describes how companies should behave ethically (Donaldson & Preston, 1995). Donaldson & Preston (1995) further refers to the normative approach as the central core and the most important perspective in stakeholder theory (Donaldson & Preston, 1995).

3.1.1.2 Stakeholder vs Shareholder Theory

Stakeholder theory is contreversial because it questions the assumption that profit maximation is the main concern for top management (Laplume et al., 2008). One of the more renowned critics against stakholder theory is Freidman (1962) who argues that the only stakeholder a company should consider, are the shareholders. If a company were to consider other

stakeholders in strategic decision-making than shareholders, they would not adhere to the fiduciary duties that a company is restriced to by law (Freidman, 1962). Freeman contradicted Freidman's statement and argued that a company's fiduciary duties should include all stakeholders and not solely shareholders (Freeman, 1984). Additionally, there are those who argue that fiduciary duties towards shareholders do not have to conflict with the normative goals of stakeholder theory (Marens & Wicks, 1999; Goodpaster, 1991). Moreover, as the stakeholder theory developed it gained popularity in the fields of business ethics and in extension, also corporate social responsibility (Kakabadse, Rozuel, & Lee-Davies, 2005). Freidman however, continuted to contest the considerations of other stakeholder and argued that that the only social responsibility a firm has is to increase the company's profits, or atleast as long as the company take part in free competition withough deception and fraud (Freidman, 2007). Recent years coporate scandals such as Enron, Worldcom & Tyco International have provided empiracal evidence that maximazing shareholder returns and neglecting other stakeholders can be probleamtic, which argue against the stockholder theory (Smith, 2003).

3.1.1.3 Stakeholder Definition

Stakeholder theory is widely accepted among scholars, but fundamental aspects such as the definition of a stakeholder and which parties should be included in the definition is highly debated (Miles, 2017). The reason for the theory's many interpretations is that it is not a seen as a single theory but rather unification of selected narratives (Gilbert & Rasche, 2008). Stakeholder theory is a result of interpretations and applications from various areas such as business ethics, CSR and strategic management. Thus, it is the richness and wide applicability of the stakeholder theory that complicates it (Miles, 2017). To illustrate the complication of the stakeholder theory, Mitchel, Agle and Wood (1997) identified 27 different definitions, Friedman & Miles (2006) 55, Laplume et al., (2008) 104 and Miles (2017) managed to identify as many as 885 different definitions. The vast amount of definitions is evidence of the difficulty in concluding a universal definition.

The founding father himself, defined stakeholder as "A group of people who can affect or can be affected by the achievement of the organization's objective" (Freeman, 1984, p.46). However, there are scholars that argue that Freeman's definition is too broad and that basically anyone can be defined as a stakeholder. Other definitions, like Donaldsson & Preston's (1995) definition is criticised for beeing to narrow and pragmatic (Mitchell et al., 1997). Kaler (2002)

offers another popular way of defining and identifying stakeholders. He suggest that all definitions can be classified as either claimant, influencer a combination of the two. Claimant refers to having some sort of claim on a company's business, and influencer refers to the possibility to influence a company's business.

Moreover, there are plenty of ifferent classifications such as the discintion bewtween wide and narrow stakeholders (Freeman & Reed, 1983), primary and secondary (Savage, Nix, Whitehead, & Blair, 1991), core and peripheral (Hart & Sharma, 2004), moral vs strategic (Goodpaster, 1991) and necessary-contingent and compatible-incompatible (Friedman & Miles, 2002). Which categorization or definition is most accurate and most applicable is hard to decide. Miles (2017) argues that as the stakholder is a vary contested concept, there is no universal definition, but the key to produce a comprehensive classification is trather to define the boundaries of stakeholder identification, which also is easier said than done.

One popular way of defining stakeholders is the framework presented by Mitchell et al. (1997), who argues that stakeholders are defined as those who have power, legitimacy and urgency over the relation with the company. Power is possesed when it has or can gain access to coercive, utilitarian or normative means to impose it's will on the stakeholder relationship. Legitimazy concerns the generalizable perception or assumption that the actions of an entity are diserable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definition". Urgency refers to the degree that stakeholder claims and relations call for immediate attention. The controversy regarding the actual definition of a stakeholder is problematic for this study as it is hard to distinguish a universal definition to apply. As Freemans original definition from 1984 is the most well renowned definition this study will use this definition.

3.1.1.4 Business Ethics

Due to the moral aspects of the normative stakeholder theory, it has gained considerable support among scholars of business ethics (Hendry, 2001). Freeman himself attributed to this link when he and Gilbert wrote a book on the linkages between corporate strategy and ethics (Freeman & Gilbert, 1988). Corporate ethics have been taking more room in the academic debate and according to Friedman & Miles (2006), the majority of all stakeholder literature relate to either the conventional strategy perspective or business ethics. Furthermore, Miles (2017) found that

out of the 855 different definitions she identified on stakeholder theory, 355 of them originated from business ethics journals.

The intentions of the normative stakeholder theory are to consider the ethical legitimacy on the stakeholders' claims on the company and thus, consider others than just shareholders (Jones, Wicks, & Freeman, 2002). However, Goodpaster (1991) contradicts this ethical justification of multi-stakeholder consideration. He has developed a contradictory view on the ethical aspect of normative stakeholder theory that is referred to as the "Stakeholder Paradox". He argues that there is a difference in ethical obligations to stakeholders and shareholders. Companies have fiduciary obligation to its shareholders and it would be unethical for them to focus on any one else than the shareholders. Goodpaster (1991) further argue than if a company were to have multi-fiduciary obligations towards all stakeholders, then the company would cease to be a private institution. Hence, this is one of the critiques towards Freeman's (1984) suggestion that a company should have fiduciary obligations towards all stakeholders as well as overall critique for the normative stakeholder theory.

Goopaster (1991) further emphasizes on the importance of managerial intentions with stakeholder theory. Although there is nothing wrong with altering your strategy as a way of avoiding negative claims from stakeholders, it is not a normative and ethical way of conducting business. An ethical approach would be to have a good relationship with your stakeholders, no matter how it effects your business. Hence, there is a difference in what the managerial intentions are to stakeholder relations. If one, simply manage its relations with shareholders for strategic reasons it is an instrumental approach. If one instead acts on ethical intentions, the approach would be normative. The importance of ethical motives in this case is that if managers only use instrumental and strategic motives, powerless stakeholders will be deemed unimportant and neglected (Goodpaster, 1991). Furthermore, Donaldson (1999) conclusion on the relationship between instrumental and normative is in line with Goodpaster's arguments (1991). He claim that if a manager believes that treating stakeholders as they all have intrinsic worth will result in increased performance, then the manager will act in accordance with ethical guidelines but only to achieve increased performance.

Even though Donaldson & Preston's (1995) categorization have proven to be well accepted, some also argue that the distinction between them are not as black and white as one might like to think. The instrumental perspective have for instance, been criticised for the lack of moral

perspective (L'Etang, 1995), for that reason some authors have created the Convergent Stakeholder theory (Jones & Wicks, 1999). The convergent stakeholder theory combines the instrumental and normative parts of the stakeholder theory and thus, being morally sound as well as instrumentally practicable in economic outcomes (Jones & Wicks, 1999). Moreover, the above-mentioned argument by Donaldson (1999) further builds on the convergence of the normative and instrumental approach, by arguing that if a manager believes that acting ethically toward intrinsic stakeholder will result in better performance, he/she will then act ethically. Hence, both the normative and instrumental intertwine. This development of the stakeholder theory has been contested by some authors but has also helped to reduce the significant gap between instrumental and normative stakeholder theory (Freeman, 1999; Kakabadse et al., 2005).

As the theory developed and gain acknowledgement in business ethics it has also been intertwined with the concept of Corporate Social Responsibility (CSR) (Jones et al., 2002; Kakabadse, et al., 2005). The many corporate scandals like Enron, Worldcom & Tyco have also led to an increased focus on business ethics in combination with stakeholder theory as many stakeholder demand improvements of companies' ethical considerations (Carroll & Buchholz, 2008). If CSR aim to define what responsibilities a business should have, the stakeholder theory states to whom the business should be accountable to. From this perspective, the two concepts are intertwined (Kakabadse et al., 2005). Moreover, Carroll (1999) argues that it is hard to delineate areas of literature into business or society as they are often intertwined. Therefore, CSR and stakeholder literature are built on each other. Since the CSR is built on ethical grounds it is fair to assume that it is most closely related to normative stakeholder theory.

3.1.2 Agency Theory

3.1.2.1 History and Development

Berle & Mean's (1932) article about separation of ownership and control is a fundamental part of what today is referred to as the agency theory. Berle and Means (1932) described the modern corporation as an increasingly complicated legal and economic entity. Which is a result of companies growing larger over time which lead to less concentrated ownership.

This development, combined with an increased stock market, a limit on managerial wealth and a need for efficient risk allocation, meant an increase in the diffused ownership of companies

amongst shareholders (Fama, 1980; Fama & Jensen, 1983). As a result, the phenomenon of separation of ownership and control developed, which meant that owners had to hire and rely on managers to operate the companies that they owned.

Furthermore, the concept of separation of ownership and control developed a lot since Berle and Means (1932) first discussed it. Ross (1973) was first to describe the relationship between owners and managers as a principal-agent issue, where owners are the principals who want the managers to act according to their objectives while managers are named agents how work on the behalf of the principals. Nevertheless, it was Jensen and Meckling (1976) who conceptualized a theory about the phenomenon which was given the name agency theory. The central premise of the stakeholder theory is that managers can act in their own self-interest which would be problematic for the owners. Owners and managers have a conflict of interest and it exists information asymmetry between them which makes the relationship complicated and problematic (Jensen & Meckling, 1976).

3.1.2.2 The Firm as a Black Box & Nexus of Contracts

When Jensen & Meckling (1976) published their article on agency theory, they turned the theory into a dominant framework for corporate governance literature (Lan & Heracloues, 2010, Daily et al., 2003). The agency theory started to gain attention in the 80's and started to replace the opinion of seeing the company as a black box by instead viewing a company as a nexus of contracts. The firm as a black box refers to a company as an entity competing in markets while the internal structures of the firm was ignored. The underlying assumption of the black box is that a firm operates to meet the relevant marginal conditions in respect to input and output, hence maximizing profits (Jensen, 1994).

The firm as a nexus of contracts on the other hand, considers the interaction between agents in the firm as well at the marketplace more comprehensively. The nexus of contracts sees contractual relationships as the essence of the firms. Not only with employees, but with customers, suppliers, owners etc. Moreover, a firm is no longer seen as a profit maximizing entity as there is conflict of interest between human beings and the resulting equilibrium behavior of the organization (Jensen & Meckling, 1976).

3.1.2.3 Moral Hazard & Adverse Selection

One of the dominant issues that result in different objectives between owners and managers is their risk profile. The agents are risk averse and the owners are risk-neutral since the managers cannot diversify their employment whereas owners are able to diversify their investment (Eisenhardt, 1989). In other words, the owners are less risk averse since they are not as reliant on the success of one specific investment compared to the mangers who are exposed to losing their employment if risky projects and investments are undertaken. Since there are differences or risk profile, the managers might not act according to the owners' objectives and interests as the agent might have other interest that are not solely to maximize shareholder wealth (Demsetz & Lehn, 1985).

Furthermore, except for differences in objectives and risk profiles the issue for the principal is that there exists information asymmetry in their relationship which means that managers have information that the owners do not. The information asymmetry leads to two problems, moral hazard and adverse selection. The differences in the two problems lies in the time of occurrence. Moral hazard exists ex-post contractual agreement and adverse selection exists ex-ante a contractual agreement. Adverse selection refers to when an agent has more information than a manager before the contractual agreement. For example, a manager might claim to have certain experience and skills before being hired but the owner cannot verify if this actually is the case at the time (Eisenhardt, 1989). The term moral hazard refers to the agent's possibility to act in its own self-interest instead of the owners after the parties have engaged in a contractual engagement. For example, after being hired, an employee might pursue his/her own private agenda instead of the owner's.

Moral Hazard can further be divided into two separate concepts, which is opportunistic behavior and hidden action. Opportunistic behavior is an inclination of the human (Jensen, 1994), whereas hidden action is a result of the asymmetrical information between the agent and principal (Arrow, 1968; Eisenhardt, 1989). Together, opportunistic behavior and hidden information contribute moral hazard combined with the fundamental problem of conflict of interest (Hendrikse, 2003).

3.1.2.4 Mitigating Agency Costs

The fact that a principal cannot observe the true effort of the agent result in hidden action problem as there is asymmetric information between the principal and the agent. As a result, the incentives for moral hazard exists. The problems associated with moral hazard result in costs for the firm and these costs are referred to as agency costs (Jensen & Smith, 1985). The level of agency costs depends of the principal's ability to mitigate the agency costs. To help diminish these agency costs the principal has to reduce the information asymmetry through actions such as performance measurement systems, monitoring, incentivize and set rules to limit the agent from acting opportunistic (Gomez-Meija, Wiseman & Dyked, 2005). Although principals aim to minimize the agency costs, it is hard to eliminate the costs altogether as the marginal costs of minimizing the costs will become higher than the actual agency costs (Jensen & Meckling, 1976).

Monitoring systems will make the agent less keen to act opportunistic as the information asymmetry decreases between the principal and the agent. Larger companies often use the board of directors as a way of monitoring the managers as they are assigned their position with the purpose of monitoring the managers. Other ways of monitoring are reporting systems and other processes to limit the asymmetric information between the principal and the agent (Fama & Jensen 1983; Heath, 2009; Shapiro, 2005).

A way of aligning the agent and principal's interest in risk-taking is to give agents compensation that is a function of outcome, such as increased stock price or profit (Hendrikse, 2003). By doing so, principals' and agents' wealth is aligned and so is the interests. Provided that wealth is a proper incentive for the given individual agent. A downside of performance-based pay such as mentioned above, is that agents solely will focus on the aspects that are being measured by the principal and ignore other aspects. As a result, the incentive system becomes a matter of meeting measurable targets, and not creating real value and growth (Porter, 1992). Although incentives trough performance-based pay can be efficient, the best way to mitigate the problem between owners and managers is by allocating ownership to the mangers themselves. That way managers are the owners and their interest are automatically aligned with managers (Hart, 1988).

3.1.2.5 Different Types of Agency Problems

The most fundamental agency costs arise in the relationship between owners and managers. Another type of agency problem arises in the relationship between majority and minority shareholders (Thomsen & Conyon, 2012). A large shareholder with a significant ownership stake is often called blockholder and should be able to mitigate agency costs as their large ownership share gives the investor incentive to monitor the managers which would benefit smaller shareholders. However, a blockholder can also use its power to pursue own self-interests at the expense of smaller shareholders. A third agency cost relationship is the one between shareholders and stakeholders. Whenever, the shareholders make decision at the expense of stakeholder welfare, agency costs arise. For instance, if a company decides to shut down a school which affect stakeholders such as students, parents, teacher and the entire community (Thomsen & Conyon, 2012).

3.1.3 Ownership Theory

A firm's owners are those stakeholders who have the formal right to two things: the right to control the company and the right to appropriate the firm's residual earnings. In theory, the formal rights to these two could be divided among stakeholders, but in practice they are hold jointly by one stakeholder. If the people with the rights to control did not have the rights to the residual earnings, they would have limited incentive to use their control to maximize profits (Hansmann, 1996). However, not all firms have owners. For instance, in a non-profit firm, the person who is in control has no right on the residual earnings.

Although ownership concentration has gained a lot of attention from scholars, research on ownership identities of stakeholders has only in recent years started to gain attention (Delios, Wu, & Zhou, 2006). Research have emerged that argue for the benefits and weaknesses of different types of owner identities. Hansmann (1996) is one scholar who have contributed to the field of ownership identity. He argues that is not possible to claim that a specific ownership type is superior to another and that different types of ownership can be efficient in the proper context (Hansmann, 1996). Moreover, Hansmann (1996) has developed a theory that builds on the combination of ownership cost and the cost of market contracting (Hansmann, 1996).

Like the agency theory, Hansmann's (1996) theory on optimal ownership builds on the perspective as seeing a company as a nexus of contracts. The many contractual agreements

jointly substantiate a company, entails transaction costs. These costs consist of ownership costs and market contracting costs. Anyone of these stakeholders can be owners of the company and that party would then incur the cost of ownership but avoid the cost of contracting. The optimal ownership will be the one that minimizes these two costs. The following sections will cover these two types of costs in more detail in the following sections.

3.1.3.1 Market Contracting Costs

The cost of market contracting is a result of welfare losses due to factors such as monopoly and market power distortion, ex-post transaction costs concerning asset specificity and information costs. Such factors affect contractual agreements between stakeholders that make them costly.

Transaction costs of these kinds can be avoided to some extent for a given stakeholder group, if these stakeholders become owners and thereby, internalizing the transaction costs. For example, companies owned and run by a manager avoid the need for service of professional managers. But the owners have to incur market transaction cost in financing as the firm can't internalize managers and outside investors at the same time. On the other hand, investor owned companies can obtain equity financing from the stock market, but they have to obtain professional manager services externally. A hybrid is possible but often incur conflict of interest (Hansmann, 1996). Nevertheless, the benefits of internalizing will have to weighted against the added alternative cost of contracting on market terms and cost of ownership that the stakeholders will incur instead, which will be covered in the next section. Furthermore, Thomsen & Pedersen (2000) argue that the objectives imposed the company by any given dominant ownership category are likely to reflect the benefits and ownership costs associated with that ownership identity.

3.1.3.2 Ownership Costs

The cost of ownership refers to three cost that when accumulated, result in total ownership costs. These costs are the cost of monitoring, risk-bearing costs and collective decision making (Jensen & Meckling, 1976; Hansmann, 1988). Monitoring costs refers to the previously mentioned agency theory and the separation of ownership and control. Some ownership identities entail larger costs for monitoring managers compared to others. An institutional owner for example, who only have a small ownership stake and are far away from the everyday

operations have larger monitoring costs than a manager owned company as the owners of the company also is the managers, thus mitigating the costs of monitoring.

Collective decision-making costs refers to the decision-making process in a company. If there is one private owner of a company, that person can control the decision-making entirely. For a company with less ownership concentration, like a listed company, there are many owners with different agendas. The process of making decisions is much more complicated and entails a lot more work, for example conflict resolution and voting processes, which is the cost of collective decision-making. The more heterogeneous the owners are, the more collective decision-making a company incurs (Hansmann, 1996).

The cost of risk bearing concerns the owners risk associated with the residual results of a company. If a company is owned by one person and that person's sole investment is the given company, he/she is highly dependent on the residual earnings of that company. Which entails high risk bearing as the risk for this owner is very high. On the other hand, if the owner is a diversified investor such as an institutional owner, only a fraction of that owner's investment is dependent on the residual earnings of the company as it has a diversified investment portfolio. Thus, a more diversified owner has lower risk bearing costs (Hansmann, 1996).

3.2 Previous Empirical Research

In the following section, previous empirical research that is deemed relevant for this study will be covered. Firstly, precious empirical literature regarding ownership structure and ownership identity be described. Secondly, international as well as national research on education will be presented. In the second section, there will also be a background part that explains the Swedish educational system and the relevant aspects of its development.

1.1.1 Ownership

3.2.1.1 Ownership Structure

The field of corporate governance has developed a great deal since Berle and Means (1932) first introduced the problem of separation of ownership and control. One of the areas of corporate governance that have received the most attention is the concentration of ownership. Some argue that concentration of ownership is a tool to mitigate the negative effects of the

agency theory (Demsetz & Lehn, 1985; Shleifer & Vishny, 1997). Large owners have the incentive to monitor management and the voting power to affect management. Hence, concentrated ownership can improve the corporate governance of a company (Shleifer & Vishny, 1997). However, ownership concentration could also result in a negative effect. If the large owners have other goals than the minority owners they may use their power to pursue their own goals and benefit at the expense of the minority owners (Pedersen & Thomsen, 2003). However, Fama and Jensen (1983) argue that substantial mismanagement and expropriation of profits will ultimately be reflected in firm size and financial difficulties, which can lead to the company being eliminated by competition.

There is a different perspective that contest this logic called the expropriation theory. It suggests that the larger shareholders can act in their own self-interest at the expense of the smaller shareholder (Shleifer & Vishny, 1997). Moreover, large owners may also be risk-averse since they are likely to have invested a considerable share of their wealth into a single firm, which would make them less inclined to pursue high risk projects and instead focus on low risk and low return projects (Thomsen & Pedersen, 2003).

These conflicted views suggest a non-linear relationship between ownership concentration and firm performance. Morck, Schleifer and Vishny (1988) argue that firm performance initially improves as ownership concentration increases but as it reaches a point, the firm performance decreases. Their argument is in line with the expropriation theory as they claim that beyond a specific point, large shareholder uses their votes to maximize their own benefit which do not have to be in line with firm performance. An additional dimension is Lehman and Wigand (2000) who contribute to the debate by suggesting that the presence of a second large shareholder is very profitable as it would limit the possibility of one large shareholder to expropriate profits. Moreover, Pedersen and Thomsen (2003) argue that ownership concentration has positive effect on firm value, but only when the largest shareholder is a financial institution of another corporation. The further claim that if the owner is a family or single individual, ownership concentration has no effect and for government ownership there is a negative correlation (Pedersen & Thomsen, 2003). Demsetz and Lehn (1985) however, found that there was no significant relationship between ownership concentration and profit, thus contradicting the conclusions of many others. Gedajlovic and Shapiro (1998) further argue that any form of correlation between ownership concentration and firm profitability differ depending on national systems of corporate governance.

Furthermore, Berle and Means (1932) argue that the US market was highly dispersed and there is a lot of research have been influenced by this belief (La Porta, Lopez-De-Silanez, & Shleifer, 1999). Morck et al. (1988) show that even amongst some of the largest companies in the US, the ownership is modestly concentrated. On the other hand, Clifford, Kroszner & Sheehan (1988) argue that ownership concentration in the US is higher today than it was when Berle and Means (1932) wrote their article. La Porta et al. (1999) studies point towards the same conclusion as their research suggest that many companies worldwide are having concentrating ownership. The exception is economies with very good legislative minority shareholder protection. These firms are instead often owned by families or the state.

3.2.1.2 Ownership Identity

As covered above, there is a lot of research which suggest that ownership structure have a significant impact on ownership structure and corporate governance (Shleifer & Vishny, 1997; Morck et al., 1988; Lehman & Wigand, 2000). Much of the previous literature on ownership structure draws on the logic of the agency theory. These studies examine and generally support the predications of agency theory which is that separation of ownership and control result in managerial incentives to pursue matters that are not aligned with ownership preferences (Thomsen & Pedersen, 2000). The tool for mitigating this situation, ownership concentrated companies' shareholders can use their power as blockholder to get managers to act in line with their preferences and objectives (Thomsen & Pedersen, 2000). While a lot of research has been conducted on the agency relationship between owners and managers, few have analysed how ownership identity as a dimension of ownership which has important implications on company strategy and performance (Short, 1994; Thomsen & Pedersen, 2000).

Ownership structure focuses on the power of shareholders to influence managers, while ownership identity has implication for those owners' objectives and how they exercise their power. This have effect on the company strategy in terms of profits goals, dividend, capital structure and growth rates (Thomsen & Pedersen, 2000). Moreover, Short (1994) argues that simply investigating ownership by the owned percentage of shares, fails to provide valuable insights into the relationship between firm performance, ownership and control structures. Ownership identity could help provide essential information that would complement ownership concentration in research of ownership structure. Pedersen and Thomsen (2000) support this

fact by providing evidence that ownership identity is as important as ownership concentration in terms of effect on corporate governance. Additionally, both Leech and Leahay (1991) and Boone, Colombage and Gunasekarege (2011) argue that the ownership identity is more relevant than ownership concentration when researching corporate governance behaviour and effects. Lehmann and Weigand (2000) also argue for the importance of ownership identity as they state that ownership identity effect the impact of ownership concentration on firm performance. Moreover, Pedersen and Thomsen (2003) argue that ownership concentration is important in terms of firm performance, but the ownership identity of the concentrated owner highly affect the measured firm performance.

Previous research on ownership identities regarding objective and performance, will be covered in the following sections. However, only the most common ownership identities will be included as they are deemed most relevant for this study.

3.2.1.3 Manager Ownership

Manager owned companies usually experience financial problems with capital rationale, short-term horizon and risk aversion. Compared to investor-owned companies, manager-owned companies tend to be reluctant to invest in ambitiously long-term aspects such as economies of scale. They are more likely to pursue niche strategies related to flexibility or differentiation (Thomsen & Pedersen, 2000). A positive aspect of management ownership is the alignment of objectives and incentives as management are keener to act in the best interest of the company if they are owners. However, Morck et al. (1988) argue that there is a difference in how much a company management owns. Management have the proper incentives and the interests are aligned when managers own less than 5%, but when manager ownership exceeds 5% it harms the minority shareholders as managers start to extract private benefits.

3.2.1.4 Institutional Ownership

Thomsen and Pedersen (2000) argue that institutional investor ownership is more likely to entail advantages in terms of financing, low risk aversion and long-term horizon as they possess knowledge and skills in these areas. Moreover, institutional investors are often industry specialized and their performance is measured in financial success which is shareholder friendly as their objectives are aligned and there is little risk of expropriation of profits. Institutional investors usually own a small stake but are known as a positive force for shareholders.

Moreover, Maury and Pajuste (2005) support this conclusion as they argue that institutional owners are less likely to extract private benfits as they are more exposed and scrutinized by regularoty authorities. Maury and Pajuste (2005) also argue that the formation of a coalition between a private shareholder and a financial institution is more likely to be a violation of law than if two families form a coalition. Attig, Omrane, and Mishra (2008) contributes by pointing out that institutional investors are concerned with their reputation and would therefore not engage in profit diverting coalitions. Furthermore, Thomsen and Pedersen (2000) argue that institutional ownership has a strong positive effect on market-to-book values in large European companies. Pedersen and Thomsen (2003) also argue that company performance among European companies is positively correlated with institutional ownership if ownership is concentrated.

3.2.1.5 Family Ownership

Family ownership is often associated with a double role as they are often both managers and owners. They make firm-specific investments which make them reluctant to give up control. Their financial success is correlated with the company's, which entails a long-term commitment and survival of the firm. As they do not want to give up control to intuitional investors, they are relatively risk averse (Thomsen & Pedersen, 2000). Furthermore, family owned firms tend to prioritize personal gain before minority shareholders (Thomsen & Pedersen, 2000). Families often invest a large share of their money in the company, which makes them risk-averse and as a result, they are more capital-rationed compared to other companies with diversified ownership (Fama & Jensen, 1985). Another issue of family ownership is the risk of succession problems, family conflicts and nepotism which could damage the business performance of the company (James, 1999)

In companies with founding families as owners, they often also have a seat on the board, top management or both. As a result, families are in a position to control the decisions being made by the company (Maury & Pajuste, 2005). Furthermore, Maury and Pajuste (2005) argue that the insider position family possess makes it easier to expropriate profits which would be negative for the firms as a while. As family often own a large portion of the company and as a result, they often become large blockholders (La Porta et al., 1999). Moreover, family loyalty might overcome incentive problems and increase efficiency (James, 199). Empirically, McConaughy (1998), McConaughy, Matthews and Fialko (2001) and Mishra et al. (2001) find

a positive effect of family ownership on firm value. But Morck et al. (2000) find a negative effect of second generation family ownership on asset and sales returns.

Furthermore, family ownership is quite common in Europe and the United States. Anderson and Reeb (2003) argue that families own 16% of the equity and are partial owners in a third of the S&P 500 companies. Claessens, Djankov and Lang (2000) also found that a large portion of the listed companies in East Asia is held by families. Furthermore, the separation of cash flow rights and control is more common in family owned companies (Claessens et al., 2000). If the second largest owner is also a family, this will have negative impact but if the second largest owner is a non-family owner, the value of the company is affected positively. Suggesting that two families are more likely to expropriate together than another combination of ownership. Attig et al. (2008) support this conclusion as they argue that large family ownership result in higher cost of capital as the risk of expropriation is higher than other constellations.

In terms of performance, Thomsen and Pedersen (2000) argue that family ownership has a positive impact on sales growth in large companies. Andersson and Reeb (2003) argue that family owned firms outperform other ownership types and further suggest that having a family member as CEO is more profitable than an outsider. Whereas, Mary and Pajuste (2005) suggest that family ownership is more prone to extract private benefit and need to be monitored by another strong blockholder to avoid expropriation of profits. Moreover, Pedersen and Thomsen (2003) state that their study on large European firms show that the largest owner of a company is a family, it has no direct impact on company performance.

3.2.1.6 Government Ownership

Government ownership internalize the relationship between the company and the government which serves as institutional alternative to regulation. Research suggest that government owned companies tend to focus on political goals such as low output prices, employment, or external effects relative to profitability. Non-profit maximization is key in welfare economics as it means to correct market failures by doing things differently than private firms. As a result, government owned companies are expected to achieve low performance in a conventional performance measurement. On the other hand, they tend to be quite wealthy which is good for credit, liquidity and cost of capital (Thomsen & Pedersen, 2000). Hartley and Medlock (2008) argue that government owned companies have short-term goals since they want to use the

profits for other political purposes, which contradict Thomsen and Pedersen's conclusion (2000). Hartley and Medlock (2008) further argue that operational efficiency is not a primary concern of the government as it may prioritize goals that would seek to improve a political goal and not primary benefit the shareholders. Moreover, Thomsen & Pedersen (2000) argue that government ownership has a negative effect on asset returns.

Research have been conducted on the performance of companies when a government either increase or decrease their ownership. If a government reduces it ownership share, it has a positive result on the company's profitability (Nguyen, 2008). If a government increases its company share, it does not have any significant impact on profitability. However, evidence suggest a significant increase in return on assets, efficiency and leverage when governments sell off part or all of its shares in a company (Nguyen, 2008). Attig et al. (2008) argue that having a government as the second largest shareholder after a family reduces the risk of expropriation.

3.2.1.7 Foundation Ownership

Foundations are non-profit entities that own and operate business companies and is common in northern Europe (Thomsen & Rose, 2004). Their non-profit characteristic makes foundation ownership deviate from the usual assumption that a company aims to maximize profits (Thomsen & Pedersen, 2000). Large corporations are often characterised by dispersed ownership as it allows investor to limit their risk and reap the benefits of diversification (Shleifer & Vishny, 1997), which is not the case for foundations as there is no owner. In terms of agency costs, a foundation is likely to suffer greatly as monitoring from the market of corporate control is absent. As a result, foundations are often considered to solely by suitable in certain industries such as healthcare, education and charity, and not as commercial companies (Fama & Jensen, 1983).

In terms of profitability, foundation ownership is assumed to generally experience low profitability as the lack of outside investors entail low monitoring which lead to opportunistic behaviour and expropriation. Nonetheless, empirical studies point to the contrary. Foundations are actually found to be performing at the same level and even better than companies with dispersed ownership (Thomsen, 1996; Herrmann & Franke, 2002; Thomsen & Rose, 2004). Thomsen (1996) has investigated the foundation performance in Denmark over a ten-year

period and compared the performance to other companies. He concludes that foundations do not perform worse than other company forms. Hermann and Franke (2002) conducted a comparable analysis in the German market that showed that foundation-owned companies actually performed better than listed companies.

Furthermore, Thomsen and Rose (2004) used stock market-based performance measures as risk-adjusted stock returns and firm value to investigate the effects on foundation owned companies in Denmark for four years. The authors suggest that foundations is a successful ownership compared to other companies. As mentioned earlier, empirical research evidently argues against the agency theory and basic economic assumptions and suggest that foundations can be a profitable and competitive ownership identity.

Thomsen (1996) has conducted a case analysis of two large foundation owned companies and based on that research, he suggests that foundations have the advantage of encouraging long-term commitment with a long-term investment horizon. Herman and Franke (2002) agree with Thomsen (1996) as their research conclude that foundations provide long-term stability in financing and investment policies. On a more critical perspective, Thomsen (1996) argues that foundation-owned companies tend to be worse than other companies in terms of valuating investment opportunities. Furthermore, according to Hansmann and Thomsen (2013), foundations have difficulties procuring outside capital. That potentially leads to higher cost of capital.

3.2.1.8 Private & State Ownership

The question regarding private vs state ownership easily becomes a discussion regarding capitalism and socialism (Morck et al, 1988). As this article don't aim to contribute to the political discussion regarding political ideology, only literature relevant for this paper will be covered in this section. Empirical studies on studies on state-owned enterprises (SEO) gain a lot of attention after Alchain (1965) presented his research that concluded that SEO is inherently less effective than private firms.

Boardman and Vining (1989) have investigated the profitability between state and private companies in the US. Both state-owned and mixed owned enterprises are considerably less profitable compare to private companies. Moreover, Tian (2000) came to the same conclusion

when researching private and state-owned companies in China. Cornette et al. (2003) also support this conclusion when they investigated the same thing in far east countries. Millward and Parker (1983) investigated firms in North America and suggested that there were no evidence of managerial efficiency but in terms of profitability private companies were better than public companies. Deeming from this empirical research, private ownership seems to be superior in terms of profitability

Another way of measuring company performance between state versus private is to investigate privatization of companies and compare their profitability in a time-series analysis. Megginson, Nash and van Randenbourgh (1994) investigated privatization of 61 different firms spread over 32 industries and concluded that privatization lead to increased profitability in almost all cases. D'Souza and Megginson (2001) and Dwenter and Malatesa (1997) arrive at similar conclusions that former SOE's improve their performance after being privatized. D'souza and Megginson (1999) compared pre- and post-privatization financial and operating performance of 85 companies in industrial nations. Their study suggests that firms experience increase in profitability, output, and operational efficiency. Megginsson and Netter (2001) conducted a similar investigation on privatization in non-transition and transition countries and came to the more or less the same conclusion. Private firms became more efficient and profitable.

To further understand the issue there have also been case studies on privatization that analyses privatization in more detail. Boles de Boer and Evans (1996) researched the privatization of Telecom in New Zealand. They found considerable declines in phone services prices that arose from productivity enhancement. Newberry and Pollitt (1997) looked at the privatization of the Central Electricity Generating Board and argue that the privatization resulted in a cost reduction of 5% annually. Shirley and Walsh (2000) have gone through all empirical literature that investigate the performance of SEO compared to private ownership in various situation, both in terms of comparing private companies and SEO and privatizations. They found that private ownership was superior in almost all cases. Private companies are more effective and company performance also improve after privatization. They further conclude that private ownership performs better in all market structures and are superior on both developing and industrialized nations. Furthermore, both Hart (1995) and Shleifer (1998) emphasized on private companies superiority in terms of innovation, which was mainly due to management incentives.

1.1.2 Education

3.2.1.9 Previous Educational Research Internationally

Although the Swedish educational system is quite unique there is international research that provide interesting results. Comparison on the difference between private and public schools have mainly been conducted nationally, and most research have been done on the US educational system. In the US, research in this field increased after Coleman, Kilgore and Hoffer (1982) published an article stating that private schools' students achieved at higher levels compared to public schools. A heated debate started, and much national research have been made in the US (Greeley, 1982; Noell, 1982; Alexander & Palace, 1983; Coleman & Hoffer, 1987; Neal, 1997; Jeynes, 2002). Still, research is inconsistent and inconclusive in terms of which school type actually is the better one. The differences in research results could be affected on the timing of the study, the chosen research design and selected variables (Dronkers & Avram, 2010).

In a more international context, Dronkers and Roberts (2007) compared private and public schools in 22 countries worldwide. In their study, they divide private schools into private dependent and private independent schools. While private independent schools are entirely privately funded, private dependent schools are government funded which is similar to the Swedish independent schools. The authors argue that after adjusting for socio-economic factors, private dependent schools are the best, public second best and private independent schools have the lowest student scores. However, it not adjusted for socio-economic factors, the private independent schools are superior (Dronkers & Roberts, 2007). Furthermore, Dronkers and Avram (2010) compared 25 schools in 25 countries scattered over Europe, America and Asia. Their research focused on student's reading ability and concluded that private school students achieve higher reading levels than public school students. However, similar to the conclusion by Dronkers and Roberts, (2007), Lubienski and Lubiensk (2013) and Noell, (1982) found that when controlling for social class and family background, public and private schools' results were more similar. Although, after controlling for this demographic factor, private schools were still slightly better.

One of the most internationally similar school systems to Sweden is Chile's. They also have a voucher system that allows private schools to be funded by public funds. Carnoy (1998) analysed and compared Sweden and Chile and concluded that the introduction of voucher plans

didn't result in catastrophic decline of public schools as some have claim. He further argues that there is no evidence that private schooling is more effective than public and there is mixed evidence on whether or not private schools are more cost-efficient. Moreover, Bellei (2009) has researched the efficiency in both public and private schools in Chile and could not find evidence that suggest that one type is superior to another. Although it is hard to conclude why there is no difference, Bellei (2009) speculates that public schools have increased their efficiency as a result of increased competition from private schools. This speculation in is line with Amrit (2013), who presented evidence that the implementation of private schools in Nepal has a positive correlation with public school performance. He further argues that the reason for this correlation is the increased competition. He explains his result by referring to Friedman (1962), who claims that the presence of competition raises the overall educational productivity.

3.2.1.10 Previous Research Nordics

Private schools are not very common in the Nordics, although some countries have independent schools similar to the Swedish but there are major differences in the number of schools and economical prerequisites. The Danish independent school system is similar as they also receive public funding, however only 75% of the funding a public school receives (Friskolerne, 2019). In Denmark, 15% of the students go to the independent schools (Blossing Imses & Moos, 2014). Finland and Iceland have very few independent schools and in Norway only 2.6% of the students go to independent schools (Blossing et al., 2014). The Norwegian system is more similar to the Swedish as the independent schools also receives 85% government funding (Norwegian Ministrary of Education and Reaserch, 2019). Since so few students are enrolled in private schools in Norway, Finland and Island, it limits the previous research and not many scholars have investigated the diffrences in performance between public and private schools.

However, private schools are relatively common in Denmark as 15% of students are enrolled in independet schools. In Denmark, previous reserached have both looked at the independent schools effect on public school performance as well as investigating the differences in student performance beween public and independent schools. Both Nannestad (2003) and Calmar Andersen (2008) argue that the independent schools have had no effect on public school students' performance. In terms of comparing independent schools and public schools, reserachers disagree on the differnceses between them. Vandenberghe (2003) investigated reading test scores among 15-year olds internationally and concluded that private school

students' academic achievement in Denmark was lower than public school student scores. Rangvid (2003) argues that students in public schools more often tend to pursue higher education after graduating compared to private school students. On the contrary to Rangvid (2003), Calmar Andersen (2008) argue that there is no significant difference in private and public performance between independent and private schools. However, he does argue that the schools with high socio-economic status perform better than similar public schools. Moreover, Meier, Calmar Andersen, O'Toole Jr, Favero and Winter (2015) argue that private schools significantly outperform independent schools on the ninth-grade level. Which suggest that, like in the US, there is no consensus regarding public versus private school student performance.

Altough, previous research is contraticting and ambigous, non of the systems are directly comparable to the Swdedish educational system. The nordic systems are relatively similar to the swedish system as they share a similar public funding system. However, Sweden is unique as it is the only country that allow schools to make profits over all and there is also no limitations on the amount of profit. The Norwegian and Danish school systems are also tution based to make up for the part that is not governement financed, which is is not allowed in Sweden as all education is tuition free (The Swedish National Agency for Education, 2019).

3.2.1.11 Previous Educational Research Nationally

The implications of the new voucher system in Sweden have resulted in debates where scholars disagree about the status of the education. Bunar (2009) argues there is great ambiguity regarding the effects of the voucher system on educational quality and level of segregation. Lindbom (2010) suggests that the impact on the educational quality is marginal but that research point towards a positive development in terms of educational quality. The increased competition has also resulted in increasing costs for public schools in order to stay competitive towards independent schools. Moreover, Bergström and Sandström (2001) have compared SweSAT scores and GPA amongst 9th grade students and their results suggest that the voucher system has increased the student scores over all, and this is due to increased competition among independent and public schools.

Erixon Arreman & Holm (2010) have reviewed the development of independent schools since the reform was introduced. They review that independent schools have made large profits and handed out considerable dividends to shareholders. In 2005 one independent school was even

considered to be one of the fastest growing companies in Sweden. Moreover, Erixon Arreman & Holm (2010) disclose that teachers have reported poor working conditions and overall decreasing quality on the independent schools. This is not reported openly in regular media as teachers fear that they will lose their job. Erixon Arreman & Holm (2010) takes it so far to argue that the rights of freedom of speech may have been violated by independent schools.

Lidström Holm & Lundström (2014) have investigated how the increased options of schools choice have impacted students. In general, students tend to experience the school choice process stressful and that schools actively try to market themselves towards both students and their parents. Independent schools often use gifts as a way of attracting students, it is not uncommon for an independents school to offer students laptops, journey boards and even driver's license (Holm, 2013; Lidström et al., 2014). Additionally, some independent schools have market themselves a school were students get higher grader than in other schools, which indicate active form of grade inflation as way of attracting students (Holm, 2013). Lundström et al. (2014) further conclude that school reputation have become an increasingly important factor when students choose schools. A common view among student is that compared to independent schools, student see public schools as a safer choice which appears to be one of the reason for choosing a public school (Holm, 2013)

Myrberg and Rosén (2006) has researched the difference in reading achievement between third-graders in public and independent elementary schools and the authors concluded that independent school students achieve higher reading scores. Nevertheless, Myrberg and Rosén (2006) argue that students in independent schools have a more advantageous socio-economic background compared to public school students, which suggest that social selection characterise independent schools. When adjusted for socio-economic background, no evidence could be found that independent schools are better.

The Swedish Teacher Association (2007) have conducted a report on resource allocation in public and private schools in Swedish elementary and high schools. They disclose some major differences in how the two allocate resources. Independent schools allocate more resources towards special pedagogic education, high quality teaching materials and class-specific classrooms such as a science lab. Whereas the public schools tend to have more licensed teachers, more guidance counsellors and more teachers per students. Böhlmark and Lindahl (2015) have compared student scores in GPA as well as SweSAT scores and conclude that

student academic results have improved in both elementary school, high school and upper secondary school for both independent schools as well as public schools since the political reform. Their result suggest that this is an effect of the increased competition since the independent school reform. Furthermore, MacLeod Urquiola (2009) argues that these positive effects are a result of increased productivity in the Swedish schools, compared to the schools in Chile, where schools can select student on ability and more compete on attracting and selecting the best students.

Furhermore, Sahlgren and Sanandaji (2016) have analysed how independent schools have performed in the PISA test compared to public schools. They have adjusted the result by personal background variables such as socio-economic state, foreign heritage, family structure, and access to information technology in the home. The results suggests that student in independent schools perform significantly better than public schools.

Heller, Sahlgren and Jordahl (2018) have researched the correlation between independent school results and profitability in elementary and high schools. Contrary to the public opinion, they found that there is a positive relationship between profitability and educational result. They further argue that one should be careful when drawing conclusion from the results, but the results are in accordance with Böhlmark and Lindahl (2015) who argue for the positive effect on free competition. Tyrefors, Hinnerich and Vlachos (2016) conducted an analysis over students result on the SweSATs and concluded that public school students perform better than independent school students.

Although some scholars argue for positive academic results, Erixon, Arreman and Holm (2011) rise concern about the massive development of independent schools among the upper secondary schools. The number of upper secondary schools have nearly doubled, and the number of independent schools have tripled since the reform was approved. Many of the largest schools in Sweden are now independent schools. Some of them even work as franchise companies and several of the large schools are being owned by private venture companies. Erixon et al. (2011) argue that the schools have become “edu-business” as they both serve as companies and as a school and this development is alarming. To support her warning, she points toward the low number of licensed teachers in independent school and the high level of grade inflation that exist in independent schools. Wikström and Wikström (2005) support this claim by revealing evidence that suggest that there is strong evidence that independent schools highly inflate

grades. Tyrefors Hinnerich and Vlachos (2016) share this more pessimistic view on independent schools and provide evidence that students at independent schools score lower than public school students at the SweSATs that all upper secondary students have to take. They also conclude that independent schools contribute to grade inflation as they are grade the test more generously.

4 Hypotheses

The following section will present two hypotheses that will be tested in the regression analysis. The hypotheses are developed and supported by theoretical and empirical research and are intended to help answering the research question.

4.1 Hypothesis 1

As mentioned in the introduction, the current educational debate concerns the comparison of public and independent schools. Although this paper aims to provide a more nuanced analysis by investigating the different ownership forms it would firstly be relevant to see how the results from this study relates to previous research when comparing public and independent schools. Previous research has used different research designs on various level. Some use SweSAT scores (Tyrefors Hinnerich & Vlachos, 2016), some uses grades (Böhlmark & Lindahl) and some use both (Bergström & Sandström, 2001). Regardless if the result of this study indicates that public or independent is better, the more in depth analysis between all ownership identities will be interesting to compare to the result between public and independent school. Therefore, the first of two hypotheses will concern independent schools versus public schools in terms of GPA and SweSAT scores.

There is no consensus in previous international literature whether which of public or private schools is the best (Carnoy, 1998; Dronkers & Avram, 2010; Bellei, 2009; Amrit, 2013, Coleman, Kilgore, & Hoffer, 1982), and previous national educational research also provides contradicting results, as some argue for the superiority of independent schools (Myberg & Rosén, 2006; Böhlmark & Lindahl, 2015; Heller, Sahlgren & Sanandaji, 2016), and others for public schools (Erixon, Arreman & Holm, 2011; Tyrefors, Hinnerich & Vlachos, 2016).

However, considering the ownership characteristics, a public school could be more suitable to provide good education as it can ignore the shareholder returns, have a long-term investment horizon and solely focus on providing good educational quality (Thomsen & Pedersen, 2000; Hartley and Medlock, 2008). Although, public institution are often less efficient (Hartly & Medlock, 2008), the implementation of independent schools seems to have improved efficiency and quality amongst public schools (Böhlmark & Lindahl, 2015). Which could indicate that public schools are not as inefficient as other government owned organizations.

Independent schools on the other hand, might generally be better in terms of profitability and shareholder returns (Millward & Parker, 1983; Boardman and Vining, 1989; Tian, 2000). However, this paper investigates student performance and not the schools profitability or shareholders returns. And since a school can allocate all time and capital towards the education and ignore shareholder returns, they could be better suited to run a school measured in student performance. By this logic, public schools should be better suitable to provide the best education and as a result, their students should achieve higher educational results. This leads to the papers first hypothesis:

"Public schools are better than independent schools in terms of students' GPA and SweSAT scores"

4.2 Hypothesis 2

Although hypothesis 1 provides interesting contribution to previous research, it also treats all independent schools as one entity, while the aim of this paper is to distinguish between differences in ownership identities. Therefore, hypothesis 2 will compare the result in hypothesis one with the different ownership identities that exist within the cluster of independent schools. Independent might be better in term of GPA and SweSAT than public or vice versa, but then comparing public to the different ownership forms, the result might differ.

From a theoretical standpoint, Hansmann (1996) argues that the ownership identity that minimizes market contracting and ownership costs is the optimal ownership. A school is a form of service organization and a one of a service organization's main assets could be considered to be the employees. Thus, the largest cost could likely be labor costs. As a result, a large market contracting cost for a school could be the cost of contracting teachers and the ownership that

mitigate this cost could be beneficial as owner. Normally, a large transaction cost would be the contracting cost for capital, but since the schools receive either the majority or all of their funding from the government or the majority, this market contracting costs is not as significant as market contracting for labor. An ownership identity that would internalize the cost of hiring teachers would be teacher owned schools. Hence, a teacher owned school would entail low market contracting costs compared to other ownership identities.

From an ownership costs perspective, a major cost is associated with monitoring managers and mitigating agency costs (Hansmann, 1996; Jensen & Meckling, 1976). Which makes it fair to assume that an ownership identity that minimizes agency costs would also be a suitable characteristic for an owner. If the ownership rights were allocated to teachers, it would efficiently mitigate agency cost as the interest between employees and owners would be aligned (Hart, 1988). In terms of collective decision-making, a teacher-owned school would entail high ownership costs as there are multiple owners that need to agree on matters. Nevertheless, scattered ownership could still entail lower level of ownership costs if the owners are homogenous (Hansmann, 1996). Compared to other ownership identities, it is possible that teacher owned schools might have more homogenous interests and opinions since they are all the same type of stakeholder and probably have somewhat the same objectives for the school. Furthermore, considering costs associated with risk bearing, a teacher-owned school would entail large ownership costs. They are highly invested in the organization as they are both exposed as an investor and as an employee. If the school is unprofitable they might lose both their investment and their employment. Although, teacher owned schools might not be the best in terms risk-bearing it might still be a more suitable ownership form than others. Mainly since teacher owned school mitigate agency costs and minimizes the largest market contracting costs for a school.

As a result, cost of ownership and market contracting costs could be lower compared to other ownership identities. Thus, this study hypothesize that teacher owned schools should be better suited to run a school. Which leads up to this study's second hypothesis:

"Teacher owned schools is the optimal ownership identity for Swedish upper secondary schools in terms of students' GPA and SweSAT scores"

5 Methodology

5.1 Research Design

This section outlines the methodology that have be applied in the empirical analysis. It will argue for methodological choices, explain how the data have been tested and discuss the validity of the study.

5.1.1 Methodological Choice

This aim of this study to identify the optimal ownership in the Swedish upper secondary school in terms of GPA and SweSAT. These variables are given in numerical form and in order to answer the research question, the variables have been measured numerically by using statistical and graphical techniques. Therefore, this paper is classified as a quantitative study (Saunders, Lewis & Thornhill, 2016). The numerical variables has be analysed through a regression model to test two hypotheses that concern the probability of change in an independent variable causing change in another dependent variable. This type of methodological strategy is called experiment (Saunders et al., 2016).

As mentioned in limitations, the study only investigate the relationship between students' educational results and ownership identities in a given year, which makes it a cross sectional study. Since the intention is to gather and analyse data and compare it to theory, the study has adopted a deductive approach (Saunders et al., 2016).

5.1.2 Validity

Validity refers to the appropriateness of measures used, the trustworthiness of the analysis and how generalizable the findings of the study are. In order to analyse the different aspects of validity it can be broken down into two different parts; internal and external validity, and these two will be reviewed in this section.

5.1.2.1 Internal Validity

Internal validity concerns the research's ability to accurately demonstrate a causal relationship between two variables (Saunders et al., 2016). To what degree this study can prove a causal relationship is being measured by the significance level that test whether or not the relationship

actually is statistically significant. Moreover, the study uses controlling variables which is intended to isolate the relationship between the dependent and independent variables. The two regressions in hypothesis 1 shows a significant relationship between the independent and dependent variables. As will be explained in more detail in later sections, hypothesis 2 show significant relationship in terms of SweSAT but not in GPA. Considering that three out of four regressions indicate a significant relationship should support a relatively high internal validity. However, the fact that no significant relationship could be found between all dependent and independent variables indicate that the internal validity is not as high as it could have been. Nonetheless, the regression without a significant relationship is treated with caution and no conclusion is drawn from that relationship.

5.1.2.2 External Validity

External validity refers to the level of generalizability beyond the specific research context (Saunders et al., 2016). The results presented in this study should be characterized as having quite low generalizability which is due to the uniqueness of the Swedish educational system. Since the system is not directly comparable to other school systems, the result cannot be generalized to other geographical contexts. However, it is generalizable within other educational levels in Sweden and in possibly in other geographic markets that have similar systems, such as Chile and Denmark. Nevertheless, if generalized into other levels of education, the results of this study should be treated with cautions as there might be differences from educational levels that is not considered in this study.

5.1.3 Reliability

Reliability can be described as the consistency in measurement and possibility for replication (Bryman & Bell, 2011). In the context of this study it would mean that data is gathered in a consistent and reliable manner and the variables researched have a similar and systematic quantification process. For this study, there are two aspects of reliability that is deemed relevant do discuss. These are external and internal reliability and they will be reviewed below.

5.1.3.1 External Reliability

External validity refers to the replication of the study and whether or not the data collection methods and analytical processes would result in consistent findings if the study was repeated. Either by the same author or someone else (Saunders et al., 2016). The best way to test for

external reliability in research is by testing and re-testing the method. In other words, it means that administration a test on one occasion and then re-testing on the same sample on a different occasion. If the two test show high correlation, the test has high stability (Saunders et al., 2016). Saunders et al. (2016) emphasize on the importance of being methodological rigorous in how the research is conducted and be transparent in the entire process.

The method chosen in this study is a standardized and systematic process where the data sample is gathered from reliable sources since the majority of data is collected from government authorities (Saunders et al., 2016). The standardized interviews however, is more exposed to respondent bias and false information. However, questions asked in the standardized interviews was purely based on fact and was not up to interpretation of the interviewee. In every interview, the position of the respondent has been established in order to determine the reliability of the information given. Which should mitigate the effect of false or inaccurate answers from respondents. If the interviews were to be conducted by someone else at a different time, the data gathered from interviews should be the same. Moreover, the methodology used in the study is systematic and conducted by well-established research models such as the OLS-regression (Gujarti & Porter, 2008). Which would make it easy for someone else to replicate the study. Considering the above mentioned facts, the external reliability of the thesis is deemed as high.

5.1.3.2 Internal Reliability

Internal reliability refers to multiple-indicator measurements which is when multiple data sources is aggregated to form an overall score. The issue is that the aggregated data sources do not relate to the same thing (Bryman & Bell, 2011). This study uses aggregated data for GPA scores and SweSATs as all individual student grades are added to share a GPA and SweSAT score a school. This aggregation could affect the internal reliability negatively. However, since these scores are given from a government authority which often is considered a trustworthy source (Saunders et al. 2014), this study assumes that the have been aggregated properly when gathered from the Swedish National Educational Agency's register (2019) and the internal reliability of in in this study is deemed to be high.

5.1.4 Data Sources

The data for this study has been gathered from three different sources and in order to provide a clear and transparent view of the data sources, a table that discloses all sources of data is

presented in figure 2. Almost all data regarding independent, dependent and controlling variables are gathered from the Swedish National Education Authority's statistical database (2019). The exception is the controlling variable "cost per student" and data for independent schools' ownership identity which will explained below.

Data concerning ownership identity for the independent schools have been partially collected from annual reports that is given by the Swedish Companies Registration Office (2019). Some schools are not registered in their database and some schools were registered but own more than one school, which made it hard to determine cost per student for a given school. In order to gain proper information about their cost structure, they were contacted over the phone for a structured interview. The interview guide can be found in the appendix 7.

Furthermore, data regarding which school was public and owned by the government could be gathered from the Swedish National Education Agency database. However, data regarding ownership identities among independent schools is not available in any government agency. This data has partially been gathered from school websites. Those schools that did not clearly disclose the required information were contacted over the phone for a short standardized interview, similar to the interviews for "cost per student". The structured interview method has been used in both cases as the purpose is to ensure that the interviewees' replies could be aggregated, and this can only be achieved if their replies are in response to identical cues (Bryman & Bell, 2011). Therefore, all interviewees are given exactly the same questions and context. The used interview form can be found in appendix 8.

Variable Type	**Variable Name**	**Source**
Independent	GPA	Swedish National Education Agency
Independent	SweSAT	Swedish National Education Agency
Controlling	Number of Students	Swedish National Education Agency
Controlling	Foreign Background	Swedish National Education Agency
Controlling	Highly Educated Parents	Swedish National Education Agency
Controlling	Licensed Teachers	Swedish National Education Agency
Controlling	Teacher Per Student	Swedish National Education Agency
Controlling	Cost Per Student	Swedish National Education Agency
Dependent	Ownership Identity	Websites, Phone Interviews & Swedish National Education Agency

Figure 2: Collected data sources. Source: own contribution

5.1.5 Data Sample

The sample consists of all upper secondary schools in Sweden, which according to the Swedish National Educational Agency's register (2019) is 1316 schools. The sample is from the educational year 2017/2018 since the grades and SweSAT scores for 2018/2019 is not yet available. These 1316 schools cover all educational programs which makes the schools complicated to compare in terms of test score and GPA. Some educational programmes have specialized curriculums and differ from other programmes. Many programs are specialized for a given profession such as electrician or construction. Other programs with specialized curriculums are either introductory programs for people who newly moved to Sweden or special education programs for students who are in need of extra assistance.

Due to these programs' difference in curriculum, they are not directly comparable with other programs in terms of GPA and SweSAT. As a result, these programs are excluded from the sample and only what is called university preparatory are used. All university preparatory programs have the same curriculum with the exception of some courses and are thus much more comparable than other programs. When excluding the above mentioning programs, the sample consists of 882 schools.

As explained in the section above, a large part of the data is gathered from the Swedish National Educational Agency (2019). Their data rely on schools to report information to the national data base. Some schools do report their data which limits the data available. As a result, the data for number of schools with data that can be access decreases. When adjusting for this missing data, 616 observations remains.

Even though they are obliged by the law to disclose the information needed for this study, some schools refused to hand out information when interviewed and others have been unreachable. This results in a further limitation of observations and after adjusting for schools that did not disclose their information, 571 observations remain. This is also the amount used in the analysis. The distribution overview in terms of school type is figure 3 below:

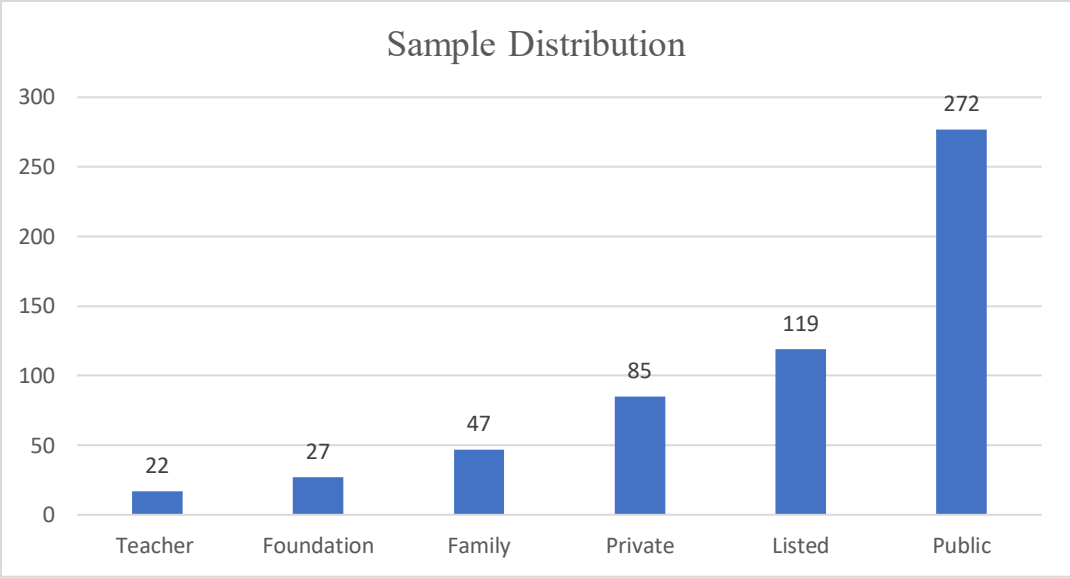

Figure 3: Sample Distribution. Source: own contribution

5.2 Design of Analysis

The following section will explain and motivate how the data analysis have been conducted. Firstly, the regression model choice will be explained. Secondly, the variables used in the model will be reviewed.

5.2.1 OSL Explanation and Motivation

The model selected to measure the optimal ownership identity is the ordinary least squared (OLS) regression. The OLS is a method for estimating parameters of a multiple linear regression model, where the OLS estimates are obtained by minimizing the sum of squared residuals (Gujarati & Porter, 2009). The OLS uses linear regression to understand the mean change in a dependent variable given one unit change in the independent variable. The OLS is be able to analyze the impact of ownership (dependent variable) on GPA and NTS (independent variable) and yielding unbiased and reliable estimators to be analyzed. Additionally, to ensure that the relationship between dependent and independent variables are not affected by other variables than the ones that are measured, this study uses controlling variables. These variables controls for factors that potentially affect the regression model and by controlling for these, the study isolate them from the results. Thus, providing a more accurate and reliable statistical estimate that avoids spurious results (Verbeek, 2017). All variables will be reviewed and motivated in the following sections.

The reason for choosing the OLS model for this study is that it has the advantage of being computationally simple while yielding unbiased and efficient estimators that are easily interpreted. It also used extensively by other scholars as it is intuitively appealing and mathematically much simpler than other regression models, such as the maximum likelihood regression (Gujarati & Porter, 2009). In other words, it can be applied to the variables and it provides reliable results that easily can be analyzed to answer the research question. The OSL model is applied in the following theoretical mathematically way:

$$Y = \beta_0 + \beta_1 X_n + \ldots + \beta_k X_t + U_i$$

Y denotes the dependent variable, B is the parameter estimate that indicates the variations in the dependent variables, X is the independent variables and U is the error term (Gujarti & Porter, 2008). The variable applied to this regression model and to which hypothesis they are applied to be illustrated in figure 4 below.

Variable Number	Variable Type	Variable Name	Hypothesis
1	Independent	GPA	1 + 2
2	Independent	SweSAT	1 + 2
3	Dependent	Independent Ownership	1
4	Dependent	Public Ownership	1 + 2
5	Dependent	Private Ownership	2
6	Dependent	Listed Ownership	2
7	Dependent	Family Ownership	2
8	Dependent	Foundation	2
9	Controlling	Number of Students	1 + 2
10	Controlling	Foreign Background	1 + 2
11	Controlling	Highly Educated Parents	1 + 2
12	Controlling	Licensed Teachers	1 + 2
13	Controlling	Teacher Per Student	1 + 2
14	Controlling	Cost Per Student	1 + 2

Figure 4: Applied Variables. Source: own contribution

In order to account for both independent variables, two separate regressions is run to test each hypothesis which make four regressions it total. For all regressions, the dependent variables are dummy coded, which means that one dependent variable is used as the base value and the other dependent variables are measured in relationship to this variable. The controlling variables are applied similarly to the dependent variables besides the fact that they are not dummy coded and

is measured in reference to all variables. Every regression have been conducted with and without the controlling variables to illustrate the robustness effect of the controlling variables. This is illustrated in appendix 1. The below sections will explain in more detail how the different regression have been used to test respective hypothesis.

5.2.2 Hypothesis 1.

The first hypothesis concerns public school versus independent schools. To be able to run this regression, the separate independent schools entity must be treated as a united cluster or independent schools. Variable 3 represent this cluster of independent schools. This dependent variable is a united aggregation of all values for independent schools. When the regression for the first hypothesis is applied, it uses the dependent variables 3-4 which is the clustered variable for independent school and public ownership and GPA & and SweSAT as the independent variables. One regression is thus used for the independent variable GPA and a second regression for SweSAT as the independent variable. All controlling variables are used for both regressions in hypothesis 1. The regression formula used in the two regressions for hypothesis 1 is described below.

Regression 1.

$$GPA = \beta_0 + \beta_1 Independent + \beta_2 Number\ of\ Students + \beta_3 Cost\ per\ Student + \beta_4 Student\ per\ Teacher + \beta_5 Student\ per\ Teacher + \beta_6 Licensed\ Teachers + \beta_7\ Foreign\ Backrgound + U$$

Regression 2.

$$SweSAT = \beta_0 + \beta_1 Independent + \beta_2 Number\ of\ Students + \beta_3 Cost\ per\ Student + \beta_4 Student\ per\ Teacher + \beta_5 Student\ per\ Teacher + \beta_6 Licensed\ Teachers + \beta_7\ Foreign\ Backrgound + U$$

5.2.3 Hypothesis 2.

The second hypothesis is also divided into two regressions, the first with GPA as the independent variable. The second with SweSAT as the dependent variable. The dependent variables in these two regression is variables 4-8, which are the separate ownership identities (including public school identity). All controlling variables are used for both regressions in

hypothesis 1. The regression formula used in the two regressions for hypothesis 2 is described below.

Regression 3.

$$GPA = \beta_0 + \beta_1 Independent + \beta_2 Private + \beta_3 Foundation + \beta_4 Listed + \beta_5 Private + \beta_6 Family + \beta_7 Number\ of\ Students + \beta_8 Cost\ per\ Student + \beta_9 Student\ per\ Teacher + \beta_{10} Student\ per\ Teacher + \beta_{11} Licensed\ Teachers + \beta_{12}\ Foreign\ Backrground + U$$

Regression 4.

$$SweSAT = \beta_0 + \beta_1 Independent + \beta_2 Private + \beta_3 Foundation + \beta_4 Listed + \beta_5 Private + \beta_6 Family + \beta_7 Number\ of\ Students + \beta_8 Cost\ per\ Student + \beta_9 Student\ per\ Teacher + \beta_{10} Student\ per\ Teacher + \beta_{11} Licensed\ Teachers + \beta_{12}\ Foreign\ Backrground + U$$

5.2.4 Post Estimations

All four regressions are interpreted in the following way. The Beta-coefficient illustrate the degree of relationship with the independent variable. The R^2 show how much of the relationship between the dependent and independent variable is explained by the model. Moreover, the P-value show the level of significance of the relationship between the independent and dependent variables (Wooldridge, 2016).

The explained above, the dependent variables are dummy coded with Public ownership as the base group. This indicates that the Beta-coefficients show the relationship between the dependent and independent variable in relation to the base group (public schools). Therefore, a positive and significant Beta-coefficients would indicate higher relationship with high grades compared to public school. Thus, the highest positive and significant Beta-coefficient can be interpreted to have a better scores in GPA or SweSAT compared to other significant dependent variables. The controlling variables however is not dependent on the base group and is treated independently.

5.2.5 OLS Assumptions

The reliability of the interpretation of the OLS model relies on certain assumptions that originally was developed by Guass-Markov. These assumption concerns the variables and the

error term (Gujarti & Porter, 2008). The standard assumptions in multiple linear regression will be reviewed and tested for in the following sections.

5.2.5.1 Assumption 1 – Linear Parameters

This assumption simply states that the multiple linear regression follows a model that is linear in its parameters. As mathematically described in section 5.2.1, the regression formula for this study is linear as there is an additive relationship between the B-parameters. The assumption does not restrict how the X-variable relates to the Y-variable so the relationship between the variables might not be linear and they don't have to be for this assumption to hold. If the relationship between the B-parameters where to be described in another way, the regression would not be linear and the assumption about linearity would not hold. Since the regression formula is design with an additive relationship between the Beta-coefficients between the parameters, the model is linear. Thus, this assumption is deemed to hold for this study.

5.2.5.2 Assumption 2 – Zero Conditional Mean

This assumption implies that the error term is uncorrelated with each independent variable in all the time periods and for all the firms. If the sum of the error terms to do not equal to zero, then the OLS estimators are biased hence, the estimations by the OLS is not reliable. Since the OLS model minimizes the sum of the squared residuals. The sum and hence the average of the OSL-residuals is Zero. Which means that the model has zero conditional mean by definition. Thus, the assumption should hold for this study.

5.2.5.3 Assumption 3 – Homoscedasticity

An assumption of the OLS model is the homogeneity of variance in the residuals. If the variance of the residuals changes, the regression experience what is called heteroscedasticity and as a result, violating one of the assumptions of the model. Heteroscedasticity is a major issue in regression analysis as it can invalidate statistical significance and that modelling errors are uncorrelated. To determine whether or not the OLS results are misleading due to inappropriate standard errors caused by heteroskedasticity a number of tests are available (Verbeek, 2017). One of the most common tests is the Breusch-Pagan / Cook-Weisberg test, which is the one that is applied in this study as well. The regression is deemed by affected by homoscedasticity

if the p-value is below 0,05. If the regression experience heteroscedasticity, one need to adjust for the standard errors by applying robust standard error for β (Wooldridge, 2016).

As visualized in the appendix 3, the test for homoscedasticity show a p-value of 0.02 which indicate that the regression experiences heteroscedasticity. In order to adjust for this error, all regressions have been adjusted with robust standard errors for β.

5.2.5.4 Assumption 4 – No Autocorrelation

Given any value of two X-values, the correlation between two U is Zero. In other words, conditional on X, the correlation between any two samples is zero. In short, the observations are sampled independently over time periods. Since this study do not use time-series data, the autocorrelation assumption is not violated. Thus, this assumption is deemed to hold for this study.

5.2.5.5 Assumption 5 – Normality

The normality assumption assumes that the error terms are normally distributed. If the errot terms do not follow a normal distribution, it means that all values of Y, for a given value of X do not follow a normal distribution either (Verbeek, 2017). If the residuals are not normally distributed, then the statistical test can be inaccurate in its estimations. To test for normality a Jarque Bera is used. The residuals are deemed to be normally distributed if the p-value are above 0.05. As shows in appendix 6, all four regressions show a p-value above the given and it can thus be concluded that the residuals are in fact normally distributed. Hence, the assumption hold for this study.

5.2.5.6 Assumption 6 – No Perfect Multicollinearity

Multicollinearity means that there is a correlation between the independent variables in the regression. In most regression with more with several independent variables there usually is some degree of multicollinearity as variables often affect each other on some level. However, if the multicollinearity of the variables is too high, the regression model estimates of the coefficients become unstable and the standard errors for the coefficients can get inflated (Verbeek, 2017).

Moreover, the simplest way of determining the level of multicollinearity is to use the correlation coefficients. Extreme multicollinearity is a correlation coefficient of 1. A rule of thumb is that a correlation of 0.9 and above indicates substantial multicollinearity. Another common way of testing for multicollinearity is through a Variance Inflation Factor (VIF) test as it identifies potential correlations between independent variables. A VIF value of 10 or above indicate high collinearity (Saunders, Lewis and Thornhill, 2016). The correlation matrix in the appendix 4 show no values higher than 0.9 and the VIF test in appendix 5 shows no values over 10. Hence, the study do not suffer from perfect multicorrelation and the assumption holds.

5.3 Variables

This section will go through all variables used in the regression model and argue for their relevance as well as more carefully discuss the benefits and weaknesses of the independent variables.

5.3.1 Independent Variables

5.3.1.1 GPA

This study has two independent variables, GPA and SweSAT. GPA is measured as a cumulative score of all courses each student has taken during their three years at upper secondary school. For every given course, a student receives a grade and the grading scale consist of sixth steps from A-F as visualized in figure 5 below. Every grade is given a point from 0-20 and these points are then used to calculate the GPA.

A	20 p
B	17,5 p
C	15 p
D	12,5 p
E	10 p
F	0 p

Figure 5: Grade points. Source: own contribution

The grading is done individually by the teachers. Unlicensed teachers can set preliminary grades but the grades have to be approved by a licensed teacher (Swedish National Educational Agency, 2019). Licensed teachers are those who have been educated and have a pedagogical teacher's degree.

Furthermore, every course is worth a certain number of points, depending on the extensiveness of the course. A longer course with a more extensive curriculum is worth more than a shorter course. A shorter course is often worth 50 points whereas a longer often is worth 100. The maximum amount of course point included in a program is 2500 points but only 2400 points is used to calculate the GPA. To calculate the GPA, one simply adds up the points from every single course taken and then divide the accumulated number by 2400 points. For example, if a student receives B in all courses throughout three years of studies, then the GPA is calculated as the following: (17.5*2400)/2400 = 17.5 GPA. Furthermore, GPA for every single student in a given school is added to a total sum which is thereafter divided by the number of students at that school (Swedish National Educational Agency, 2019). This accumulated school GPA is then compared with other schools' accumulated school GPA.

Furthermore, GPA is chosen as an independent variable since it is a good measure of the student's overall academic achievement over the entire three-year period that the student is enrolled in upper secondary school. Additionally, GPA measures a wide range of skills as it takes into account all courses taken. Nevertheless, there are significant weaknesses in measuring student performance with GPA. As previous research has shown, grade inflation tends to be a significant factor (Wikström & Wikström, 2015). Which entails that some schools give their students higher grades compared to other schools. Additionally, since all students in the sample do not take identical courses, their results are not 100% comparable to each other. Moreover, GPA has been proven to be an interesting comparable measure as it is used frequently in previous research (Bergström & Sandström, 2001; Böhlmark & Lindahl, 2015; Wikström & Wikström, 2015) which makes it possible to compare the GPA regression results with previous research.

5.3.1.2 SweSAT

The second dependent variable chosen is the SweSAT score. The SweSAT is a mandatory test given in selected courses at the school. The test is given at a specific date and time for students

enrolled in the same type of course. For example, if a student is taking the SweSAT in Mathematics 1A, that student will take the same test as everyone else taking Mathematics 1A at the same date and time over the entire country. The test is then graded by the responsible teacher. A student's score on the SweSAT is supposed to work as a good approximation of the final grade in that course (Swedish National Educational Agency, 2019).

What specific SweSAT test that a given student has to take depends on which type of program he/she is enrolled in. All students have to take the tests in Mathematics, Swedish and English. Some programs include more advanced courses than others which means that some programs have a SweSAT for every given level in that subject. For instance, some programs' syllabus includes Mathematics 1A, 2A and 3A hence students need to write a SweSAT in every one of these courses. Other programs only include Mathematics 1A and student enrolled in such a program takes one SweSAT in mathematics. Since the sample is limited to university preparatory programs, all students more or less take the same courses but the curriculum still varies slightly. To be able to have as comparable results as possible, only SweSAT scores from first level courses are taken into consideration since every student has to take them, regardless of school and program.

The SweSAT is chosen as it is a relatively unbiased way of measuring individual students' performance. The tests are constructed by the ministry of education which makes it unbiased in terms of individual differences in teachers' test design. Since all students take the same tests, the test is an accurate estimation of a student's result. The grading is done by thorough guidelines from the ministry of education. A student's test score is also indirectly a good indication of school performance as the school educate the students and the SweSATS unbiasedly test the student's abilities. SweSAT scores have often been used as measure in previous similar research (Bergström & Sandström, 2001; Böhlmark & Lindahl, 2015; Tyrefors Hinnerich & Vlachos, 2016). Which indicates that it is a reliable measure and that the results can be compared to previous research.

Although, this type of test is unbiased, it is still the individual teachers that grade the student's tests. No matter how extensive the guidelines are, it is still impossible to ensure the correct grade is awarded every student. Additionally, another downside is that the SweSATs only considers three subjects which is not as holistic as the GPA which measures the student's achievements in all courses. An additional problematic aspect is that SweSATS measures the

students' performance at a given time and day. That day is usually at the beginning of the three-year program since this study only considers the first level courses, which might be sutiable if one is interested in the total effect of the schools' education. If the tests were taken at the end of the last year, the results would more accurately represent the schools' educational quality and its impact on students' SweSATS.

5.3.1.3 Summary Independent Variables

GPA and SweSATS both have their strengths and weaknesses in terms of accurately measuring the students' performance. However, by comparing the results from the two, a more nuanced analysis can be conducted. For instance, if a given ownership identity is superior in both GPA and NTS it can more accurately be said that it is actually better. On the other hand, if it differs, it can provide an interesting analysis of why the two measures differ from an empirical and theoretical perspective. Overall, it is better to use two well established measurements than just one as it provides a more holistic measure of students' educational results.

5.3.1.4 Dependent Variables

The dependent variables are the different ownership identities that operate in the Swedish upper secondary school system. These ownership identities are: private, foundation, family, listed, teacher and government. In this study, private ownership is classified as a school owned by a private individual/individuals and is not owned by a company or private individuals in a family. Foundation ownership is a school that is owned by a foundation. Family ownership is defined as ownership that is shared amongst people in a family. Listed ownership means that the owner of the school is listed on a stock exchange. Teacher ownership refers to a school that is owned by teachers working at the school. Either by all teachers or a group of them. Government ownership is classified as all public schools. In the regression these variables is coded as dummy variables which means that the different ownership identities is dummy coded to a base. Public schools have been coded as base and all ownership identities is thus, be compared to the public schools in the regression.

5.3.1.5 Controlling Variables

5.3.1.6 Number of students

Since the schools' public funding depend on the number of students, there are incentives for schools to increase the number of students. The number of students may have an effect on student performance as a larger school could entail a more complexed organization and less focus on the individual students' educational learning. As a result, the number of students may have an effect on the students' performance. Therefore, the number of students are isolated from the effect of ownership identity on GPA and SweSAT.

5.3.1.7 Cost per Student

With more resources, it can be possible to improve student performance since a school could hire more teachers, offer better teaching aid and individualized education. Moreover, Lindom (2010) argues that the increased competition has resulted in increased costs for public schools, which means that the cost level is a factor affected by school competition. Hence, the cost per student is thus a good controlling variable and it isolates student performance from school resources.

The data regarding cost per public school is only reported per municipality. Which means that for those municipalities with more than one school, they have the same reported cost per student. This could be seen as problematic since there might be a difference between the public schools within the municipality. However, considering the fact that specific amount of funding per student is decided by each municipality (Swedish National Educational Agency, 2019), the difference in funding is exactly the same for the public schools in the municipality. Since the school have no demand for shareholder demand or profitability, it is likely that they spend their funding similarly between the schools, which would indicate small differences in cost per student. Nonetheless, this is a weakness that should be considered.

5.3.1.8 Students per Teacher

Another way of measuring resources for a school is by the number of teachers. Cost per student is a measure of cost efficiency but it is not a factor of resource allocation which one could argue that number of teachers is. The Swedish Teacher Association (2007) reports that there is a difference between independent and public schools on how they allocate capital and number of teachers. Therefore, the number of students per teacher could affect the result of the regression

and that makes it an important variable to control for. (The Swedish Teacher Association, 2007). More teachers per student might suggest that an individual student of an public school receives more educational help than a student in a independet school. Thus, by isolating this factor, the student performance is uneffected by the amount of students per teacher. Student per teacher is calculated by dividing the number of students with the total number of teachers at each school.

5.3.1.9 Licensed Teachers

Another dimension of the cost and resource allocation is the number of educated teachers. The report by the Swedish Teacher Association (2007) concludes that public schools have more teachers with a pedagogical university degree than independent schools. Educated teachers could be more expensive to employ than an uneducated teacher. Therefore, the number of educated teachers is matter of cost and cost allocation. By controlling for this variable, the study ensures that the student's performance is not a factor of the number of licensed teachers a school hire. Furthermore, the number of educated teachers is measured as a percentage of the teachers at the school and this data is given by The Swedish National Educational Agency (2019).

5.3.1.10 Number of Students with Highly Educated Parents

As concluded by Dronkers and Roberts (2007), Lubienski and Lubiensk (2013) and Myrberg and Rosén (2006), the socio-economic situation and family background plays an important role when measuring student performance. Therefore, controlling for number of highly educated parents is deemed important. Moreover, highly educated parents is defined as parents that have studied for at least one semester at univerisity level.

5.3.1.11 Number of Students with Foreign Background

Sahlgren and Sanandaji (2016) and Myrberg and Rosén (2006) indicate that another socio-economic factor that is important for determining school results in Sweden is foreign background. Whether or not a student has a foreign background could affect the student's preconditions to achieve high educational results. Therfore, this study uses number of students with foreign background as controlling variable. Students with foreign background is defined as students who are born outside of Sweden or is born in Sweden but whose parents are both born in another country.

6 Results

This section will disclose the results from the regression model for each of the two hypotheses. The hypotheses will be treated independently and consider both independent variables for every hypothesis. Moreover, the hypotheses will be either rejected or accepted depending of the empirical results.

6.1 Hypothesis 1.

6.1.1 GPA Results

The regression results in appendix 1 reveals that students at public schools tend to receive higher grade point averages than independent as the beta coefficient for independent schools shows a negative relationship towards public school performance which is the base of the regression. The results are also significant at the 95% significance level.

When the regression is run without the controlling variables, the beta coefficient still point towards public schools favor in terms of highest GPA. However, the relationship is no longer significant. What is interesting is amongst the controlling variables, the highly educated parents seem to be a considerable factor as it is has a significant at the 1% level and that the Beta-Coefficients suggest a strong positive relationship between highly educated parents and high GPA. Moreover, the R square result of 0.493 illustrate that a relatively large part of the relationship between the dependent and independent variables can be explained by the regression.

6.1.2 SweSAT Results

In terms of SweSAT, the regression in appendix 1 shows the same relationship between high scores and public schools as the GPA. The beta coefficient shows a negative relationship between private school results compared to the public schools. This relationship is also significant at the 99 % level. Without adjusting for controlling variable, same relationship holds but compared to GPA, the beta coefficient shows a significant relationship even without the controlling variables at a 95% significance level. And similar to GPA, the controlling variable for highly educated parents seems to be a large affecting factor as the beta coefficient indicate

a strong and significant relationship. The R square is a similar number as for hypothesis 1 as it is 0.574. Which also is a good indicator of the strong relationship between the variables.

6.1.3 Concluding H1

The regression estimations from hypothesis 1 are in line with Tyrefors Hinnerich and Vlachos (2016) as their research also suggest that public schools are superior in terms of SweSAT scores. Although, they solely looked at SweSAT scores and this paper also shows a significance in GPA as well. Moreover, the results argue against Sahlgren and Sanandaji (2016) but their research was conducted on lower level education, which is not directly comparable. Furthermore, as the results of this study is significant to a high level it contradicts previous research such as Bunar (2009) as well as Sahlgren and Sanandaji (2016), who argue that there is no significant difference between public and private schools.

Furthermore, as all regressions show a significant and negative beta coefficient for independent schools when compared to the public schools, it shows that student at public schools achieve higher scores in both GPA and SweSAT. As a result, hypothesis 1 can be accepted and it can be stated that public schools students are better than independent schools in terms of GPA and SweSAT scores.

6.2 Hypothesis 2.

6.2.1 GPA Results

When the regression is conducted with all ownership identities as dependent variables, it reveals that the ownership identity that give the highest beta coefficient with a positive value is foundation ownership. This indicate that foundation ownership has the highest GPA scores compared to the other ownership identities. However, this is not statistically significant and cannot be concluded to be accurate. Besides from foundation ownership, no other ownership identity seems to achieve higher GPA-scores than public ownership. Teacher ownership shows a negative relationship compared to public, but this relationship is not significant either. Hence, it cannot with certainty be stated that teacher ownership is either worse or better than public schools in terms of GPA-scores. On the other hand, family, private and listed ownership shows a significant result at 90% significance level considering that the beta coefficient shows a

negative relationship compared to public ownership. It is fair to assume that they all have lower GPA-scores than public ownership. When running the regression without the controlling variables, the results are more or less the same with the exception that foundation ownership tend to have higher GPA-scores than public and that it is significant at the 99 % level. Moreover, an R squared score of 0.504 indicate that the regression well explains the relationship between independent and dependent variable.

6.2.2 SweSAT Results

In terms of SweSAT, all dependent variables show a significant relationship at the 90% significance level. Besides from teacher and foundation ownership, there is a significant relationship between SweSAT scores and the dependent variables at a 95 % significance level. When removing controlling variables, foundation shows the highest beta coefficient and thus, SweSAT scores. This is significant at the 99 % level. However, both family and teacher ownership show a non-significant relationship, and private and listed show similar results as with controlling variables. The R square on 0.576 illustrate a slightly stronger explanation factor for the GPA regression.

6.2.3 Concluding H2.

Although, not all dependent variables gave a significant relationship to both independent variables, the data from hypothesis 2 still suggest that there are differences in terms of ownership identity and the performance of that organization. Which is in line with Thomsen and Pedersen (2003), Thomsen and Pedersen (2000) and Maury & Pajuste (2005), who shows that ownership identity effects the performance of the company. However, previous research measures performance in terms of value and profitability, whereas this study investigates performance in terms of student educational results. Which makes the mentioned research not entirely comparable. Nonetheless, the research is still in line with the above mentioned authors' research as they all indicate that ownership identity matters in terms of performance.

Considering that highly educated parents show a significant impact on school results in both SweSAT and GPA at the 99% significance, the results are in accordance with previous research within the educational field as many have argued for the importance of family background and socio-economic effect on students' school results (Dronkers & Roberts, 2007; Lubienski &

Lubiensk, 2013; Myrberg & Rosén, 2006; Sahlgren & Sanandaji, 2016). This indicate that highly educated parents' children tend to perform better than other students.

The regression with GPA as the independent variable shows that foundation ownership is the better school ownership identity. However, since this relationship is not significant it cannot be stated that foundation ownership is better than other ownership identities. In terms of SweSAT scores, it can be said that with 90% significance that public ownership is better than compared ownership identities. In sum, there is no significantly superior ownership identity in terms of GPA. However, it can be said with 90% statistic certainty that public ownership identity is superior to other ownership identities in terms of SweSAT scores. Since hypothesis 2 stated that teacher-owned school was superior in terms of GPA and SweSATS, the hypothesis is rejected.

7 Analysis

The next section will analyze the regression results by applying theoretical and empirical research. The intention is to fulfill the deductive approach and apply the results to theoretical research and determine if any differences arises. Moreover, the analytical results will determine the study's contribution to previous research and help answer the research question.

7.1 Ownership Analysis

The next section will analyze the regression results by applying theoretical and empirical research. By applying frameworks and this section hope to fulfill the study's deductive approach and compare the see if what the differences is in result and theory.

From an ownership theory perspective, the results are somewhat surprising. As explained in the hypotheses 2, the optimal ownership for schools should be the teacher owned schools. A factor that can have affected this result can be the sample size. The sample size for teacher owned schools is relatively small and a larger sample might have resulted in a significant relationship between GPA, SweSAT and teacher-owned schools. However, from the ownership theory perspective, it is not entirely surprising that government ownership tends to show positive relationship with high SweSAT scores. As will explained in the below analysis, public schools

might not be the optimal theoretical ownership identity, but it also far from the worst. A government owned school's cost of market contracting and ownership costs will be disclosed below and compared to other ownership identities. Moreover, the owner of the public schools will be further referred to as the municipality that the school belongs to. The reason for this is that it is the municipalities that are primary responsible for the public schools and it provides better depth in the analysis to actually consider the municipality as owner and not the general government. Furthermore, to provide a more comprehensive summary of the analysis, the cost associated with market contracting and ownership will be disclosed in a numerical example. Which is displayed at the bottom of this section.

7.1.1 Market Contracting Costs

Market contracting cost refers to transactions currently held with stakeholders and a way of mitigating these transaction costs is by allocating ownership to one of these a stakeholder. A school have transactional agreements with teachers through employment contracts. By allocating ownership to teachers the firm can decrease the costs of contracting teachers. As a result, the cost of market contracting decreases. Even though the majority of financing come from the municipality, the opportunity of acquiring more equity still exist, which could be beneficial for schools. Hence, a school has contractual agreement with investors for financing. Especially for independent schools as they receive less funding from the municipalities than public schools. By allocating ownership to a listed company, the school gains access to equity financing and thus, internalizing the cost of financing.

However, a school has no transactional agreement with neither private, family nor foundations which entails that by allocating ownership to one of these parties, no market contracting costs is minimized by internalizing them into the company. As a result, they are given a score of 0 in terms of market contracting in the numerical example. Public schools is quite unique as by allocating ownership to the government, the school is internalizing the government. Thomsen and Pedersen (2000) argue that it makes sense for a government to internalize a company as it functions as an alternative to regulation. However, in this case the opposite relationship holds as the school is internalizing the government. From a transactional perspective, this simplifies the financing process and makes it easier for a school to meet the operational demands that the government places on the school. Moreover, as Pedersen and Thomsen (2003) argue, government owned firms can benefit by government protection and lower cost of capital. These

effects are not as market contracting cost-minimizing as internalizing the cost of teachers. Nonetheless, it is still a mitigating effect on the transaction cost and it receives a smaller market contracting cost on in the numerical example compared to teacher owned and listed schools.

7.1.2 Ownership Costs

In the following section, the three types of ownership costs will be applied to the different ownership identities. Every identity will be given a numerical score for each type of ownership cost that will be cumulated to a general score for ownership costs in the numerical example.

7.1.3 Risk-bearing cost

A municipality is highly diversified in its holdings and investment, both in other public schools but also in other public organizations. Which entails that the municipality is not highly affected by a negative financial outcome of a school. Hence, they have low cost of risk-bearing. A listed school's investors are diversified since they own a smaller piece of the company and can also be categorized to have low risk-bearing costs. A foundation has no real owners and thus, the risk-bearing cost is low. On the other hand, for school types such as family, private and teacher-owned the opposite holds as they tend to be highly invested in a single school, which suggest larger cost of risk-bearing. As mentioned in hypothesis 2, a teacher-owned school would experience high risk-bearing as the teachers are exposed to a double risk as both their job and investment is affected by the performance of the school. Family ownership are probably dispersed among several family members, which still indicate very high risk-bearing cost but not as high as a privately owned school where a single individual is affected by the performance of the school.

7.1.4 Controlling Managers

One of the largest costs for a public school is associated with controlling managers from acting opportunistically, which is a problem of agency costs (Jensen & Meckling, 1976). The costs partially consist of the cost of monitoring the managers, as well as the cost of managerial opportunism (Hansmann, 1996). The separation of ownership and control for public schools is in general small as the municipality is the sole owner and a public school can thus be characterized to have concentrated ownership. As sole owner of a school, they have the power to affect managers and incentives to monitor the operations as they are highly invested in the school (Shleifer & Vishny, 1997). What is problematic for a public school is that some

municipalities own and operate more than one school, which entails more complexity and larger information asymmetry. This is similar to listed schools where the owner operates many schools.

A listed school ownership could be compared to an institutional investor as it is often characterized by highly scattered ownership which entail larger separation of ownership and control. Which suggest less incentive to monitor the managers for the individual owners (Shleifer & Vishny, 1997). In a foundation-owned school there are no active owners which would entail high agency costs as there is no owner to monitor the managers. Family and privately-owned school would in general entail high ownership concentration which would result in similar monitoring costs for the public school. For teacher owned schools however, the ownership is spread amongst the teachers which result in a relatively scattered ownership, although not nearly as scattered as a listed school.

However, a by allocating ownership rights to the teachers, the objectives for employees and owners are aligned and the risk for opportunistic behavior is mitigated. And according to Hart (1988), the best way to limit agency cost is by allocating ownership to managers. One can argue that the managers and agent in this scenario would simply be the dean, but as teachers own the school together they act as both managers and employees and is in this case considered to be both agents and owners. As a result, teacher owned schools have the lowest cost of monitoring. Public, private and family has medium high costs while listed and foundation have high cost of associated with monitoring. As a result, the teacher owned schools have higher cost of controlling managers than concentrated ownership such as family and private, while less cost compare to a listed school. Which is being represented in the numerical example in figure 6.

7.1.5 Collective Decision-Making

As mentioned earlier, the municipalities are the sole owner of public schools which entail highly concentrated ownership. Concentrated ownership is usually associated with low costs of collective decision-making as they can make all decisions without the need to discuss matters with other shareholders. However, one might also argue that public ownership entails the largest costs of collective decision-making as all major decisions are made on a political level and minor decisions regarding the operations are more decentralized. All costs associated with market contracting and ownership for the different ownership identities have been summarized

in the table below. Foundations collective decision-making processes can only be speculated about and it is possible that the decision-making process can vary from foundation to foundation. As a result, they are given an average score.

7.2 Summary Ownership Analysis

The numerical examples in figure 6 & 7 summarizes the analytic discussion regarding Hansmann's (1996) theory of ownership cost. First, all identities are given a score of 1-5 in the parts of ownership costs which result in a united average ownership cost score, which is illustrated in figure 6. Afterwards, the cost of ownership are added to the market contracting costs for given ownership identity to result in a total cost. This total cost is calculated as ownership costs added with the cost of contracting with the other stakeholders in figure 7. The ownership with the lowest overall score, is theoretically the best ownership identity. This illustrates the benefit of internalizing a stakeholder you have a costly constructional agreement with.

	Risk-Bearing	Monitoring	Collective Decision-Making	Total Average Cost
Teacher	5	1	3	3
Listed	1	5	5	3,7
Public	1	2	4	2,3
Private	5	2	1	2,7
Family	4	2	1	2,3
Foundation	2	5	3	3,3

Figure 6: Ownership Costs. Source: own contribution

	Ownership Cost	Market Contracting Cost	Total Cost
Teacher	3	4	7
Listed	3,7	3	8,7
Public	2,3	1	9,3
Private	2,7	0	10,7
Family	2,3	0	10,3
Foundation	3,3	0	11,3

Figure 7: Total cost of ownership. Source: own contribution

As illustrated in the table above, the public schools do not receive the lowest cost of ownership compared to the others. However, it is not the worse either but the regression results are nonetheless, surprising from an ownership theory perspective. This is perhaps explainable from a stakeholder perspective and the previous research about the characteristics of the given ownership identities which the following section will analyze.

7.3 Stakeholder Analysis

As Freeman (11984) states, the essential core of the stakeholder theory is that you have to consider all stakeholders in order to ensure long-term survival of the firm. Although, this study do not actively investigate the school's potential stakeholder strategies, it will in accordance with Donaldsson and Preston (1995), analyze the stakholder relations from three different perspecives: discpriptive, normative and instrumental. The discriptive perspective will analyse the current relationship between the respective stakeholder and the school. The normative will analyse the ethical aspect of the relationship between the school and its stakeholders, wheras the instrumental will explain how the relationship between the school and its stakeholders can have implecations for student performance and how it might explain the regression result.

In order to analyze the stakeholders, they first needs to be identified. This study will apply the defintion of a stakeholder by Freeman (1984, p.46): "A group of people who can affect or can be affected by the achievement of the organization's objective". Although the definition is broad, it will ensure that no stakeholders are ignored. For a school, this paper identifies the following stakeholders: owners, teachers, students (current and prospective), government, companies, parents, society, politicians, administrative personnel, suppliers, companies and

creditors. However, as Savage et al. (1991) argue, there are those stakeholders that are more or less important and the more important stakeholders can be referred to as core or primary stakholders. In order to have a more indepth analysis, this paper will only focus on the most important stakeholders for a school which are selected based on their impact on the student's educational results. In this case the primary stakeholders are identified as: owners, students, teachers and parents. The primary and secondary stakeholders is visualized in figure 8 below. The following section will argue why they are the most important and which effect they have on the school operation and performance.

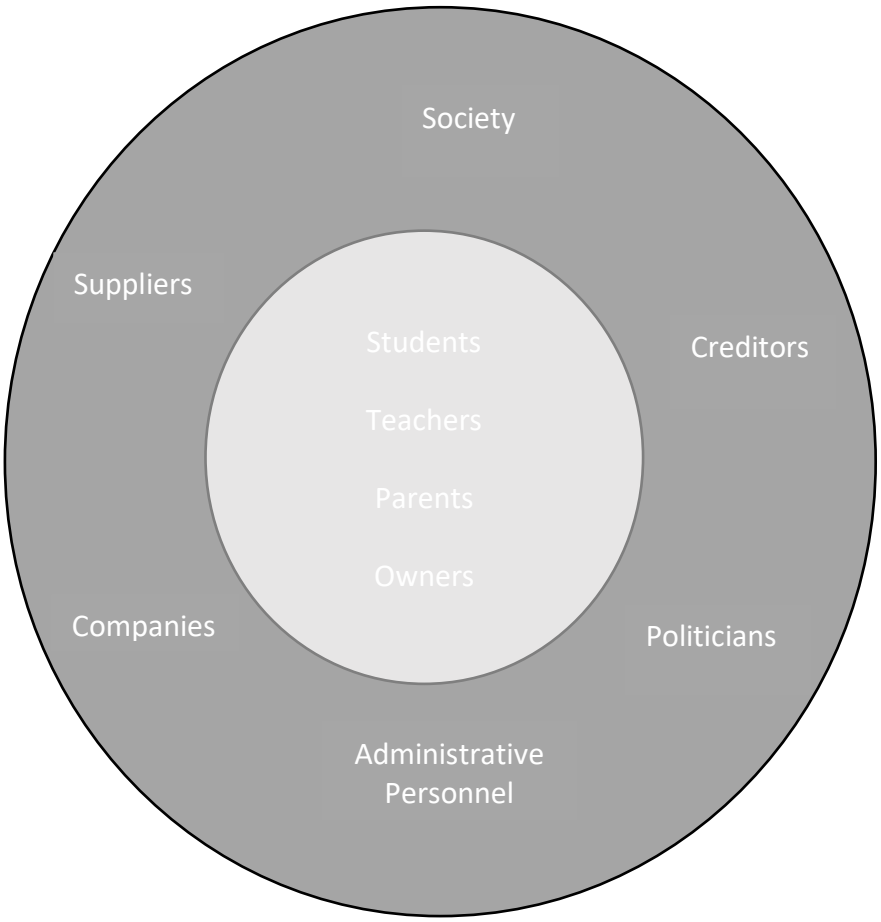

Figure 8: Categorization of Stakeholders. Source: own contribution

7.3.1 Owners

Considering that the regression shows a significant difference between ownership identities, in both GPA and SweSAT for hypothesis 1 and for SweSAT in hypthesis 2, there seems to be a difference in the performance due to ownership identity among schools, which indicate that owners is a important stakeholder to consider. The relationship between school and the owners

as stakeholder might be different dependening on ownership identity. Considering that the various owners have different ownership characteristics, it is possible that these differences affect the stakeholder relationship.

The fact that public schools were the best in terms of SweSAT was not enterily in choherence with the framework develop by Hansmann (1996). However, from a stakeholder perspective, the regression results might not be all that surprising. There is an essential difference between public schools and other ownership identities which is the fact that they have no demand from shareholders on returns on their investment.

This can possibly make the stakeholder relationship between the school and its owners easier to manage in comparison to other school identities. A listed school for instance, would probably have to spend a lot of time and capital on investor relation management and balance different owners opnions. Friedman (1962) has argued for the importanc of only consider shareholders as they are the only stakeholders that the company has a fiduciary duty towards. However, it might not be as imporant for a public school to devote time and money towards their owner, the municipality. Which could possibly make it easier for a public school to manage other stakeholder relations than solely the owners. Addtitionally, as Freeman (1984) argues, good stakeholder management can lead to higher performance. Since public schools can spend more time and resources towards other stakeholders than just the shareholders they might be in a benificial situaiton. Which could help explain why public school perform better than others.

7.3.2 Students & Parents

As previously stated, a school's funding is dependent on the number of students enrolled (The Swedish National Agency for Education, 2019), which more or less makes students the customer of the service provided by the school. Therefore, students is an important and primary stakeholder to consider for any school. Moreover, this section will also consider parents as a primary stakeholder as previous research have found that the parents have influence over student choice of school and they are therefore connected in terms of stakeholder management (Lidström et al., 2014). A schools' stakeholder management with either a student or parent will likely affect the school image for both stakeholders. This is something that the schools have realized and they therefore tend to market themselves towards both parents and students (Lidström et al., 2014). Additionally, this study's result shows that the level of education of

parents is a significant factor which further indicates the importance of parents influence on the students.

The schools' stakeholder relationship with students and their parents can initially be viewed from the normative perspective as described by (Donaldsson & Preston, 1995). Independent schools are publicly funded and at the same time allowed to make profits with restrictions on a well-fare service for students. As Erixon, Arreman and Holm (2011) points out, this can be seen as morally questionable in Sweden. Adding the fact about previous scandals concerning large independent school profits and shareholder returns as reported by Erixon, Arreman and Holm (2010) and Erixon, Arreman and Holm (2011). It is possible that this affect the moral image of the schools. Since image seems to be an important factor for students when choosing school (Lidström et al., 2014), it is possible that the morally questionable actions of some independent schools have negatively affected their image and indirectly their stakeholder relationship with the students and their parents. As reported by Holm (2013), students tend to see public schools as the safer choice. This can indicate that more students are choosing the safer choice. If students tend to apply to public schools instead of independent schools, the increased demand will elevate admission levels and only the best students will get accepted. Students with higher grades from high school could indicate higher scores in GPA and SweSAT. This line of argument is only speculative but it is possible that morally questionable actions of some schools have resulted in lower scores in GPA and SweSAT for independent schools, which could help explain the regression results.

From an instrumental and strategic stakeholder perspective (Donaldson & Preston, 1995; Freeman, 1984), it could be argued that independent schools use high grades as a way of attracting students. Wikström and Wikström (2015) state that grade inflation among independent schools is a fact and Holm (2013) argues that some independent schools market themselves as schools were students receive high grades. As a result, students might feel tempted to choose an independent school. Additionally, the grade inflation among independent schools would indicate higher educational results. However, it is not as likely that grade inflation affects the SweSATS as the tests' unbiased characteristic make them less dependent on individual school objectives and harder to inflate.

Nevertheless, the descriptive statistics in this study tend to contradict this logic as the mean GPA of a public school actually is higher than the average GPA of independent schools.

However, this do not completely disprove the relationship between independent schools and grade inflation. The observed GPA for independent schools could be inflated and the true GPA is even lower. Or some independent schools might inflate grades to attract students, while others do not which makes the mean GPA not all that effected.

7.3.3 Teachers

Teachers provide the actual educational service that a school is offering. Therefore, teachers can have a considerable impact on the students overall educational quality and their performance in SweSAT and GPA. Therefore, they are considered a primary and important stakeholder. Similar to students and parents, the teachers can also be analyzed by the normative stakeholder perspective (Donaldson & Preston, 1995). According to Erixon, Arreman and Holm (2010), teachers are also affected by the morally questionable behavior of some independent schools. The freedom of speech was even violated for some teachers as they were afraid to lose their jobs if they reported morally questionable aspects of the independent schools (Erixon, Arreman & Holm, 2010). It is possible that these types of morally questionable actions from independent schools result in problems of attracting the best teachers. Which could affect the overall educational quality and indirectly the students' achievement in GPA and SweSAT. This relationship is speculative but could have affected the results presented in this study.

Moreover, as The Swedish Teacher Association (2007) reports that public schools are generally allocating more resources to hire qualified teachers and have more teachers per students, which is supported by the discriptive statistics in appendix 2. More educated teachers and more tacher per student could indicate that students' at publi schools are given more qualified education and more individual attention. However, it cannot be stated with certainty that educated and licensed teachers are better than non-educted teachers but it could be likely, which would entail that a school with more educated teachers would provide better education. The number of teachers per student would also give every individual student the possibility to more attention and help in their education, which would suggest that they can score better at SweSAT and achieve a better GPA, compared to students with less educated teacher and fewer teachers per student. Thus, this might explain why public schools tend to perform better than independent schools.

7.4 Summary Stakeholder Analysis

From an ownership and agency theory perspective, the empirical results are surprising. When applying the theoretical frameworks, the theories indicate that public ownership should not be superior ownership identity. However, it is possible that these two frameworks are not entirely applicable for the schools in the Swedish educational systems.

One aspect that is worth emphasizing on is the fact that conducted analysis have assumed that the principal are the owners while the dean would be the agent. However, one can also argue that the true principals are other stakeholders for a school, such as the parents or the society as a whole. Parents are probably very interested in the quality of the education and since they are paying taxes and voting on political matters, they can also be seen as the principal. Education is a national matter of high importance and the society is highly affected by the quality of the school and as a result, the society as a whole can be seen as a powerful stakeholder that act as the principal while the deans of the schools are the agents to the society.

Compared to the ownership and agency theory, stakeholder theory is able to take this complicated stakeholder relationship into account. It considers the claims of other stakeholders and how their relationship with the school could affect the student performance. And from a stakeholder perspective, the results are not all that surprising as the analysis indicate that public schools have a better relationship with their stakeholders that the independent ownership identities.

8 Conclusion & Suggestions for Further Research

This study aimed at investigating differences in ownership identity among Swedish upper secondary schools and in terms of GPA and SweSAT. Although similar research has been conducted on the differences between public and independent schools, no one has taken the analysis further and investigated the differences in ownership in independent schools and compared them to each other and public schools. As presented in the result of hypothesis 1, there is a difference in both GPA and SweSAT for different ownership forms and that difference is significant. Previous research has not been able to agree on whether there is a difference between public and independent schools in terms of students' educational results. This study can contribute to this debate by concluding that there is a significant difference between public and independent schools, both in terms of GPA and SweSAT.

As presented in hypothesis 2, this study can conclude that ownership identity among different independent schools has a significant impact on educational results for students. Nonetheless, what can be concluded with 90% significance is that public schools are superior to other ownership identities in terms of SweSAT. Moreover, what is consistent over all regression analysis conducted in this study is that, in line with previous research, a factor that had a significant and high effect on students' educational results is how educated their parents are. Hence, the importance of socio-economic factors is an important aspect of the student's educational ability to learn and develop educationally. In sum, the research question cannot be fully answer as the results are ambiguous. However, the results indicate that public schools is the optimal ownership identity for upper secondary schools in terms of SweSAT.

Even though the results provide a nuanced contribution to the research field of educational ownership it has some shortcomings. First of all, the concluded results are limited to the time period of 2016/2017 and the results cannot be generalized as consistent over time. The results can be coincidental for this given year and it is recommended for further research that the result of this study is tested over a longer period of time. That way, a more confident conclusion can be stated regarding the optimality of ownership identities in the Swedish upper secondary school sector. Additionally, is would also be of interest to research whether the result of this study applies at other educational levels as well. Independent schools are common among

kinder garden as well as primary school and it would be of high interest to investigate holistically how ownerships affect the entire educational process.

Furthermore the results presented in this study can hopefully introduce a nuanced perspective to the constant debate concerning the quality of independent schools and how they compare to public schools. The results also can provide essential information for politicians when discussing the future improvements of the Swedish education.

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8. Appendices

Appendix 1. Regression Results

Number	1	2	3	4	5	6	7	8
Depedent Variable:	GPA	GPA	SweSAT	SweSAT	GPA	GPA	SweSAT	SweSAT
Family	-0.299*			-0.610**		-0.192		-0.331
	(0.158)			(0.273)		(0.189)		(0.403)
Foundation	0.223			-0.577*		1.295***		1.858***
	(0.244)			(0.328)		(0.242)		(0.515)
Private	-0.309**			-0.705***		-0.157		-0.519
	(0.154)			(0.257)		(0.150)		(0.318)
Teacher	-0.0624			-0.637*		0.383		0.185
	(0.249)			(0.375)		(0.300)		(0.638)
Listed	-0.498***			-0.936***		-0.501***		-1.053***
	(0.131)			(0.259)		(0.132)		(0.280)
Independent		-0.329***	-0.771***		-0.137		-0.446**	
		(0.111)	(0.209)		(0.104)		(0.219)	
Controlling Variables								
Cost per Student	0.000241	0.000854**	0.000679	0.000373				
	(0.000392)	(0.000397)	(0.000532)	(0.000565)				
Number of Students	-0.000208**	-0.000238**	-0.000522**	-0.000507**				
	(0.000102)	(0.000102)	(0.000206)	(0.000206)				
Foreign Background	-0.238	-0.218	0.810*	0.773				
	(0.269)	(0.265)	(0.464)	(0.484)				
Highly Eucatted Parents	4.779***	4.973***	11.64***	11.54***				
	(0.349)	(0.355)	(0.553)	(0.564)				
Licensed Teacher	0.320	0.429	1.325**	1.272**				
	(0.306)	(0.301)	(0.575)	(0.580)				
Teacher Per Student	1.02e-05	-2.23e-05	-0.000844***	-0.000850***				
	(0.000107)	(0.000133)	(0.000210)	(0.000209)				
Constant	11.90***	11.66***	5.753***	5.882***	14.03***	14.03***	11.87***	11.87***
	(0.264)	(0.248)	(0.444)	(0.468)	(0.0607)	(0.0722)	(0.157)	(0.153)
Observations	571	571	571	571	571	571	571	571
R Squared	0.504	0.493	0.574	0.576	0.003	0.088	0.007	0.057

The significance for 10%, 5% and 1% is reported with ***, ** and * respectively. The dependent variables are Grade Point Average (GPA) and Swedish aptitude test (SweSAT). Regressions 1-4 are estimated using OLS with controlling variables. Meanwhile, regression 5-8 are estimated using OLS without controlling variables. All regression correct for heteroscedasticity using robust standard errors which is shown in the parentheses

Appendix 2. Descriptive Statistics

Variable Mean	Cost per Student	Number of Students	Foreign Background	Highly Educated Parents	Licensed Teachers	Students per Taeacher	GPA	SweSAT
Independent	139	244	30,81%	45,99%	66,38%	14,21	13,90	11,42
Public	129	708	34,60%	43,44%	80,79%	14,91	14,03	11,87
Private	154	226	27,68%	45,23%	63,31%	13,69	13,88	11,33
Family	120	260	40,1%	44,8%	69,3%	16,78	13,84	11,53
Foundation	286	264	25,19%	62,67%	81,13%	12,98	15,33	13,72
Listed	134	465	32,3%	45,5%	73,8%	14,8	14,0	11,7
Teacher	156	220	20,2%	50,6%	68,8%	11,78	14,42	12,05

Appendix 3. Test for Heteroscedasticity

Breusch-Pagan test

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of GBP

         chi2(1)      =     5.34
         Prob > chi2  =   0.0208
```

Appendix 4. Test for Multicollinearity 1.

Correlation Matrix

	Private	Family	Founda~n	Priv	Teacher	Listed	CostStd	Students	ForBac~r	HighEd~t	LicTea~r	Teacher	TeachStd	GBP	NP
Private	1.0000														
Family	0.2907	1.0000													
Foundation	0.2162	-0.0667	1.0000												
Priv	0.4031	-0.1244	-0.0925	1.0000											
Teacher	0.1700	-0.0525	-0.0390	-0.0728	1.0000										
Listed	0.4980	-0.1537	-0.1143	-0.2131	-0.0899	1.0000									
CostStd	0.0548	-0.0457	0.3604	0.0888	0.0398	-0.1840	1.0000								
Students	-0.5537	-0.1499	-0.1091	-0.2416	-0.1045	-0.2685	-0.1135	1.0000							
ForBackgr	-0.1027	0.1218	-0.0902	-0.1120	-0.1180	-0.0146	-0.0540	-0.0453	1.0000						
HighEdParent	0.0749	0.0014	0.2345	0.0116	0.0601	-0.0665	-0.0284	0.2631	-0.4696	1.0000					
LicTeacher	-0.4029	-0.0683	0.0968	-0.2338	-0.0447	-0.2775	-0.0431	0.4241	-0.0211	0.4365	1.0000				
Teacher	0.1700	-0.0525	-0.0390	-0.0728	1.0000	-0.0899	0.0398	-0.1045	-0.1180	0.0601	-0.0447	1.0000			
TeachStd	-0.0089	0.0173	-0.0090	-0.0092	-0.0125	-0.0048	-0.0183	0.0617	-0.0135	0.0335	0.0411	-0.0125	1.0000		
GBP	-0.0547	-0.0290	0.2433	-0.0287	0.0636	-0.1764	0.0457	0.1915	-0.3375	0.6859	0.3739	0.0636	0.0200	1.0000	
NP	-0.0852	-0.0116	0.1777	-0.0460	0.0277	-0.1614	-0.0025	0.2295	-0.2826	0.7358	0.4422	0.0277	0.0115	0.6682	1.0000

Appendix 5. Test for Multicollinearity 2.

VIF-test

SweSAT Multiple Independent Variables

Variable	VIF	1/VIF
HighEdParent	2.03	0.493119
LicTeacher	1.75	0.572724
Students	1.71	0.583953
Listed	1.68	0.595839
Priv	1.59	0.630898
Foundation	1.44	0.696843
ForBackgr	1.41	0.707267
Family	1.30	0.768307
CostStd	1.23	0.812830
Teacher	1.15	0.870468
TeachStd	1.01	0.993999
Mean VIF	1.48	

GPA Multiple Independent Variables

Variable	VIF	1/VIF
HighEdParent	2.03	0.493119
LicTeacher	1.75	0.572724
Students	1.71	0.583953
Listed	1.68	0.595839
Priv	1.59	0.630898
Foundation	1.44	0.696843
ForBackgr	1.41	0.707267
Family	1.30	0.768307
CostStd	1.23	0.812830
Teacher	1.15	0.870468
TeachStd	1.01	0.993999
Mean VIF	1.48	

GPA Single Independent Variables

Variable	VIF	1/VIF
HighEdParent	1.96	0.511058
Private	1.81	0.553784
LicTeacher	1.71	0.583185
Students	1.70	0.586934
ForBackgr	1.37	0.731831
CostStd	1.02	0.982134
TeachStd	1.01	0.994530
Mean VIF	1.51	

SweSAT Single Independent Variables

Variable	VIF	1/VIF
HighEdParent	1.96	0.511058
Private	1.81	0.553784
LicTeacher	1.71	0.583185
Students	1.70	0.586934
ForBackgr	1.37	0.731831
CostStd	1.02	0.982134
TeachStd	1.01	0.994530
Mean VIF	1.51	

Appendix 6. Test for Normality in Residuals

Jarque-Bera tests for Normality GPA Hypothesis 1

Jarque-Bera normality test: 15.392 Chi(2) .2748

Jarque-Bera test for Ho: normality:

Jarque-Bera tests for Normality GPA Hypothesis 2

Jarque-Bera normality test: 17.287 Chi(2) .2296

Jarque-Bera test for Ho: normality:

Jarque-Bera tests for Normality SweSAT Hypothesis 1

Jarque-Bera normality test: 26.84 Chi(2) .1141

Jarque-Bera test for Ho: normality:

Jarque-Bera tests for Normality SweSAT Hypothesis 2

Jarque-Bera normality test: 32.91 Chi(2) .1321

Jarque-Bera test for Ho: normality:

Appendix 7. Interview Form – Ownership Identity

Interview Form – Ownership Identity

Line of Questioning:

1. What is your name?
2. What is your position at the school?
3. Who owns the school?
4. Is that person or legal entity the sole owner?
5. If no, who owns the other shares of the company?
6. Are you certain about the information you have disclosed here today?

Appendix 8. Interview Form – Cost per Student

Interview Form – Cost per Student

Line of Questioning:

1. What is your name?
2. What is your position at the school?
3. What is the schools total cost?
4. Does the school own more than one school?
5. Does the school own or operate any other activity besides from education?
6. Are you certain about the information you have disclosed here today?