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**SECURITIZATION AS AN ALTERNATIVE TOOL OF  
FINANCING STUDENT LOANS**  
- A CASE STUDY FOR CSN

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## Abstract

- Title:** Securitization as An Alternative Tool of Financing Student Loans – A Case Study for CSN
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- Course:** Corporate Finance – Master Thesis, BUS 860
- Authors:** Fadi Morcos, Daniel Zalecki
- Advisor:** Maria Gårdängen, Peter Zerhouni
- Key Words:** Structured Finance, Public Securitization, Student Loan Asset-Backed securities, Credit Risk, Tranching
- Purpose:** The purpose of the study is to highlight the issue of student loans securitization, and investigate if there are any benefits that could be realized by performing such a transaction.
- Method:** The methodology is a case study for The National Board of Student Aid. It is a qualitative study, mainly using interviews, literature and scientific articles. By using this information we construct a securitization transaction structure “CSN 2006-1”, and conduct a cost/benefit analysis.
- Results:** The results of this study are that securitization could be an alternative way of financing for CSN and for the Swedish Government, and that it could be a way of transferring and eliminating credit risk. Additionally, securitization offers additional benefits for the government to reap.

## **Preface**

*We would like to take the time to thank Mattias Lampe and Sandra Norrström at Mannheimer Swartling for their time and contribution to this thesis. Our appreciation also goes to our advisor Maria Gårdängen for her guiding and important points of view. Finally, special thanks to Peter Zerhouni for his tremendous enthusiasm in our subject and the significant clarifications and recommendations he contributed with.*

*Lund, June 5th 2006*

*Fadi Morcos, Daniel Zalecki*

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## Table of Abbreviations

ABS	- Asset-Backed Securities
CDO	- Collateralized Debt Obligation
CDS	- Credit Default Swap
CSN 2006-1	– The transaction of this case study
CSN	- The National Board of Student Aid
EL	- Expected Loss
EMU	- European Monetary Union
ESF	- European Security Forum
EURIBOR	– European Interbank Offered Rate
FFELP	- The Federal Family Education Loan Program
FI	- Swedish Financial Supervisory Authority
FRN	- Floating-Rate Note
GDP	- Gross Domestic Product
GSE	- Government-Sponsored Enterprise
IAS	- The International Accounting Standard
IASC	- The International Accounting Standards Committee
INPS	- Istituto Nazionale della Previdenza Sociale
LIBOR	- London Interbank Offered Rate
MBS	– Mortgage-Backed Securities
PD	- Probability of Default
RGK	- The Swedish National Debt Office (Riksgäldskontoret)
SAL	- Student Annuity Loan
SCB	– Statistics Sweden (Statistiska Centralbyrån)
SEAL	- The Swedish Enforcement Administration and Legislation (Kronofogden)
SLABS	- Student Loan Asset-Backed Securities
SLM	- Sallie Mae
SPV	- Special Purpose Vehicle
WAL	- Weighted Average Life

# 1 Introduction

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*The first chapter of the thesis begins with a background to securitization followed by a problem discussion. The problem discussion leads to the purpose which is stated subsequently. Following this are the limitations of the study, and the chapter ends with the thesis outline, describing the different parts of the thesis.*

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## 1.1 Background

Securitization was invented in the early 1970s; and is one of the major financial innovations to have occurred over the recent decades. Since then the transaction volume has increased dramatically. By the end of 1994, more than \$1.9 trillion securitization securities were outstanding, and more than \$500 billion of securitization were done in 1994 alone.<sup>1</sup> The US dominates the securitization market worldwide with issuance totaling \$3,023bn in 2005,<sup>2</sup> up to 13% from the previous year. Issuance of Asset-Backed Securities (ABS) in the US has grown steadily to reach \$1,103bn in 2005. The US accounted for 83% of the global securitization issuance in 2005 down from 90% in 2003, a reflection of lower issuance in the US and growth elsewhere in the world. Securitization in European countries is also growing with issuance up nearly a third in 2005 to \$398bn, five times the \$71bn issued in 2000. The UK was again the largest European issuer in 2005 with \$181bn of securitized bonds, followed by Spain, the Netherlands, and Italy.

While a growing number of countries are utilizing securitization as a financing tool, 98% of these complex financial instruments are still being issued in industrialized countries and a mere 2% in developing countries. The issuance of securitized securities is concentrated especially in the United States. The industrialized countries accounted for \$27 trillion of securitized instrument issuance from 1990 to 2004, of which the United States alone accounted for 82 percent, followed by Germany and the United Kingdom at a mere 3% each. In Europe the leading country in securitization is the United Kingdom with a 45.4%<sup>3</sup> of the European securitization issuance in 2005. The statistical results for the European securitization issuance<sup>4</sup>, shows evidently an inactive Swedish market with €0.28 billion for 2005. As a result, these statistics gives an indication of how far the

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<sup>1</sup> Hill (1996)

<sup>2</sup> [www.ifsl.org.uk](http://www.ifsl.org.uk)

<sup>3</sup> ESF (2006)

<sup>4</sup> ESF (2004 & 2005)

Swedish market of securitization is from the other industrialized countries. To have a good securitization base in Sweden, two conditions should be fulfilled, including a stable infrastructure and a strong investor demand.

Securitization, as a structured finance tool, is a financing technique that is invoked by financial and non-financial institutions and governments in both banking and capital markets to (i) raise funds when it is not available through the traditional sources or because it is too expensive, (ii) liquidate their assets. In other words, securitization is creating value for the institutions and governments by managing their capital structure more efficiently, increasing liquidity, lower credit- and/or interest rate risk, or off balance sheet structure,<sup>5</sup> improving leverage ratios, and allowing recognition of accounting gains.

The value of securitization's efficiency and benefits are hard to measure, the more financiers a firm has, the more widely available the information about the firm is likely to be. Certainly such firms seem often to use securitization as one more way to arbitrage small differences in the financial markets. In securitization, heterogeneous and illiquid individual loans are combined into relatively homogenous pools and transformed into highly liquid bonds traded in the capital markets, which are referred to as ABS. Securitization has increased rapidly over the past decades into commercial loan markets, auto loans, business loans, credit card receivables, corporate loans, equipment leases, and student loans.

*“Structured Finance encompasses all advanced private and public financial arrangement that serve to efficiently refinance and hedge any profitable economic activity beyond the scope of conventional forms of on-balance sheet securities (debt, bond, equity) in the effort to lower cost of capital and to mitigate agency cost of market impediments on liquidity”.*<sup>6</sup>

When governments become financially distressed, and face difficulties to pay back its debts, accompanied by a large budget deficit, securitization gives them an important alternative to manage this risk by liquidating their assets and get access to the capital market to raise funds and manage their obligation more efficiently. Thus, securitization plays a significant role in transferring the countries' financial risk to the capital markets. For instance, loans and receivables securitization could be efficient instruments to be used by the governments in order to bypass the regular procedures to resolve the states' debts and participate positively in the economy. One proof of the benefits of an innovative instrument of financing, such as an asset-backed securitization, is the Italian experience of Public Finance. Public sector results in 2002 have been affected by the choice of this financing instrument: Asset-Backed Securitization determined a reduction in General Government deficit<sup>7</sup> of 0.7% of total Gross Domestic Product (GDP). That is, without asset-backed securitization the ratio of the deficit to total GDP, which in 2002 resulted in 2.3%, would have reached the 3% threshold enshrined in the European

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<sup>5</sup> Schwarcz (1993)

<sup>6</sup> Jobst (2005 p.2)

<sup>7</sup> In accruals terms



Monetary Union (EMU) treaty.<sup>8</sup> Thus, Italy provides a unique starting point to evaluate whether innovative financing instruments can represent a useful tool for the public sector in developed countries.

## **1.2 Problem Discussion**

Securitization has become an important way for financial institutions, companies, and governments to pool assets and sell them to investors. Issuance of ABS in the US has risen consistently in every year since 1990 rising from \$50bn to \$1,103bn in 2005, the student loans securitization accounted for 7.1%, which is equivalent to \$62.7bn.<sup>9</sup> Although the securitization market in Europe is smaller than in the US, the European market has become a major sector of the capital markets in recent years. Data compiled by the European Security Forum (ESF) show that issuance in Europe increased from \$71bn in 2001 to \$398bn in 2005. The value of new issues rose by 22% and 31% in 2004 and 2005, respectively.<sup>10</sup>

While statistical information is far from complete, it seems that there is a correlation between country-risk, as expressed by credit rating, and securitization. Countries with a relatively good credit rating (BB+ or higher) exhibit a lower propensity to engage in asset-backed securities compared with countries with lower credit rating, and that the issuance of these securities for the countries with lower rating has been realized depends on the credibility of the governments, and the financial market volatility. But that does not mean that the governments with a high credit rating can't benefit from securitization. The highly credit rated governments can still benefit from securitization by lowering their financing costs and managing their portfolio more efficiently. As remarked by Chalk (2002)<sup>11</sup>, when assessing costs and benefits of securitization implemented by public sectors, the reference point is whether they reduce the average cost of budget financing when compared with a simple bond issuance (which is implicitly backed by all future public sector revenues). By reviewing the securitization transactions carried out in Sweden from 1990 to 2001, we realize that most of the transactions were private except one transaction that was carried out publicly by the government in 2001,<sup>12</sup> which was a real estate transaction. This thesis analyses the costs and benefits of a relatively innovative instrument for financing and managing assets, which is the securitization backed by student loans.

The importance of this asset come from many aspects, more than 1.4 million persons have student loans and total debt assets outstanding claimed by the National Board of

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<sup>8</sup> PISAURO (2005)

<sup>9</sup> The Bond Market Association

<sup>10</sup> [www.ifsl.org.uk](http://www.ifsl.org.uk)

<sup>11</sup> Chalk (2002)

<sup>12</sup> EMRIC (2001)

Student Aid (CSN) at the beginning of the year 2006 amounted to more than SEK 172 bn.<sup>13</sup> Furthermore, as reported by the Swedish National Debt Office (RGK), the Swedish

Government's lending with credit risk totaled SEK 172.3bn at the end of 2003. The CSN balance constitutes of SEK 163.2bn, which is equivalent to 94.7% of the total amount of the loans granted with credit risk. The loans have credit risk because they are granted without collaterals. More over, today, according to the CSN, the total loans at the beginning of the year 2006 were more than SEK 173bn.<sup>14</sup>

This thesis is a premier for student loan securitization in Sweden. It describes key elements of a typical asset securitization, outline the reasons for securitizing student loans, and examine whether Sweden's infrastructure presents any barrier to securitization. Relevant questions include, how could CSN benefit from student loans securitization, and even more importantly how much compared to current financing?

More over, the number of students is increasing, and the costs to CSN are increasing too, which could motivate an alternative way of financing for the government. The costs are increasing because millions of Swedish Kronor are written off yearly, due to death, defaults, and age, as well as the administrative costs. Today, Sweden has a good economic condition but still has debt in the budget, amounting to SEK 1,268bn.<sup>15</sup> What if the Swedish government faced an economic crisis, how would this affect the students and the ability to study, when the majority of students depend on the governmental loans? Today, Sweden has a triple-A rating, so it borrows at low interest rates. But why wait until Sweden faces financial troubles, with the consequence of a lower credit rating that leads to an increased borrowing interest rate. In this case it will not be able to take actions in order to continue financing the student loans at low costs. With securitization, Sweden may realize some financial flexibility and increase the investing in other important sectors or projects. Currently, Sweden is not as engaged in securitization as other European countries, hence securitization could be a good alternative for Sweden to get access to the capital market, to realize financial flexibility. Thus, based on the above mentioned discussion, this study will answer three main questions that are relevant for a securitization for CSN and the Swedish Government:

1. Could securitization be an alternative way of financing student loans in Sweden?
2. Could securitization decrease the level of credit risk exposure for CSN and the Swedish Government, associated with the student loans?
3. Could the Swedish Government experience other benefits with securitization?

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<sup>13</sup> CSN Press Information 13-01-2006

<sup>14</sup> CSN Press Information 13-01-2006

<sup>15</sup> SCB (March 2006)

### **1.3 Purpose**

The purpose of the study is to highlight the issue of student loans securitization, and investigate if there are any benefits that could be realized by performing such a transaction. This will be done by answering the above mentioned main questions in the problem discussion.

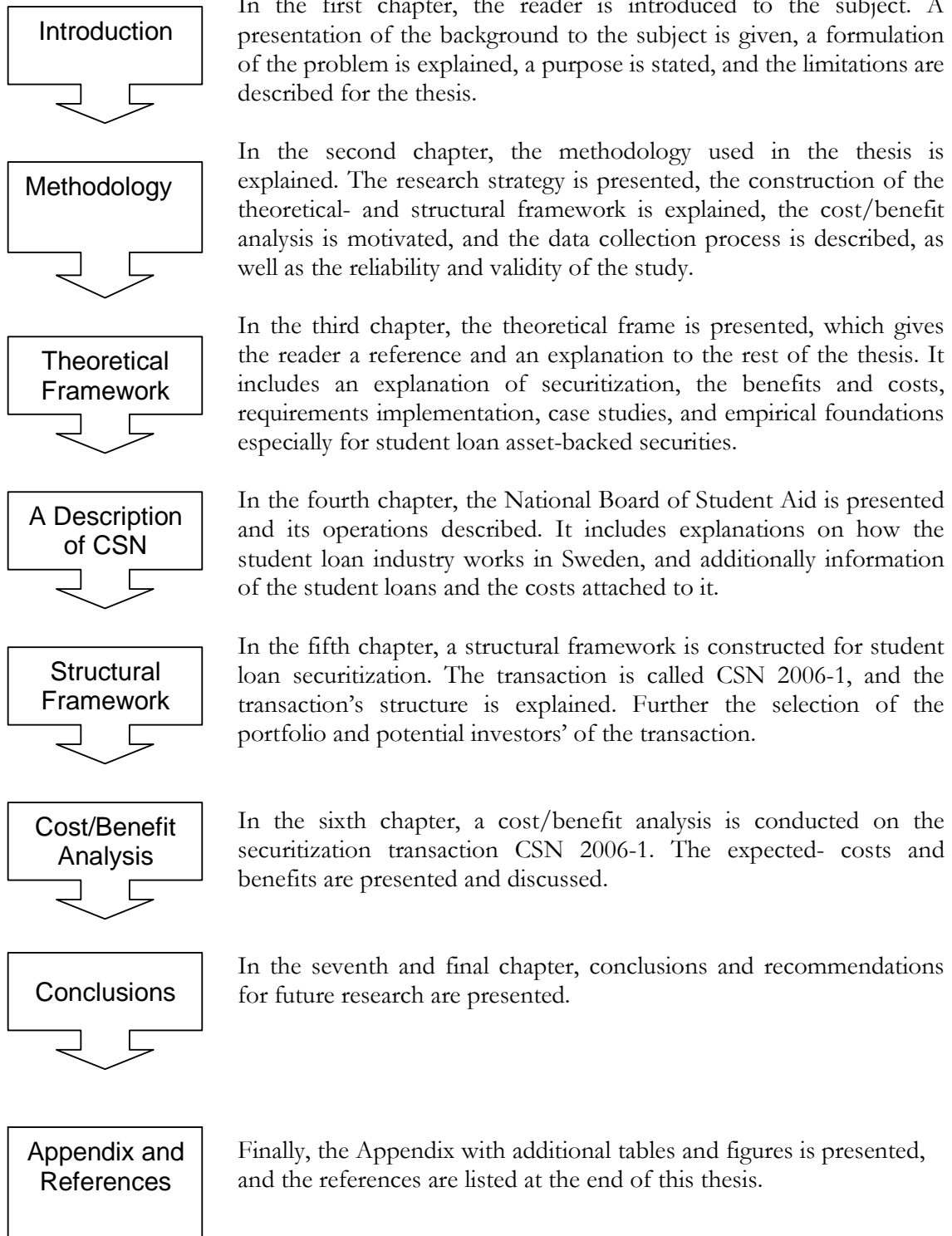
### **1.4 Limitations**

We have done certain priorities and focused on the parts that are in line with the purpose of the study, and thus there are some limitations. Usually, structuring securitization transactions takes a long time<sup>16</sup>, and we are aware that the structural framework we present could be modified in some aspects. These aspects include the actual rating, and tranching of the issued securities which is done by the rating agencies. Further, we focus on previous student loan cases in the US and the UK, because there are no similar transactions done in Sweden. The application of this data on a Swedish securitization could be questioned, as a result of the different pricing mechanisms in different economies. Another limitation is the unavailability of some statistical data from CSN, which we explain how to address in the methodology. More over, to be able to structure an actual securitization transaction, the responsible team usually consists of a varied range of expertise, including legal, accounting, tax, econometrical, financial etc. In this study, the theoretical framework includes many of these aspects, while the structural framework and the analysis are focusing on the financing aspects. Finally, this thesis only focuses on public securitization, which is a securitization made by the government and not by a private company.

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<sup>16</sup> Around 1-3 years

## 1.5 Thesis Outline



## 2 Methodology

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*In this chapter, the research strategy of the thesis is presented, in order to fulfill the purpose of the thesis. An explanation of the theoretical framework construction is followed, and its drivers. Subsequently, the process of data and information collection is described. Further, the structural framework is explained and motivated and the approach to make the cost/benefit analysis is explained and its connection to the theoretical framework. Finally, a discussion of the reliability and validity of the study is presented, by explaining the different strengths and weaknesses of our research strategy.*

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### 2.1 The Choice of a Research Strategy

The choice of research strategy for this study is to make a case study for CSN. One definition of the case study approach is:

”The case study is a research strategy which focuses on understanding the dynamics present within single settings”.<sup>17</sup>

A case study can also involve an embedded design, with several levels of analysis, within a single study.<sup>18</sup> The fulfilment of the purpose of this study is done by conducting a case study for CSN. This will enable us to highlight the issue of student loans securitization, and assure the importance and benefits that could be realized by performing such a transaction in Sweden. In addition to this, the thesis’s questions will be answered. Specifically, an analysis will be done of how the industry for student loans works in Sweden today, and explaining the entire process of the financing of these loans. Then, an analysis of CSN’s lending process and the repayment policies, and also the financing process of these loans and the repayment of the borrowed funds, is conducted. Thus, the case study as a research strategy is applicable in our case because we focus on understanding the processes and dynamics of both CSN as a single setting, and for the student loan industry as a whole. This means that our analysis of the effects of

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<sup>17</sup> Eisenhardt (1989 p.4)

<sup>18</sup> Eisenhardt (1989 p.5)

securitization on CSN has an embedded structure of two levels of analysis, both CSN and the Swedish Government, thus leading to indirect effects on the government.

The two levels of analysis that are embedded in the thesis are:

1. CSN
2. The Swedish Government, including The National Debt Office and the Ministry of Finance

The two levels of analysis will be embedded in one analysis, which will include the costs and the benefits of the securitization transaction, CSN 2006-1. The result of this cost/benefit analysis will be the basis for the fulfilment of our purpose, and as a consequence this will also serve as the basis for answering the questions stated in the problem discussion.

## ***2.2 Construction and Drivers of the Theoretical Framework***

In order to fulfil the purpose of this study which is to assure the importance and benefits that could be realized by performing a securitization transaction in Sweden, the structure of the transaction CSN 2006-1 needs to be based on a solid theoretical foundation. There is limited research in Sweden about securitization except for some thesis and articles from newsletters. The securitization transactions that have been made in Sweden have especially been focused on real estate, a limited number of publicly made transactions, and none on student loans. Thus, the focus of the theoretical framework is to highlight and to enhance the theory behind securitization of student loans by applying the theoretical foundations from other countries that are more active in this field than Sweden. The structure of the theoretical framework is:

1. Explanation of what securitization is and the concept
2. Description of the main asset classes used in securitization
3. Examination of the benefits and cost of securitization
  - a. In general
  - b. For governments
4. Clarification of the requirements for a successful securitization
5. Focusing on a description of the empirical foundations concerning federally student loan asset-backed securities
6. Description of relevant cases
  - a. Student loans securitization
  - b. Public securitization

Thus, the framework includes theory about securitization as a whole, with an edge on publicly-backed student loan securitizations. Further, many of the researches in securitization have been done worldwide, but for the purpose of this study, researches

from US, UK and Italy is presented. The motivation behind this is that the US and the UK are the most active countries in securitizations, and especially of student loans, and

Italy has been very active in the public securitization market in recent years. Finally, the theoretical framework will give an indication of if and how securitization would be an alternative way of financing student loans in Sweden, and potential effects on both CSN and the Swedish Government.

## **2.3 Data Collection**

The case study involves different types of data collection methods including archives and interviews. The archive is the literature in a written form, and includes books, articles<sup>19</sup>, and previous thesis, which all combined contribute to an increased knowledge in the research field. In addition to the archives, interviews have been done with experts that would enhance the knowledge in the subject. For the interviews, a formal questionnaire form has not been constructed. Two interviews have been done, one at CSN's Central Office in Sundsvall with the Manager of the Economic Department<sup>20</sup>, and another one at Mannheimer Swartling with experts in the field of securitizations<sup>21</sup>. The interview at Mannheimer Swartling is motivated because it might show the real conditions of securitization in Sweden from a practical viewpoint. The two different types of collection methods include both qualitative and quantitative evidence<sup>22</sup>, and both of these types of data are to be included in analysis. The quantitative data in this thesis contains the following:

- Estimates of costs for the cost/benefit analysis from articles, previous cases etc.
- The loans and borrowers characteristics from CSN's annual reports.
- Bond data for the comparison of the costs between a simple bond and the transaction CSN 2006-1, from Internet sources.

The qualitative data in this thesis contains the following:

- Literatures, articles, and books for the theoretical- and structural framework, as well as for the cost/benefit analysis.
- Information from the interviews is not included in this thesis, but gives better understanding of the CSN process's and the securitization market.

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<sup>19</sup> Both published as a research article and in newsletters

<sup>20</sup> Jan Söderholm, 2006-05-10

<sup>21</sup> Mannheimer Swartling is the leading Swedish lawoffice in business law, and we had the highly appreciated opportunity to meet Mattias Lampe, which is a Partner in the Banking and Insurance Group of Mannheimer Swartling, and Sandra Norrström, which is an Associate at Mannheimer Swartling

<sup>22</sup> Qualitative data is from the interviews and can be described as words, and quantitative data is from the archives and could be described as numbers

## ***2.4 Constructing a Structural Framework***

Based on the theoretical framework, a structural framework is constructed for securitizing Swedish student loans. This framework is the actual structure of the transaction CSN 2006-1, and could serve as an initial transaction structure for future implementation. This chapter will be structured in the following way:

1. An overview on the final transaction structure, CSN 2006-1
2. Selection of the portfolio to be included in the transaction, CSN 2006-1
3. The rating process and an analysis of the portfolio's risk
4. A suggested investor base for the transaction, CSN 2006-1

## ***2.5 Conducting a Cost/Benefit Analysis***

The structural framework includes the expected costs of the transaction CSN 2006-1, that will be compared to the transaction's expected benefits. The cost/benefit analysis will enable us to answer the three main questions, which will be presented in the conclusions.

## ***2.6 Reliability and Validity of the Study***

The reliability and validity is of an important issue in order to replicate the study or to use the findings for future research. The qualitative study that is provided is based on empirical and theoretical findings. In addition, find market research documents published by leading investment banks, such as Deutsche Bank and Citigroup, to be of good quality, and thus very reliable and valid, as well as documents from the rating agencies. But it is also important to mention that we were unable to find certain statistical information about CSN, and were forced to make assumptions in order to continue with the study.<sup>23</sup>

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<sup>23</sup> These assumptions are stated throughout the thesis



## 3 Theoretical Framework

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*In this chapter the concept of securitization is explained first, followed by a description of the different asset classes used in securitizations. Then a glossary of securitization terms is presented. After this, a review is given of the benefits and costs with securitization, both in general and specifically for public transactions. Next, the requirements are mentioned for a securitization to be successful, followed by a presentation of previous cases in securitization. This chapter ends with a description of the empirical foundations concerning federally student loan asset-backed securities.*

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### 3.1 What is Securitization?

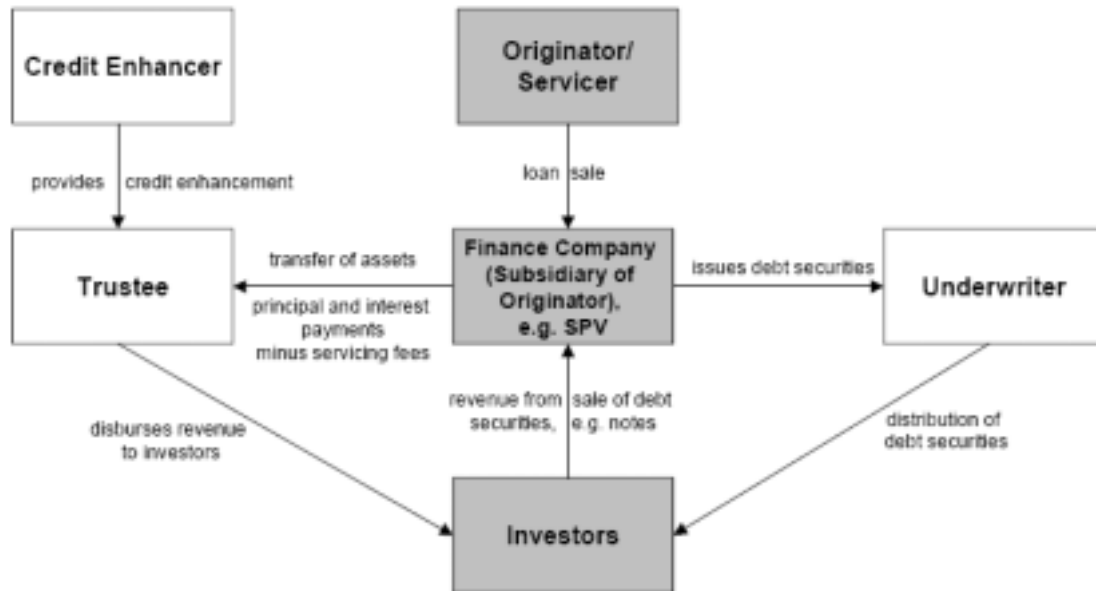
Securitization is the process of unbundling cash flows generated from corporate assets on the balance sheet and repackaging them into tradable securities available to the capital markets. In other words, securitization is a means for a corporate to transfer its risk by disposing its assets, but in contrast to a pure divestiture, the corporate can choose which pool of assets to sell. The types of assets that can be securitized include almost every form of loans/receivables/obligations, for instance real estate, mortgages, commercial, auto- and student loans.<sup>24</sup>

In a securitization the originator sells its loans to a Special Purpose Vehicle (SPV), which is often structured as a bankruptcy-remote trust or an incorporated entity. The SPV finances the purchase by issuing securities (e.g. notes, commercial paper, bills, bonds etc.). Financial institutions (e.g. investment banks) are often involved in the structuring and marketing of the issued securities, and to increase investor demand the credit rating agencies assess the probability of default for the issue and assign a credit rating. A typical securitization transaction is illustrated in Figure 3.1 below, along with the different parties involved and the flow of the process. In the next sections we will go through the process of securitization in more detail.

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<sup>24</sup> Culp (2002 p.294-304) and Banks (2004 p.115)

**Figure 3.1 A typical structure of an securitization**



(Source: Jobst (2002), p.8)

### **3.1.1 Glossary of Securitization Terms**

**Obligor:** An obligor is a customer to the originator who has received a good or a service from the originator and is obliged to pay on a contractual basis.

**Originator:** The seller of the assets, and is the one that transfers the ownership of the assets to the SPV (securitizing the assets), but usually continues to service the assets for a fee paid from the SPV.

**SPV:** The trust or incorporated vehicle that purchases the assets from the originator. In both cases the SPV has duty to protect the interest of the investors.

**Bankruptcy remote:** If the SPV is bankruptcy remote the credit risk for the investors are separated from the originator and the investors only face the credit risk of the SPV.

**Investors:** Usually the institutions purchase the securities issued by the SPV. The securities are usually rated by external credit rating agencies and take the form of notes, bonds, bills, commercial papers or preferred stock.

**Credit enhancement:** Gives the investors protection in case of losses resulting from the securitized assets. Usually third party guarantees, subordinated debt, over collateralization or cash deposit.

**Over collateralization:** A way of reducing the possibility for the investors to not get their payment (e.g. coupon on the notes) by issuing a smaller amount of securities than the amount of purchased assets, so the SPV has a buffer in case of losses.

**Liquidity support:** Usually provided by a bank, and is a service provided to the SPV to make sure the payments to the investors are made even in the case when there is a shortfall of cash from the assets.

**Off-balance sheet sale treatment:** Securitization transactions can be structured in a way that the assets sold are removed from the originator's balance sheet for accounting and regulatory purposes.

**Rated securities:** A financial instrument usually is a debt security, which has been assigned a rating for default risk from one or more credit rating agencies.

### ***3.2 What Type of Assets Can Be Securitized?***

Almost any type of asset can be securitized, as long as it has a reasonable predictable stream of future cash flows. Although the assets that are the easiest to securitize are those that occur in large pools, have a long history which can be used to predict default rates, have a standardized documentation, and where the ownership of the assets are transferable. The most common type of assets that are being securitized is residential mortgages. After the success of the Mortgage Backed Securities (MBS) market, the institutions started to apply the securitization concept to other asset types as well, which are the ABS, and are non-mortgage backed securities. The most common used collateral for the ABS are credit card receivables, automobile loans, commercial mortgages, leases and trade receivables.<sup>25</sup>

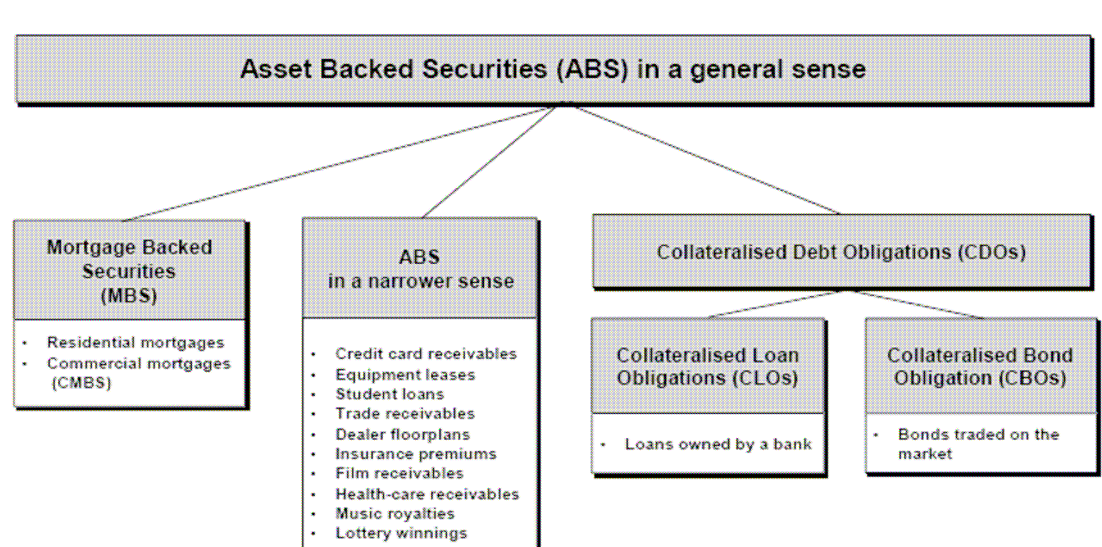
#### ***3.2.1 Description of Main Asset Classes***

The main differentiation between assets to be securitized is presented in Figure 3.2.1. Further, all assets can be subdivided into performing- or non-performing loans, and existing- or future flow assets. A performing loan is when the obligor pays interest and principal when due as of closing of the ABS transaction, and a non-performing loan is when interest and/or principal payments are overdue, at least to some extent. An existing asset is a loan already existing as of closing of the ABS transaction, in this case the borrower already received the money from the lender, and a future flow asset is an asset to be generated in the future (i.e. notes backed by credit card transactions in the future). The large majority of ABS deals are involving performing loans and existing assets.

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<sup>25</sup> Davis (2000 p.5)

**Figure 3.2.1 Main Asset Classes in Securitization**



(Source: Dresdner Kleinwort Benson Research)

According to Figure 3.2.1, ABS can be divided into MBS, ABS as a specific asset class, and CDO. One subcategory within the MBS asset class is the Residential Mortgage-Backed Securities, which are further categorized depending on the credit quality of the borrower (i.e. past credit history) and the type of mortgage (i.e. owner-occupied mortgage or not). The Commercial Mortgage-Backed Securities are mainly classified according to the type of real estate that secures the loan (i.e. office buildings, warehouses, hotels, land etc.). The ABS as a specific asset class includes both consumer-related assets (i.e. credit card loans, auto loans, student loans, personal loans etc.), and non-consumer related ones (i.e. infrastructure projects, aircraft loans, health care receivables, government securitizing unpaid social security contributions and/or unpaid taxes, etc.). The CDO asset class is consisting of loans owned by banks, which are called Collateralized Loan Obligations, as well as bonds traded on the market, called Collateralized Bond Obligations. The class also consists of loans to small- and medium sized companies, loans to multinational companies, corporate or sovereign bonds, loans with special underlying such as RMBS-/CMBS-/ABS-/CDO-tranches (CDO of ABS or CDO<sup>2</sup>), Collateralized Swap Obligations, etc.<sup>26</sup>

### **3.3 Benefits and Costs of Securitization**

In this section the main benefits and costs of a securitization in general are presented. That is, the mentioned benefits and costs could both be applied for financial institutions and sovereign issuers. Subsequently we review the benefits and costs of a securitization relevant for the government as the originator. Thus, the second part examines potential

<sup>26</sup> Münkler (2006 p. 21-25)

benefits and costs a securitization of publicly issued asset-backed securities is likely to have.

### **3.3.1 General Benefits**

There are benefits to reap from a securitization for both the originator and the investors of the issued notes. The main benefits for the originator are:

#### **3.3.1.1 More Efficient Financing**

A more efficient financing could be obtained because the investor's credit risk is eliminated through the process of structuring the transaction with a bankruptcy remote SPV, which gives the securitized assets a better rating than otherwise. This enables the originator to obtain funding at a lower cost than would be available if he/she went directly to the capital markets without securitizing the assets through an SPV. The decreased cost of financing is achieved due to the decrease in risk and thus a decreased weighted-average cost of capital. In other words, the securitized assets get a higher rating than the originator's rating. For example, Hendershott and Shilling (1988) find that the interest rates for conforming mortgages (i.e. loans that meet the qualifications of Fannie Mae and Freddie Mac for securitization) are lower after the securitization<sup>27</sup>. Similar observations have been found by Cotterman and Pearce (1996)<sup>28</sup> and Passmore et al (2001)<sup>29</sup>.

#### **3.3.1.2 Improvement of the Balance Sheet**

Securitization can also improve the originator's balance sheet, and enhance the managements control over the size and structure of the balance sheet. This will in turn lead to an improvement of certain ratios, such as return on equity and return on assets. The reduction of non-performing assets means that the originator can use the proceeds from the securitization for alternative uses and invest in more efficient projects. Santomero et al (1994) note that securitization can reduce a financial institutions vulnerability to adverse liquidity shocks by removing assets from its balance sheet.<sup>30</sup>

#### **3.3.1.3 Better Risk Management**

Securitization also improves the risk management function in different ways. It reduces funding risk for the originator by diversification of funding sources. The securitization decreases the originator's exposure to individual borrowers', while at the same time keep the relationship with them<sup>31</sup>. In an article by Hess and Smith (1998) a better risk management can be achieved by increasing the diversification of funding sources, and they note this as a benefit of securitization<sup>32</sup>. Another improvement in risk

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<sup>27</sup> Hendershott et al (1998)

<sup>28</sup> Barth et al (2005 p.19)

<sup>28</sup> Jones (1962)

<sup>29</sup> Passmore et al (2001)

<sup>30</sup> Santomero et al (1994)

<sup>31</sup> Barth, et al (2005 p.18)

<sup>32</sup> Barth et al (2005 p.18)

management for the originator is that it can transfer risk that it does not want to bear or be exposed to. It can transfer all risk to the capital market, or it can only transfer parts of the risk by retaining the equity piece. Thus, the originator has a high degree of flexibility in choosing the amount of risk to transfer and to retain. Yet, the risk management is also improved by reducing the interest rate risk for financial institutions. For instance a bank can offer long-term fixed rate financing without any significant risk, by passing the interest rate risk to the investors that prefer these kinds of asset types. Securitization has also been used to give effect to sales of impaired assets (asset currently in default or close to default).

#### **3.3.1.4 Liquidity**

The creation of liquid and tradable assets collateralized with a pool of illiquid and non-tradable assets is a benefit of securitization.<sup>33</sup> Another benefit for the originator when former illiquid assets have turned to liquid assets on the capital markets is that it increases the information about the assets and thus the transparency of them. This in turn enables the originator to create a pricing benchmark based on the liquid securitized assets, which can be used for the pricing of future assets, and could be seen as a more cost efficient way to conduct business.<sup>34</sup>

#### **3.3.1.5 Benefits to Investors**

The securitization also brings benefits for the investors. By issuing securitized assets the investors have the benefit of getting access to a new set of asset classes and new ways of diversification.<sup>35</sup> This creates more complete markets and increases the possibility of satisfying the needs of both investors and originators. The investors also benefit from the flexibility of the transaction structure by being able to choose securities that meet their demand in terms of risk level, term structure and liquidity issues. The investor can eliminate the credit risk exposure to the originator and only focus on the degree of protection given by the SPV, and thus the capacity of it to make timely payments. Additionally, ABS notes have historically yielded a higher coupon than corporate bonds, for the same rating and term, as well as a relatively high rating stability.<sup>36</sup>

### **3.3.2 General Costs**

To implement a securitization, it has to be cost efficient. That is, the benefits of the securitization must exceed the costs attached to it. In this section, a revision of the costs associated with a securitization is presented. The costs associated with securitization include moral hazard, adverse selection, and other costs. The reduction of these costs is associated with the importance of the structural enhancement features and the tranching of the ABS transaction. A combination of the two mechanisms will mitigate the credit

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<sup>33</sup> Jones (1962) and Kethar et al (2001)

<sup>34</sup> Münkler (2006 p.12)

<sup>35</sup> For more readings on why diversification is attractive for an investor we recommend: Stuart, A. and Markowitz, H. (1959), "Portfolio Selection: Efficient Diversification of Investment", OR, 10 no. 4, 253-254

<sup>36</sup> Davis (2000 p.4)

risk for the senior tranches, which could be sold to investors without the discounted price due to the adverse selection premium, leaving the originator with the equity piece.<sup>37</sup> Thus, the cost-efficiency of a securitization is highly dependent on the structure of the cost-mitigating mechanisms. The general costs of securitization are:

### **3.3.2.1 Moral Hazard**

The economic theory states that, an important function of financial intermediaries is to monitor the borrower's creditworthiness, and that the incentive to monitor is the highest when the institution holds the asset to maturity.<sup>38</sup> A cost for the originator is related to the moral hazard problem.<sup>39</sup> When the originator has done a securitization and transferred its credit risk to a third party, it will no longer have an incentive to control that the borrowers will pay back (ex post moral hazard). Additionally, the originator might also select to add assets to the underlying portfolio that is of lower quality than the credit quality of the overall underlying portfolio (ex ante moral hazard). This will reduce the overall asset quality of the underlying portfolio and thus the value of the investor's capital.<sup>40</sup>

### **3.3.2.2 Adverse Selection**

The other important cost of securitization is also related to the problem of information asymmetry between the originator of the assets and the investors. The originators have superior information about the loans that are being used as collateral for the issued securitized products compared to investors. This asymmetric information gives the underwriter the incentive to sell the loans with the lowest quality and retain those with the best. Thus, creates a market consisting of only low-quality loans.<sup>41</sup> Rational investors anticipate that they will be misled by the originator of the securitization about the true value of the credit quality of the reference portfolio, because they believe that the originators are at an informational advantage when assessing the creditworthiness of such loans.<sup>42</sup> Hence, in line with the well-known lemon problem, the originator will bear an adverse selection premium when selling of their high-quality assets if the market cannot separate the high-quality assets from the low-quality assets.<sup>43</sup> In other words, the investors will demand a discount on the ABS price in return for the uncertainty about the true value of the underlying portfolio.

### **3.3.2.3 Other Costs**

Other costs for the originator are the costs and fees related to the setting up of the transaction and the ongoing costs, i.e., structuring fees, underwriting, legal, rating, servicing etc.

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<sup>37</sup> Jobst (2002 p.22)

<sup>38</sup> Diamond (1991) and Gorton et al (1990)

<sup>39</sup> Gorton et al (1995)

<sup>40</sup> Jobst (2002 p.50-51)

<sup>41</sup> Akerlof (1970)

<sup>42</sup> Jobst (2002 p.21)

<sup>43</sup> Akerlof (1970)

### **3.3.3 Benefits of Securitization for the Government**

The benefits of securitization for the governments are:

#### **3.3.3.1 Reducing Information Asymmetries**

If we have a pool of potential public sector borrowers, but investors are unable to distinguish good from bad sovereign risks. Some borrowers can be rationed from the credit markets since, as interest rates are raised, there is an adverse selection effect with only the poorer quality borrowers remaining in the application pool.<sup>44</sup> This phenomenon may be particularly acute in time of financial crisis and emerging market volatility, when such information asymmetries are exacerbated. Therefore, securitization may have an important function in resolving informational asymmetries by providing a guarantee to potential lenders in the form of tangible collateral that signals a borrower's creditworthiness. In addition, it is likely that the countries with the fewest financing alternatives are likely to be the ones with the largest information asymmetries; thus such countries are likely to benefit the most from securitized transactions.

#### **3.3.3.2 Risk Sharing**

Another rationale for undertaking a securitized arrangement for the government, is that it has the potential to allow the sovereign borrowers to pass on the some of the risk fluctuations in future revenue flows to private lenders (who may be better able to hedge that risk). The most likely reason that such risk-sharing aspects are absent from secured financing is due to moral hazard. If the government simply guarantees a future revenue stream to service the debt then it has little incentive to insure that sufficient revenue is collected, to cover debt. As a result, the debt is usually structured instead to make the government the residual claimant of any excess revenues and allow the lender recourse should the revenues fall below the debt service requirements. Such a structure provides incentives for the government to maximize future revenue flows but, at the same time, eliminates any risk-sharing function a securitized issue may serve.

#### **3.3.3.3 Institutional Restrictions**

There may be important institutional reasons for recourse to securitized financing:

1. Because securitized financing typically carries a better credit rating than uncollateralized sovereign issues, such financing is made accessible to a wider range of investors (which should translate into reduced financing costs).
2. Secured transactions can “complete markets” by introducing new categories of financial assets better matched to investors' desire to diversify and their preference for different types of risk.
3. Securitized deals have the potential to allow governments to avoid institutional restrictions against outright privatization.

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<sup>44</sup> Stiglitz, Joseph and Andrew Weiss, (1981)



For example, a government may be prohibited from privatizing a sensitive or strategic industry. However, it can conduct a “back door” privatization by selling claims to the future revenue flows of the relevant industry.

### **3.3.4 Cost of securitization for the Government**

There are additional costs especially related to public securitization, and some costs for securitization in general are also applicable in this section. The costs associated with a public securitization include subordination of existing and future creditors, and fiscal transparency. The costs with securitization for the governments are:

#### **3.3.4.1 Subordination of Existing and Future Creditors**

The subordination of existing creditors can undermine the credibility of the government and alienate “traditional” investors. This subordination may not only offset the cost advantages of securitizing but may even end up increasing the cost of financing from both securitized and non-securitized sources. On the other hand, there does not appear to be any evidence of systematic credit-rating downgrades of unsecured debt following securitized issuance.

#### **3.3.4.2 Transaction Costs**

Securitizing particular receivable flows typically, bears high transaction costs (in the form of legal, banking and management fees) since each deal is unique and unwilling to standardization. As a result, arranging such deals requires long lead times, making them less useful as financing tools in times of financial stress. In addition, securitized deals typically occupy a very thin market and are traded infrequently. But the larger the size of the debt issue, the smaller the impact fixed costs will have on the overall financing costs.

#### **3.3.4.3 Fiscal Transparency**

Depending on the accounting treatment, securitized transactions may be used to make the fiscal position look healthier and improve the government’s balance sheet. In addition, some countries may also choose to treat the securitization to reduce the headline deficit number used for public consumption; alternatively, the lack of transparency may make it difficult for the government to properly price the risk-return trade-off associated with this more complicated form of financing.

## **3.4 The Requirement for a Successful Securitization**

The requirements for a successful securitization involve a stable financial structure and strong investor demand. A stable financial infrastructure facilitates securitization transactions by not giving the originator too large administrative costs and legal requirements, and at the same time providing protection for the investors. A strong investor demand facilitates a lower financing cost for the originator, and will almost exclusively depend on the credit rating assigned by the credit rating agencies. The characteristics of a robust financial infrastructure are explained in the next section, and

the factors contributing to strong investor demand will be covered in the section after that.

### **3.4.1 A Stable Financial Infrastructure**

The different parts of a country's financial infrastructure include the legal environment, accounting environment, and the tax environment.<sup>45</sup> The characteristics of a stable financial infrastructure will be presented below for each aspect of the infrastructure, and the Sweden's financial infrastructure will be compared to these characteristics to see if Sweden meets the first condition for a good base for securitizations and thus for successful ones. The different parts of a financial infrastructure are:

#### **3.4.1.1 The Legal Environment**

The legal meaning of an SPV is similar to the concept of a trust. Through a trust, the ownership of assets is transferred to trustees, which manages the assets for the sake of the investors. Thus, to tell if the legal environment in a country is promoting securitization one has to look at the transfer of ownership and determine the efficiency. But even if the country's legal environment allows the transfer of the legal title (i.e. the ownership) of assets, there are some countries (e.g. Italy) where the notification to the borrowers is required. This leads to an increased cost for the originator. In cases when the transfer of ownership is restricted, it may be possible to adjust contracts so the assets can be bought and sold. Legal systems may differ in whether a true sale of assets has occurred or not. Some jurisdictions make a distinction between the sale of assets and the financing of assets. Legal systems may also be different in recognising the bankruptcy remoteness of the SPV, or may not give investor's sufficient protection in case the debtors- or the servicer defaults.

Past legislation in Sweden has not explicitly prohibited securitization. However, it has caused structured financing to be a relatively costly and unprofitable financing form.<sup>46</sup> The main reason is that an SPV, by purchasing income-generating assets from the originator, was hit by a minimum capitalization requirement under the Credit Companies

Act of 1992.<sup>47</sup> Under the Act, all companies that have as a purpose to give credit or assist in financing by the purchase of receivables are considered to be credit companies. Two complications follow if the SPV is treated as a credit company: first, the SPV's activity must have authorization from, and be regulated by the Swedish Financial Supervisory Authority (FI); and second, the company must meet certain minimum capitalization requirements set out in the Finance Business Act.<sup>48</sup> This requirement means that the SPV, at every moment, must have a minimum capital base equal to 8% of its investments

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<sup>45</sup> The back-office systems is also a part of a country's financial infrastructure, but is excluded from our thesis because we find it to be irrelevant

<sup>46</sup> Robert Karlsson, Thesis

<sup>47</sup> Lag (1992:1610) om kreditmarknadsbolag.

<sup>48</sup> Lag (1992:1610) om finansieringsverksamhet

in financial instruments.<sup>49</sup> The capital cost that follows with the minimum capitalization requirement is considered to be the main reason why structured financing has not yet been an attractive financing alternative in Sweden.<sup>50</sup> In order to avoid this cost, Swedish transactions have set up SPV's abroad or offshore, where the legislation allows this type of transactions without a demand for capital coverage. This, in turn, has raised the legal cost of the transaction.

In 1999 the Swedish Ministry of Finance announced an amendment in order to facilitate securitization in Sweden.<sup>51</sup> Although securitization was possible under the legislation before 2000, but was too costly because the SPV was required to maintain certain capital coverage. The change in regulation meant that an SPV could be set up in Sweden, instead of abroad, i.e. Ireland or Luxemburg, where the legislation allowed for transactions without the requirement for capital coverage. This would lead to an increase in the securitization market and an improved opportunity for the originator's and the investor's, as well as other parties involved.<sup>52</sup>

#### **3.4.1.2 The Accounting Environment**

Asset securitization means a transfer of assets from the asset originator to a trust or SPV. The transfers are at times made without recourse, but sometimes with recourse, and with the retention of some residual interest in the assets. Accounting principles require that, when the ownership of an asset is transferred to another entity, that it be considered as "sold" for purposes of accounting and removed from the seller's balance sheet. Potential gains or losses from the transfer could then be recognized in its accounting statements.

The benefit from a securitization is the improvement of the balance sheet, but this requires the transaction to be treated off-balance. Thus, the accounting environment appropriate for securitizations is one where the securitized assets can qualify for de-recognition for financial reporting purposes. For the transaction to be treated off-balance it has to be defined as a sale of assets, and not as a financing transaction. Further, the off-balance sheet treatment in securitizations has caused International accounting authorities to respond to these developments with new recommendations for the accounting policies and principles to be applied. The International Accounting Standards Committee (IASC) has issued the International Accounting Standard (IAS) 39, "Financial Instrument: Recognition and Measurement", a standard that applies to financial years beginning on January 1, 2001.<sup>53</sup> This standard provides guidelines for the accounting principles that should be adopted in securitization processes.

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<sup>49</sup> Investment in unsecured receivables, such as credit card receivables must have a capital base equal to 8%, FD Proposition (1998:71)

<sup>50</sup> Johan G., Fredrik N., (2000)

<sup>51</sup> The amendment came into force in June 2001

<sup>52</sup> International Financial Law Review (1999) and FD Proposition (2000/01)

<sup>53</sup> International Tax Review (2000)

### **3.4.1.3 The Taxation Environment**

In a securitization process the impact of taxation could be a key factor that determines whether the securitization is profitable or not and hence may determine its feasibility. The occurrence of taxation could impact at several points along the securitization process. If the securitization is carried out within national borders, it is the domestic tax laws that would govern the process. But in a cross border securitization the impact of the tax jurisdiction of several countries would need to be examined, along with double taxation provisions that may be applicable to the countries concerned. In a cross border securitization, taxation issues become more complicated because the tax regimes of more than one country have to be considered.<sup>54</sup>

Taxation issues are largely irrelevant when securitizations are undertaken by a government since tax paid remains within the public-sector. However, taxation may add costs to the securitization process if governments conduct their securitization activities offshore. Offshore securitizations are often used by private firms to get around impediments posed by the domestic regulatory and accounting environments.<sup>55</sup> If the SPV is located in Sweden, ordinary tax rules apply. The payments involved with the selling of the assets may be regarded as royalties and such payments are truly not subject to withholding tax, but are taxed as Swedish income at the normal corporate rate 28%<sup>56</sup>.

### **3.4.2 A Strong Investor Demand**

Key determinants of investor demand include the expected risk and return characteristics of the security on offer, the degree of protection provided by the structure of the SPV, and the credit rating assigned to the securities by the ratings agencies. Since investors in asset-backed securities have no recourse to the originator, it is important to ensure that: receivables are sufficient to meet the payments promised by the SPV, safeguards exist to provide for shortfalls in cash from receivables, and investors have clear legal claims on the income from receivables and have adequate protection in the case of delinquency.

Two major developments have arisen to facilitate the reduction and assessment of credit risk: the use of credit enhancement and a greater role for the credit-rating agencies<sup>57</sup>, which are explained in the following:

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<sup>54</sup> Lakshman (2001 p.11)

<sup>55</sup> Davis (2000 p.6)

<sup>56</sup> International Tax Review. London (Jun 2000 p.107) and Taxes in Sweden (2005)

<sup>57</sup> Davis (2000)

### **3.4.2.1 Credit Enhancement<sup>58</sup>**

Credit enhancement provides a degree of protection to investors against losses resulting from the underlying portfolio of assets. A number of different forms of credit enhancement exist:

- **Third Party Guarantee:** Is an external party, often an insurance company or a bank, that provides a guarantee over the debt issued by the SPV. The sole function is to offer credit enhancement for fees. The guarantee can be for 100 percent of payment (called wraparound) or for some lesser amount.
- **Subordinated Debt (Subordination):** By creating a senior/subordinated structure, the SPV can provide for investor with preferences for differing levels of credit protection. Some creditors agree to grant priority to other creditors in exchange for higher rates of return. One possibility is for the originator to retain a subordinated tranche but this may create legal and regulatory difficulties in term of determining whether or not a “true sale” of receivables has occurred. Subordinated tranches will often be assigned lower credit ratings than senior tranches. In some cases subordinated tranches of securities can be privately placed while the senior tranches are offered publicly. Thus, the aggregated size of the more junior tranches serves as a cushion for the higher rated tranche.
- **Overcollateralization:** The assets put into the pool can be of greater value than is needed to support the contractual payments, so that the investor is protected in the event off shortfall in expected payments. The excess collateral is often held in a subordinated tranches or special account.
- **Cash Collateral Accounts/Spread Account:** A cash deposit can be held in a special account that can be used for payments in the event of shortfall in cash from receivables. A slight variation is the “spread account”, which represents the difference between the margin received by the originator and that of the investor. The originator will receive from the spread account once the other creditors have been paid in full. Cash collateral or spread accounts can be in conjunction with a senior/subordinated structure.

### **3.4.2.2 Credit Rating Agencies**

The credit rating agencies (e.g. Standard & Poor, Moody’s, and Fitch) have a central role for providing investors with assurances about the credit risk of the securities. Prior to each issuance of securities, one or more credit ratings agencies examine the receivables,

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<sup>58</sup> Münkkel (2005 p.52)

additional collateral,<sup>59</sup> proposed securities, and the structure of the SPV, and assign a rating to the securities as an indication of their creditworthiness. The rating agencies examine the historical performance of the receivables and perform “stress tests” on the underlying cash flows. For example, the historical rates of delinquency on receivables will be analyzed and simulations undertaken to determine the impact on the portfolio of an extremely unfavorable event, such as the worst sustained period of poor performance in recent history. Based on this analysis, the ratings agencies will indicate the amount of credit enhancement that is required to achieve a desired rating. Negotiations take place between the investment banks and the ratings agencies regarding hypothetical structures and their associated ratings. When assessing the creditworthiness of the notes, the ratings agencies also look at the internal mechanisms of the originator for transforming cash flows, whether sufficient information systems are in place to accurately track payments and to identify delinquencies, as well as processes for dealing with delinquent payments.

### **3.4.2.3 The Consequence of Tranching<sup>60</sup>**

Like other forms of credit risk transfer, e.g. Credit Default Swaps (CDSs), structured finance instruments can be used to transfer credit risk across financial institutions and sectors. Yet, a key difference between structured finance and other risk transfer products is the tranching of claims, which means that structured instruments can transform risk by creating exposures to different “slices” of the underlying asset pool's loss distribution<sup>61</sup>. As a result of this “slicing” and the contractual structures needed to accomplish it, the risk-return characteristics for each tranche could be difficult to assess. It is also needed to say that tranching can only re-allocate risk and not get rid of the inherent risk in the asset.<sup>62</sup>

Another important implication of the tranching is that tranching products can have risk properties that differ substantially from those of equally rated bond portfolio exposures, due to the joint effects of pooling and tranching and the reliance on the loss distribution. As a result of this, ratings of structured finance products can be expected to provide only an incomplete description of their riskiness relative to traditional instruments. In particular, the unexpected losses tend to be more likely than for like-rated traditional instruments, which can lead to unintended exposures to unexpected losses for structured finance investors relying on ratings of these products.<sup>63</sup>

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<sup>59</sup> The rating agencies usually apply the “water mark” principle when assessing externally provided credit enhancement, meaning that the rating of a security can be no higher than the rating of an external provider of enhancement

<sup>60</sup> Fender et al (2005 p.2)

<sup>61</sup> A loss distribution is obtained to create the tranching, and usually follows a log-normal distribution for credit losses

<sup>62</sup> Asset Backed Securities, Lehman Brothers, (January 2005)

<sup>63</sup> Fender et al (2005 p.9)

### **3.5 Previous Cases**

In this section, two relevant cases concerning securitizations will be discussed and explained. The first case is about the student loan industry in US, and specifically how Sallie Mae is using securitization in their business model. The motivation of the inclusion of this case is that it presents the realized gains with securitization and describes the company's securitization program. The second case is about the public securitization in Italy, and the motivation behind the choice is that the thesis is focusing on public securitization. Thus, the Italian case can provide with some more insights and potential benefits with securitization. Further, the case provides with a quantifiable estimate of the benefits. Thus, both cases provide with quantifiable benefits with securitization.

#### **3.5.1 Case 1: Student Loan Securitization in the US**

The Sallie Mae case is divided into three parts including the introduction, the financing of the student loans, and an explanation of the securitization program with the realized gains.

##### **3.5.1.1 Introduction<sup>64</sup>**

Sallie Mae (SLM) was established in 1972 as the Student Loan Marketing Association, and was back then a Government-Sponsored Enterprise (GSE) with the goal of providing a secondary market for student loans to give increased access to higher education. At the end of 2004 the company transformed from the GSE to a private sector corporation. The reason for the privatization was to enable SLM to originate student loans directly, thereby reducing the dependence of other loan originators. The privatization has also facilitated the SLMs entry into various credit and fee businesses within and beyond the student loan industry. The cost of the privatization is that the access to the federal agency funding market is eliminated. Further, SLM is the largest private source of funding, delivering and servicing of education loans in the US. They originate, acquire, and hold student loans, and the primary source of earnings is the net interest income from both on-balance sheet loans and off-balance sheet securitizations.<sup>65</sup> The loan portfolio SLM manages consists of two types of loans including government guaranteed student loans<sup>66</sup> (FFELP)<sup>67</sup> and Private Education Loans, which are not federally guaranteed. The total amount of the Managed portfolio was \$122.5bn in 2005, and the amount of federally guaranteed loans was \$106.1bn, or 87%.

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<sup>64</sup> Annual Report Sallie Mae (2005 p.7-12, 32)

<sup>65</sup> The net interest income is defined as the spread between the yield they receive on their Managed portfolio of student loans and the cost of funding these loans less any provisions for losses. For off-balance sheet loans this net interest income is called “gains on student loans securitizations” and “servicing and securitization revenue”.

<sup>66</sup> The government guarantees 100% of the principal and interest, or 99% after July 1, 2006 due to legislation, in case of default, death or other reason which disables the borrower to make his payments on time.

<sup>67</sup> FFELP: The Federal Family Education Loan Program, known as FFELP, provides loans for students in eligible institutions to finance their educational costs.

### 3.5.1.2 Financing<sup>68</sup>

Since the privatization, the main source of financing the operations is by issuing asset-backed securities of student loans. They issue these securities on both domestic and international capital markets in either private placements or public offerings. Their main objective when financing is to minimize the interest rate risk by matching the interest rate and reset characteristics of the assets and liabilities being managed. For this, they use financial derivatives and other hedging instruments. To obtain sufficient liquidity they finance in multiple markets and diversify their investor base. More over, they expect securitization to satisfy more than 70% of their financing needs over time (67% in 2005). Finally, the securitizations are strictly used for long-term financing, and other funding such as unsecured debt is used for short-term financing.

**Table 3.5.1.2 SLM: Sources of financing for the years 2003-2005<sup>69</sup>**

	Years ended December 31,					
	2005		2004		2003	
	Average Balance	Average Rate	Average Balance	Average Rate	Average Balance	Average Rate
GSE borrowings (unsecured) .....	\$ —	—%	\$ 9,967	2.21%	\$32,847	1.80%
Non-GSE borrowings (unsecured) .....	37,980	3.98	28,241	2.29	13,305	2.01
Indentured trusts (on-balance sheet) .....	4,782	3.27	2,168	2.47	1,221	2.68
Securitizations (on-balance sheet) .....	39,713	3.72	28,354	1.79	6,026	1.40
Securitizations (off-balance sheet) .....	44,545	3.77	42,606	2.09	39,524	1.79
Total .....	<u>\$127,020</u>	<u>3.80%</u>	<u>\$111,336</u>	<u>2.08%</u>	<u>\$92,923</u>	<u>1.81%</u>

(Source: Annual Report SLM 2005, p.86)

One observation from the table above is that the average interest rates are lower for the securitization than for the other types of borrowings (even when SLM was government owned in 2003-2004).

### 3.5.1.3 The Securitization Program<sup>70</sup>

The securitization of the loan types including the FFELP, Private Education Loan and Consolidation Loan<sup>71</sup> are structured so the securitization is a legal sale of assets to a special purpose entity that legally isolates the transferred assets from SLM and its creditors, even in the case of default. The investors have no recourse to SLMs other

<sup>68</sup> Annual Report Sallie Mae (2005 p.15, 84-86)

<sup>69</sup> A off-balance sheet securitization is when a sale has meet the requirement criteria of SFAS No.140, and Sallie Mae does not have any effective control over the transferred assets, thus the transaction is to be treated as off-balance sheet and the accounting accordingly) (An on-balance sheet securitization is when Sallie Mae still has some effective control over the assets after the sale and thus is to be treated on-balance sheet, primarily in Consolidation Loan securitizations when the issued securities have shorter expected maturities and non-amortizing, fixed rate and foreign currency denominated tranches, in order to increase the investor base and diversify funding.

<sup>70</sup> Annual Report Sallie Mae (2005 p. 88-89, 126, 148-153)

<sup>71</sup> Under the FFELP program borrowers with eligible student loans can consolidate the loans into one with one lender and convert the variable interest rates on the loans to one fixed rate instead for the maturity of the loan, Annual Report Sallie Mae (2005 p. 2)



assets in the case when they don't receive their payment on time. In all securitization the company retains the right to receive any excess amount of cash flows needed to pay the investors (principal and interest on the student loan-backed securities) and fees for servicing, hedging and other (which is called the Residual Interest). The gain on the off-balance sheet securitizations is defined as the difference between the fair value of assets received<sup>72</sup> and the relative allocated cost basis of the assets sold. The fair value is based on the present value of future expected cash flows using the management judgment on some key assumptions including credit losses, prepayment speed, forward interest rate curves, and discount rates to reflect the risk of the pool of assets. All these factor have an impact on the cash flows received and thus on the gain from securitization. Table 3.5.1.3 summarizes SLMs latest transactions in 2005. The transactions that are off-balance sheet are listed as sales, and the ones remaining on-balance sheet are listed as financing.

**Table 3.5.1.3 Securitization activity for SLM for the period 2005**

	2005						
	No. of Transactions	Loan Amount Securitized	Per-Tax Gain	Gain %			
FFELP Stafford/PLUS loans .....	3	\$ 6,533	\$ 68	1.1%			
Consolidation Loans .....	2	4,011	31	2	3,005	453	15.1
Total securitizations -sales .....	7	13,549	\$ 552	4.1%			

(Source: Annual Report Sallie Mae 2005, p.89)

From the table above, the gains from securitization for the year 2005 can be observed, which amounts to \$552 million. Additionally, there are servicing and securitization revenues that have to be added to the above gains, these were \$357 million for the year 2005.

### **3.5.2 Case 2: Public securitization by the Government of Italy**

The case of securitization made by the Italian Government is explained under this section. It includes an introduction with a motivation of the use of public securitization, and a description of the current securitization program.

#### **3.5.2.1 Introduction**

For a long time securitization has been identified as a possible key instrument to facilitate governments to meet national deficits obligations. This may become more and more the case as governments find themselves with an increasing commitment to allocate more funds on addressing pension deficits, health care services and improving infrastructure and transport requirements. The Swedish Government can use structured finance as a tool to manage their debt and deficit ratios.<sup>73</sup> In the EU, the country that has embraced securitization the most has been Italy, which has been responsible for the large majority

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<sup>72</sup> The fair value of the assets received consists of two components including the Residual Interest and the servicing rights, which together are summed up to the company's Retained Interest.

<sup>73</sup> Colin Evans, Managing Director at JPMorgan.

of the governmental-backed ABS to date. One example is the INPS (Istituto Nazionale della Previdenza Sociale) which has issued around €21bn (US\$25.84bn) in six transactions since 1999.<sup>74</sup> Through the years, the Italian Government has also securitized sales of state properties, lottery taxes and medical receivables. The size of securitization may be more or less depending on the different political setting, but securitization can be a very desirable alternative to direct funding.

### **3.5.2.2 The Securitization Program<sup>75</sup>**

Italy has been the most active European country in recent years in public sector securitization. The total amount of securitized debt issued in the years 1998-2003 is about €35 billion including securitizations of future revenue from lottery, revenue from real estates, and uncollected credits from social security entities. The first securitization was made in 1998 and concerned loans from SACE (a government agency responsible of granting loans to firms exporting to emerging economies) and amounted to \$650 million. Then for the following years there has been securitizations made of the uncollected contributions of INPS (the general social security fund providing insurance to disabled workers in the private sector) and of INAIL (an agency providing insurance for injured workers), and of future revenues from the State lotteries, and of real estate revenue. Additionally, in 2003 a securitization involved loans from a Central Government agency (Cassa DD PP) to non-government entities.

The main motivation behind Italy's extensive securitization programme appears to be the external constraints set on the Italian Government. The external constraints are formal constraints coming from the EMU Growth and Stability Pact, and political constraints coming from the promise of reduced taxes and the difficulty in reducing public expenditure. Thus, securitization is a reaction of the Italian Government, in order to comply with the external constraints they are exposed to. In 2002, the asset-backed securitizations resulted in a reduction in the General Government deficit of about 0.7% compared to the case if no securitizations had been made. This meant that with the securitizations the Italian Government had a deficit of 2.3% of the GDP, but without the securitizations it would have been at the threshold of the EMU treaty of 3%. The usual benefit of securitizations to borrow at a lower cost than with other financing tools is not the case for Italy. The cost of issuing securitized debt is larger than issuing standard government debt. The explanation for this is that the securitized notes show a lesser degree of liquidity than simple bonds, and are not government guaranteed. Thus, the interest payment compared to standard government bonds which is implicitly backed by all future public revenues is increased.

However, a number of governments that have not conventionally used securitization have followed the arrangement set by Italy's successful and performing securitization program. In 2004 the Portuguese Government entered the market with its first ever ABS deal, the €1.765bn Sagres Explorer backed by tax and social security payments in arrears.

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<sup>74</sup> Alec Mattinson, Public Sector Potential, [www.isr-e.com](http://www.isr-e.com)

<sup>75</sup> Pisauro (2005)

More recently the Kingdom of Belgium launched a €500m securitization of uncollected taxes in November 2005.<sup>76</sup> In contrast to Italy, Belgium's deal was not motivated by the need for a debt reduction, but was such a success that the Belgium treasury has indicated it will continue to use securitization to manage its budget proactively and improve collection procedures. Additionally, 10% of the proceeds from the securitization have been used to improve the underlying administration and collection process for the taxes.

One area that could be in position for growth is the use of securitization to support particular infrastructure projects, but it is also extremely difficult for governments to identify which stream of cash flow to separate out. Rupert Harrison<sup>77</sup> said: "There is huge opportunity in the public sector, but there are practical constraints. Execution is complex in the public sector: some entities may not have the systems in place or the necessary experienced resources to achieve it."

### **3.6 Empirical Foundations Concerning Federally Student Loan Asset-Backed Securities in the US**

In order to construct a research-based transaction for student loans, we now turn to a detailed explanation of some of the empirical findings concerning the government backed student loan securitization. According to this section we will find a trust- and capital structure most suitable for student loan securitization, and we will also base the pricing of transaction CSN 2006-1 on the foundations. Additionally, the specific risks inherent in student loans will be covered and how they are addressed. Thus, this section is indeed what the structural framework in the next chapter will be based on.

#### **3.6.1 Capital Structure<sup>78</sup>**

Student Loan Asset-Backed Securities (SLABS) are generally structured as pay-through certificates<sup>79</sup> with tranching layered over a senior-subordinated framework. The senior-subordinated structure provides credit enhancement for senior tranches. Even deals backed by federally reinsured loans use senior-subordinated structures because the federal reinsurance may not cover 100% of the defaults. A typical deal backed by federally reinsured loans might have 97% senior securities that carry triple-A ratings and 3% subordinate securities that carry double-A ratings. Tranching, in typical SLABS

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<sup>76</sup> B-TRA (2005)

<sup>77</sup> Head of International Origination, Public Sector Finance at Eurohypo.

<sup>78</sup> Nomura Fixed Income Research (2005, p.5)

<sup>79</sup> A pass-through certificate (structure) is when the SPV/servicer collects the payments from the borrowers in the underlying pool of assets and immediately passes these cash flows through to the noteholders. On the other hand, pay-through certificates means that the cash flows from the borrowers are kept for a short period of time, and are usually invested in eligible assets before being distributed to the noteholders. The pay-through structure means that the cash flows are bundled and distributed to investors on a more regular basis (i.e. quarterly payments), leading to a more stable amortization of the notes.

means sub-dividing the senior class into several serially maturing tranches. Normally, the senior class is sub-divided into tranches with Weighted Average Lives (WALs) of 1, 3, 5, and 8+ years. Senior principal distributions go entirely to the "shortest" tranche until it is entirely retired, before being applied to the next tranche in the sequence.

Student loan ABS has usually been issued as senior-class notes only<sup>80</sup>, and many of the deals were bond insured. This senior-class structure was driven by the investor base of these kinds of ABS, which consisted of corporate treasury or pension fund managers and other traditional municipal debt investors. These investors viewed the product as a cash management tool due to its relatively low margin and high credit ratings. Eventually the investor base broadened and more traditional investors with long terms perspectives wanted to buy the securitized student loans and get an increased yield. Additionally, more investors became attracted to the government-reinsurance characteristics of the student loan ABS and the favourable risk capital treatment. As a result of the increased and broadened investor base, most structures have become to include multi-tranching and the issued securities to be London Interbank Offered Rate (LIBOR) -indexed ranging from short term to long term maturities<sup>81</sup>. The student loan ABS SPV have proven to have an ability to build of the asset side of the SPV's balance sheet through excess spread more consistently and faster than other consumer asset classes.

### **3.6.2 Credit Enhancement and Liquidity<sup>82</sup>**

Subordination is the primary form of loss protection for senior classes of notes in SLABS transactions. Generally, subordination at the triple A-level varies across the student loan sector from 3%–10%. Another form of loss protection in some transactions is overcollateralization. In these kinds of deals, the trusts may be overcollateralized at closing, or overcollateralization is achieved over time by holding on to the excess spread to buy more student loans. Reserve accounts are found in most student loan ABS transactions to provide liquidity and some degree of loss protection. Such accounts vary in size from 0.25%–3.00% of the outstanding principal amount of notes, with nominal floor amounts, and are almost always fully funded from issuance proceeds at closing. Reserve accounts generally are available to cover interest shortfalls on any distribution date and principal shortfalls at maturity. In some cases, reserve accounts also may be used to cover principal shortfalls prior to maturity. Subordinate classes of notes

principally rely on excess spread as loss protection and, to a limited degree, reserve accounts. Federally backed student loan ABS collateral provides more stable excess

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<sup>80</sup> Besides the senior-class bonds other note issued included auction-rate securities or variable-rate demand notes (VRDNs), whose short term characteristics (28-day or 35-day) allowed investors to buy and put the high-quality securities within short time periods and pick up nominal yields, with little attention to the credit quality of the underlying collateral.

<sup>81</sup> This is especially the case for those transactions sponsored by for-profit entities doing traditional off-balance-sheet securitizations.

<sup>82</sup> Asset-Backed Criteria Report, Fitch Ratings (2005, p.4)

spread than other traditional consumer assets, since student loans have relatively long terms (at least 10 years) and have interest rates that are reset only once per year.

### **3.6.3 Collateral and Structural Risks<sup>83</sup>**

Student loan-backed ABS may include a variety of loan types. Most underlying collateral pools contain a mixture of all types, while some pools may include only a single type. The general risks in student loan ABS are internal liquidity risk, collateral defaults, servicing risk, cash flow variability, basis risk, and interest rate risk, and are presented in the following:

#### **3.6.3.1 Internal Liquidity Risk**

The internal liquidity risk comes from the securitization of loans to borrowers who are not yet in repayment status. For these loans, interest and principal payments may be deferred during periods of in-school, grace, deferment, and forbearance, thus reducing the cash flow from the underlying asset base of the transaction. The liquidity risk in a securitization is primarily addressed through reserve and capitalized interest accounts, and a reliance on stable excess spread, as previously discussed.

#### **3.6.3.2 Collateral Defaults**

Collateral defaults in student loan portfolios tend to vary in frequency depending on loan type and school type, but tend to be relatively consistent in terms of timing and severity. For example, in the U.S. the default curves for all loan types and school types of student loans are very much front loaded<sup>84</sup>. The curves indicate that approximately 70% of the total collateral defaults occur within the first two years of repayment. The frequency of losses across student loan portfolios tend to vary widely and are affected by both direct and indirect factors to the student borrowers. Indirect factors or independent of student borrowers include macroeconomic conditions, such as the level of unemployment. The direct factors or the primary affecting loss frequency are school- and loan type. These factors tend to reflect the credit quality of borrowers through the quality of education received, the borrowers' earning capacity after graduation, and the borrowers' ability to repay the loans.

#### **3.6.3.3 Cash Flow Variability<sup>85</sup>**

SLABS usually provide for quarterly payments of interest and principal. Principal distributions fluctuate from quarter to quarter based on the payment status of the underlying loans and because of deferments, defaults, and prepayments. On one hand the principal distributions to the investors can decrease if the proportion of a deal's underlying loans in deferment or other non-payment status increases, and on the other

hand the principal payments to the investors can increase if borrowers make higher prepayments<sup>86</sup>.

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<sup>83</sup> Asset-Backed Criteria Report, Fitch Ratings, (2005, p.5-8)

<sup>84</sup> This is the case for student loans of the federal student loan program, FFELP

<sup>85</sup> Nomura Fixed Income Research, (2005, p.5)

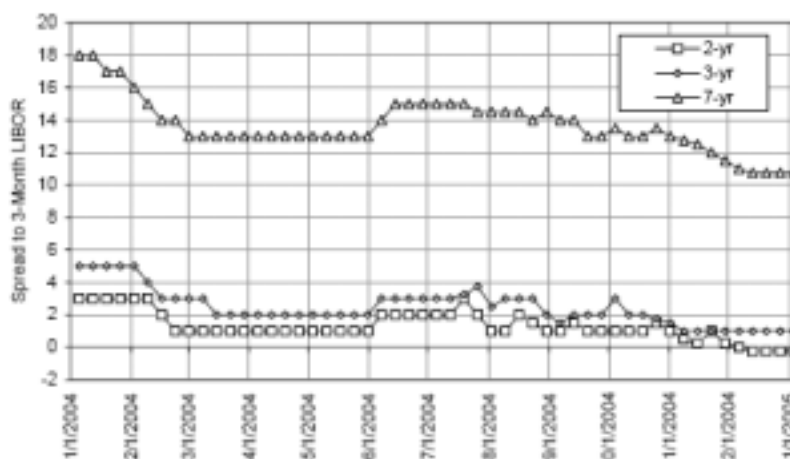
### 3.6.4.4 Interest Rate Risk/Basis Risk

Student loan ABS transactions are subject to the risk of future fluctuation in interest rates that can have negative effects on the cash flows of transactions. This risk could be addressed by using interest rate swaps. Another risk is involved in student loan transactions because the student borrowers have to pay an interest rate that is indexed to the T-bill<sup>87</sup>, but the payments to the investors are being indexed to LIBOR or a LIBOR proxy, thus basis risk exists in student loan ABS that may erode excess spread in a transaction as the spread between the bases of the assets and liabilities fluctuates. Generally, student loan ABS are either Floating-Rate Notes (FRNs) indexed to LIBOR, or fixed rate.<sup>88</sup>

### 3.6.4 Spreads

The trading spreads for the shorter (2-3 year WALs) triple-A rated SLABS tranches tend to fluctuate a few basis points above three-month LIBOR. For longer WALs, the trading spreads are somewhat wider, usually between 10 and 20 basis points above three-month LIBOR. Further, the volatility of the SLABS spread is generally modest. The following figure shows the spread levels for 2-, 3-, and 7-year SLABS over the year 2004:

Figure 3.6.5 Student loan ABS spreads to 3-month LIBOR<sup>89</sup>



(Source: Student loan ABS 101: An introduction to student loan ABS, Nomura Fixed)

The spreads tend to be tighter for federally backed SLABS than those backed by private student loans. For example, SLMA series 2004-5<sup>90</sup> is backed by federally reinsured loans

<sup>86</sup> Consolidating (i.e., refinancing) student loans, results in higher prepayments

<sup>87</sup> In the U.S the student borrowers interest rate is indexed to the 91-day T-bill. More over, the loanholder receive addition interest income to on the student loans from the special allowance payment (SAP) paid by the government to ensure loanholders receive, theoretically, a market rate of return. SAP payments currently are indexed to the 90-day commercial paper (CP) rate and pay loanholders a rate equal to the 90-day CP rate plus a margin minus the borrower rate.

<sup>88</sup> Fitch addresses basis risk in transactions containing capped interest components by applying a fixed spread between the interest rate bases over the duration of the transactions.

<sup>89</sup> Figure 3.6.5 is showing spreads when the interest rates have been historically low.

and its 7-year tranche priced at three-month LIBOR +15 basis points. In contrast, NCSLT 2004-1<sup>91</sup> is backed by private student loans and its 7-year tranche priced at three-month LIBOR + 26 basis points. The spread levels for the subordinate tranches range between 30 and 50 basis points over three-month LIBOR for both private and federally reinsured SLABS.

### **3.6.5 Credit Quality**

The student loan credit performance should be less sensitive than regular consumer loans to changes in the overall economic environment. The reason for this is that in a weakening economy, student borrowers may have more options for avoiding defaults than regular consumer borrowers. For example, a student borrower who is temporarily unable to pay his loans can seek forbearance, or the borrower can obtain a deferment by entering military service, or the borrower may be able to delay his payment obligation by staying in school. Thus, the SLABS have displayed exceptionally strong credit quality. Senior classes carry triple-A ratings and subordinate classes usually carry ratings of double-A or single-A. Only a few deals have included triple-B rated tranches.

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<sup>90</sup> Sallie Mae securitization made in 2004

<sup>91</sup> National Collegiate Student Loan Trust Securitization made in 2004

## 4 CSN - Swedish National Board of Student Aid

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*In this chapter, an explanation is given of how the student loans are distributed in Sweden, and the financing of these. Following this is an explanation in detail of how the Swedish National Board of Student Loan operates, in terms of what kind of student loans they grant, how they finance them, and what are their costs.*

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### 4.1 How the Student Loan Industry Works in Sweden

Each year the Swedish Parliament gives the government an authorization via the National Debt Office to borrow the amount needed for the activities of the State. The Swedish Government controls the National Debt Office through stated regulations and instructions<sup>92</sup>, and the debt office reports to the government about the financial needs and results for the Swedish National Board of Student Aid (CSN). The National Debt Office, called Riksgäldskontoret (RGK) is an authority under the Ministry of Finance and handles the government's financial administration. RGK manages and finances the government's debt by borrowing on the Swedish and the International fixed income market (by issuing Nominal bonds and Treasury bills).<sup>93</sup> The objective is to borrow at the cheapest cost possible taking risk into account. Thus, RGK need to consider the risk involved so the costs will not increase substantially if something unexpected occurs.

RGK then lends money to CSN, based on CSN's budgeted amount.<sup>94</sup> Finally, CSN is lending and/or giving grants to the students. The repayment process of these student loans will be covered in later sections. A description of this process is illustrated below.

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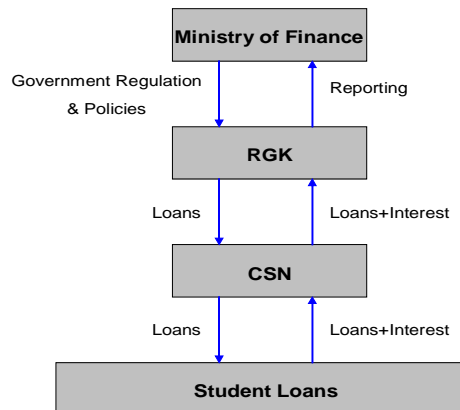
<sup>92</sup> The Debt Office is governed by the following acts and ordinances: Act on central government borrowing and debt management (1988:1387) with amendments: up to and including Swedish Code of Statutes 1998:659; Ordinance containing instructions for the National Debt Office (1996:311) with amendments: up to and including Swedish Code of Statutes 2004:1336

<sup>93</sup> RGK also issues government guarantees and lending, acts as an internal bank for state agencies, supervises the government's cash management and creates forecasts of central government borrowing requirements

<sup>94</sup> CSN can borrow up to SEK 140 billion per year from RGK, according to regulations (CSN Annual Report 2005, p.87)



**Figure 4.1 The student loan process in Sweden**



## 4.2 A Description of CSN

This section explains what CSN is, and what their mission and policy is. Further it goes into depth about the different types of student loans they grant, and the repayment of these. Further, CSN's financing of the student loans is explained, and the repayment of these loans. Finally, the different costs associated with the student loans are described.

### 4.2.1 CSN's Mission and Policy

CSN is a national authority that handles the financial aid for students. The activities should contribute to the ability for people to study from their requirements and demand without being restricted or limited by barriers concerning primarily economical resources. The authority also handles the administration of home equipment loans for refugees and other foreign citizens. Thus, CSN is the link between the political decisions and the students, repayers, refugees and other foreign citizens. The activities of CSN are divided into three parts including allocation of student aid and recruitment grants, allocation of home equipment loans, and repayment of loans. The authority allows and pays out different types of loans and grants, and is also responsible for the administration of the repayment of these loans. Financial aid for students consists of one loan part and one grant part, with some possibilities to receive additional loans under certain circumstances. The total amount of student aid (both the loan and grant) is the same for all students, except for those studying abroad. In 2005 the total amount paid out as loans was SEK 11bn and SEK 14bn as grants. About SEK 10bn of the loans were paid back in 2005 from the borrowers. The total amount of claims CSN had at the end of 2005 came

up to about SEK 172bn, before the reservation for uncertain claims was taken into account. The total amount of uncertain claims was assessed to be around SEK 28bn.

### 4.2.2 Different Loan Types

For the student loans granted before 1989 the repayment follows a straight amortization plan until the borrower is 50 years old. The interest rate is based on CPI (Consumer price-index), and in general these loans are more generous in terms of the grace of the repayments. For student loans allowed between the 1<sup>st</sup> of January 1989 and the 30<sup>th</sup> of June 2001, the amortization is done by 4% of the revenue (of the borrower). Possible remaining debt at the age of 65 is given a concession. The student aid allowed from the 1<sup>st</sup> of July 2001, i.e., loan and grant for studies, is normally amortized during 25 years, although not over the age of 60. According to a special application the amortization can instead be to pay maximum 5% of the revenue up to the age of 49, and 7% from the age of 50. Possible remaining debt at the age of 67 is given a concession. Even if the rules concerning the allowance and repayment differ between the different loans, they are similar from a financing- and accounting perspective. In the table below the different types of student loans are reported that CSN has on its balance sheet at the end of 2005.

**Table 4.2.2 CSN's claims and reservations for uncertain claims outstanding**

Loan type	Claim (TSEK)
Student loans granted before 1989	15 539 142
Student loans granted between 1989 and June 30, 2001	105 051 329
Student loans granted from July 1, 2001	51 186 263
*Total	171 776 734

\*The total amount of claims is SEK 175bn including home equipment loans and other types of loans CSN offers.

### 4.2.3 Financing the Loans

The majority of the loans are financed by borrowing from RGK<sup>95</sup>, and the interest rates on the loans from RGK to CSN are determined by the Swedish Government after calculations done by RGK. The interest rate is determined as an average of the interest rate costs for the government's borrowing during the last three years. The clients of CSN only pay 70% of the interest that CSN has to pay RGK thus given a discount of 30%. The purpose is to achieve compliance with the rules according to existing tax laws. The interest rate cost is thus not tax-deductible. The interest rate costs for CSN arisen due to the borrowing from RGK are regulated on a running basis through a grant on the State budget. At the shift of the year the unpaid interest rate is added in most cases to the respective CSN client's capital debt and will be the basis for the interest payment the following year.<sup>96</sup> No borrowing is taken due to this capitalized interest rate.

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<sup>95</sup> About 90% of the outstanding loans

<sup>96</sup> An interest-on-interest effect

Thus, the debt for CSN to RGK does not increase as much as the borrowers' debt to CSN. The ingoing balance for capitalized interest rates amounted to about SEK 21 bn in 2006.

#### **4.2.4 Depreciation and Cancellation of Loans**

A borrower can fill in an application to get his debt written down or cancelled. The loan can be written down partially or fully for several reasons. The table below shows the total amount of depreciation on loans between the years 2003 and 2005. The largest group of write-downs are the prematurely depreciations of the student loans due to age. The write-offs are done when CSN calculates the debt to not be repaid before the borrower is 65 years old. In case of death CSN writes off the entire debt of the borrower.

**Table 4.2.4 Amount of depreciated loans 2003-2005 (MSEK)**

<b>Loan type</b>	<b>2 003</b>	<b>2004</b>	<b>2005</b>
Student loans granted before 1989	161	169	334
Student loans granted between 1989 and June 30, 2001	351	278	226
Student loans granted from July 1, 2001	24	41	114
Total :	536	488	674

(Source: CSN Annual report 2005)

#### **4.2.5 Effects on the Government Budget**

The largest risk for write-downs is in the loan-system for student loans. The model is based on the fact that CSN is financing its lending by borrowing from RGK. The interest paid by the student's to CSN amounts to 70% of the interest rate paid for CSN to RGK. The difference corresponds thus to a borrowers normal deduction of tax. CSN charges the government budget with the interest costs from the borrowing from RGK and regains the interest costs paid by the borrowers to the government budget. A large part of the interest that is due to be paid by the borrowers is often not paid in the same year as the loan from RGK. This difference in interest paid and received is capitalized and increase the claim against the borrower. These capitalized interest rates will be brought back to the government budget through the borrowers' future payments. These interest claims are balanced through authority capital. During the years this model has been in use the government budget have been charged with about 21 billion SEK in excess of the 30% difference between the lending- and borrowing rate. The authority capital could thus be seen as a reserve in case not all the depreciations will charge the government budget. In contrast to the interest claims, the amount of depreciation of the debt is charged against the government budget through subvention, and not the authority capital. Thus, there is a difference in how the loan- and the interest part are treated regarding reductions in the government budget but they still have a negative effect on the overall government's wealth.

## 5 Structural Framework:

### Transaction Structure of CSN 2006-1

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*In this chapter, a structural framework for student loan securitization is constructed. First, a presentation of the different alternatives for the transaction's structure is given. Then, the choice and the motivation of the final structure for the transaction are explained, (CSN 2006-1). Further, the portfolio and the characteristics of the transaction are selected, then the rating process is explained in details. Additionally, an analysis of the asset pool's default risk is conducted, and at the end of this chapter potential investors are recommended.*

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#### 5.1 Introduction

In this chapter we present a structural framework for securitizing Swedish Students Loans. This framework proposes that the ability to anticipate and accurately quantify the favourable and unfavourable effects of such a transaction, allows the Swedish Government to forecast when a securitization will add the most value to the public sector. In order to correctly determine the overall value that the securitization transaction can provide, the Swedish Government must arrive at an accurate assessment of the value of these benefits, in addition to the appropriate evaluation of the direct and indirect transaction costs. RGK's policy is to finance the different governmental departments at lower costs, taking into consideration the risks that could affect RGK's borrowing from the international market, (i.e., fluctuations in interest rates, political risk, and other macroeconomic risks). Based on that, we decided to securitize 50% of the student annuity loans portfolio (2001-2005) which amounts to €2.75bn in the transaction CSN 2006-1. Despite the lack of historical data for this portfolio, it is still a better choice than some other pools of assets. A high percentage of the older loans are matured or have short time to maturity, so it will not fit to the proposed transaction maturity.

There are many securitizations' structure alternatives that CSN (as originator) could follow in order to perform a securitization transaction. As mentioned above, the choice of the structure depends on the goal of the originator in conducting this transaction, i.e., financing, credit risk transfer, liquidity etc. For example, the student loans securitization transactions performed in the US by Sallie Mae, Inc. were aiming to finance student

loans. This means that the form of securitization structure they used was constructed in a way to attain this goal. Sallie Mae, Inc. used a two-tranche structure which includes the equity/first-loss tranche and triple-A tranche; backed by government guarantees. In this section, we present three possible structures that a student loans securitization transaction might follow:

The first structure is a one tranche structure with government guarantee, in which all the bonds issued, will have a triple-A rating, backed by the Swedish Government guarantee. Further, the first-loss piece will be absorbed by CSN. This means that all investors have a highly secured position in their investments, and any losses will be covered by the government.

The second structure is a multiple-tranche structure, and the key goal in this structure and tranching process is to create at least one class of securities whose rating is higher than the average rating of the underlying collateral asset pool or to create rated securities from a pool of unrated assets with different risk-return profiles. Via the tranching of claims, structured instruments also transform risk by generating exposures to different “slices” of the underlying asset pool's loss distribution. As a result of this “slicing” and the contractual structures needed to achieve it, tranche risk-return characteristics may be particularly difficult to assess. As a result, subordinated structured finance tranches in particular are riskier than the senior tranches in the structure; that’s depending on the rating agency's assessment of the likelihood that the security will be paid in accordance with its terms. All else equal, the higher a security's rating, the lower a return it needs to offer. Equity tranche holders may have an incentive to increase risk and return, whereas senior tranche holders have an incentive to minimize defaults in the asset portfolio. The multiple-tranche structure suggested can be viewed in Appendix.<sup>97</sup>

The third structure is one triple-A tranche without the government guarantee, is similar to the first structure except for the government guarantee. This structure will be explained in details in the next part. While the multiple-tranches structure is an alternative choice in terms of financing and transferring credit risk of Swedish student loans, in this study, we will follow another structure, and that is due to many reasons. These reasons are:

- Beyond the challenges posed by estimation of the asset pool’s loss distribution, tranching requires detailed, deal-specific documentation and statistical information to ensure that the desired characteristics, such as the seniority ordering of the various tranches.
- In addition, the rating which is usually done by the rating agencies is the basis in securitization transactions. Thus, any miscalculation and wrongly estimated numbers will negatively affect our study. For instance, any miscalculation for the equity piece will

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<sup>97</sup> Please see Appendix, figure 1

have substantial negative effects on the entire costs of the structure, because this tranche has the highest price.

- The third structure enables the CSN to transfer a limited part of the credit risk and the catastrophic risk to the investors, while the structure with the government guarantee doesn't transfer any credit risk at all. Due to these considerations we choose the structure with a single tranche (triple-A) without a government guarantee.

## 5.2 The Transaction in Detail

CSN would first need to assemble the pool of assets to be securitized, and transfer both existing and future rights to the assets to the SPV (preferable Swedish SPV, this would increase the investor base in Sweden). The SPV would, in turn, issue student loans asset backed securities ("SLABSs", usually bonds, notes, or other forms of debt securities) to investors in either a private placement or public offering. These SLABSs are normally secured by security interest granted to investors' trustee on the assets transferred and other collateral pledged to the SPV. CSN enters an agreement with the SPV, which states the terms of how the Student Annuity Loans (SALs) will be sold and transferred to the SPV "true sale transaction". When the securitization is completed, net proceeds of the SLABS issuance would be turned over to CSN (i.e., securitization turns the CSN's illiquid assets into cash).

After the issuance of the SLABSs, a servicer, typically CSN or one of its affiliates would act as the SPV's agent to service the transferred assets and collect payments on an ongoing basis and distribute them to investors of the issued SLABSs or investors' trustee. The servicer would usually charge a fee for providing the service according to Swedish legislation. The assets' selling price will be equal to the notional amount of the reference portfolio minus the first-loss piece equity, which is equal to € 2.64bn. This amount will be paid to CSN by the SPV by issuing EURIBOR FRNs. The issuance and distribution of the FRNs will be done by an underwriter to the investors for a predetermined fees paid by the SPV. Concurrently with the purchase of the assets and the issuance of the FRN's, the SPV transfers the assets to a trustee, which is a proxy for the investors and acts for their interests. According to CSN 2006-1 transaction, The FRN's will be triple-A rated with a coupon of EURIBOR + 10.5 bps, and the size of the unrated first-loss equity piece will be 4.12% of the total outstanding portfolio amount (€ 113.5 million),<sup>98</sup> which will be retained by CSN. This means that CSN will absorb the first losses up to € 113.5 million of the SALs, which is equivalent to € 22.7 million on an annual basis, and any losses above this limit will be transferred to the investors.

The size of the first-equity loss piece (4.12%) is calculated, by taking into consideration both the write-offs and defaults for the year 2005, which are € 12.2 million and € 7.1 million respectively. The cushion for losses is thus twice the write-offs of 2005 and three times the defaults of the same year. Thus the proceeds from issuing the FRN's will cover

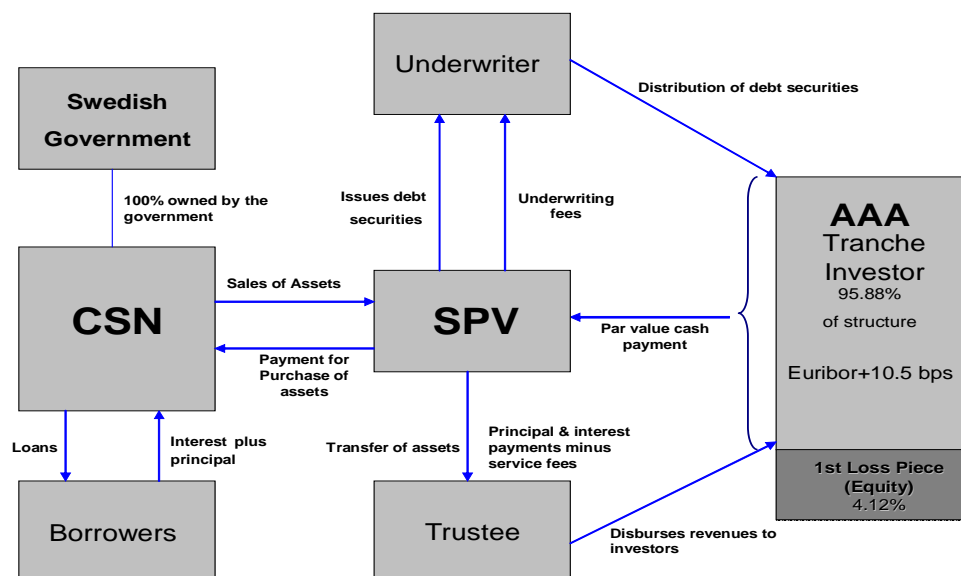
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<sup>98</sup> The calculations will be presented later

the purchase price of CSN's loans portfolio, which is equivalent to € 2.6365 billion. The transaction will not use overcollateralization as a credit enhancement mechanism that is due to the stability and predictability of SALs which offer a secure payment to the investors. In case of cash flow shortfall, because of the borrowers' defaults, which due to some changes in the economic environment i.e., rise in the interest rates, a credit enhancement is needed by the SPV to pay his commitments. In this case a spread account could be applicable, but it is very difficult to assess and quantify the needed amount which is usually determined by the rating agencies.

During the life of the transaction the investors will receive stable quarterly interest payments from the SPV via the trustee, and the principal amount plus interest at the maturity date of the transaction, which has a duration of 5 years. The coupon and the principal payments paid to the investors by the trustee will be after deducting servicing and other structural fees, which will be estimated in the next sections. In order to hedge against any negative effects of changes in the interest rates, the SPV could enter an interest Swap agreement. Additionally, the SLAs will generate payments denominated in SEK, and the investors will get their payment in Euros. Thus in order to hedge against any foreign exchange risk, the SPV has to enter into a foreign exchange rate swap agreement, where the swap will be SEK to Euros. Finally, the cut-off date for the transaction CSN 2006-1 is January 1, 2006<sup>99</sup>, the closing date of the transaction is May 30, 2006, and the maturity of the transaction is June 1, 2011.

**Figure 5.2 Final transaction structure of CSN 2006-1**



<sup>99</sup> The cut-off date is the date of the data that is used to make the calculations and estimations for the transaction

## 5.3 Portfolio Selection

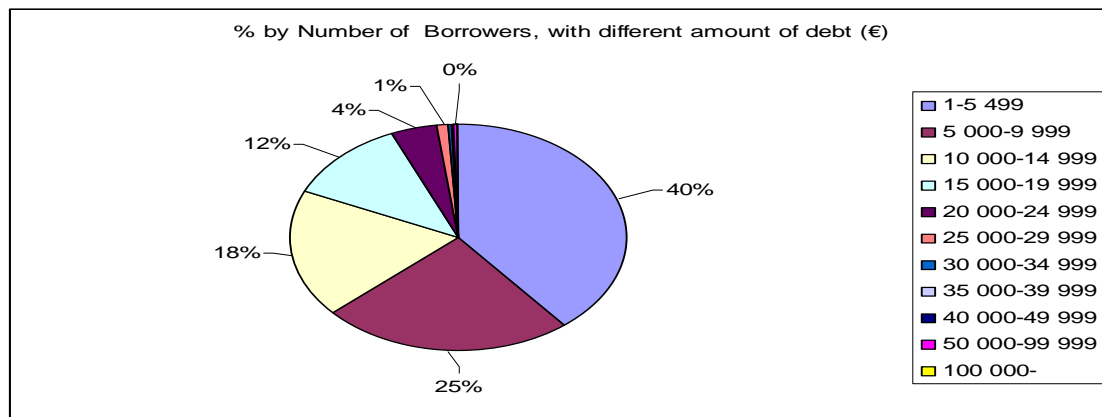
The portfolio that has been chosen to be securitized is €2.75bn (SEK 25.6bn)<sup>100</sup> which is equivalent to 50% of the SALs portfolio granted by CSN to the students from July 1, 2001 to the end of 2005 of €5.5bn (SEK 51.2bn). The choice of this percentage is motivated and based on previous transactions done in the US and UK, which ranged between \$ 2-3bn. The reference loans have a normal maturity of 25 years, and the weighted average life is equals to 12.5 years. Further, the transaction's life to maturity is set to 5-years.<sup>101</sup> The final portfolio is summarized below and the different distributions of the portfolio are shown subsequently.

**Table 5.3 Summary of the Final Portfolio**

<b>CSN 2006-1: Portfolio Characteristics</b>	
Loan type	Student Annuity Loan
Aggregate Outstanding Principal Balance <sup>102</sup>	€ 2 750 000 000
Number of Borrowers <sup>103</sup>	584 803
Weighted Average Life	12,5 years
Weighted Avg. Annual Borrower Interest Rate	2.8% <sup>104</sup>

### 5.3.1 Portfolio Characteristics<sup>105</sup>

**Figure 5.3.1A Distribution by number of borrowers and their location**



<sup>100</sup> Conversion is made using the foreign exchange rate SEK/EUR of 9,32, [www.di.se/Nyheter](http://www.di.se/Nyheter), May 23, 2006

<sup>101</sup> This is based on previous transactions backed by student loans in the US and UK.

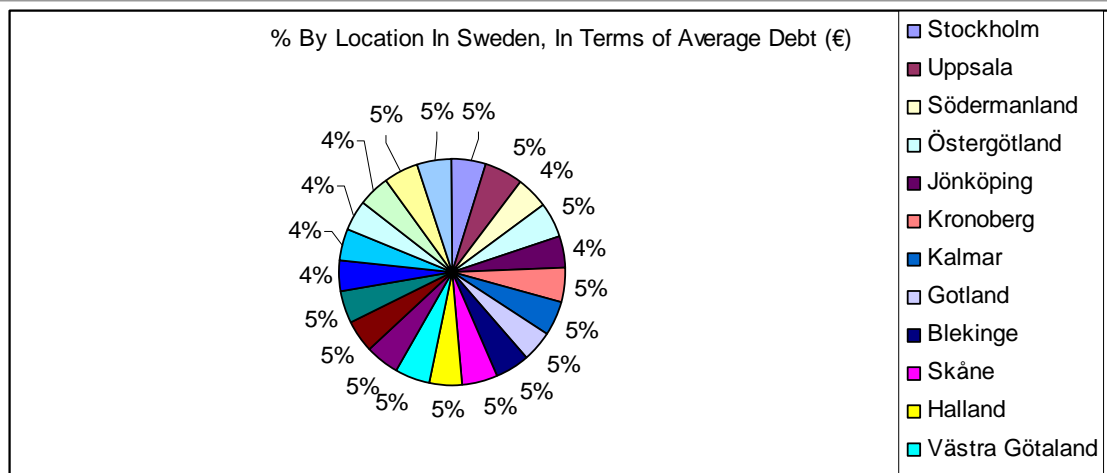
<sup>102</sup> Please see Appendix, table 1, for the reference amount

<sup>103</sup> Please see Appendix, table 1, for the number of borrowers which is assumed to be the number of loans

<sup>104</sup> The weighted average annual borrowing interest rate is based on RGK's statistics for 2005.

<sup>105</sup> Please see Appendix, tables 2 and 3, for the statistical data included in the figures





**Figure 5.3.1B Annual depreciation and default as a percentage of the Average Outstanding Balance for the period 2001-2005<sup>106</sup>**

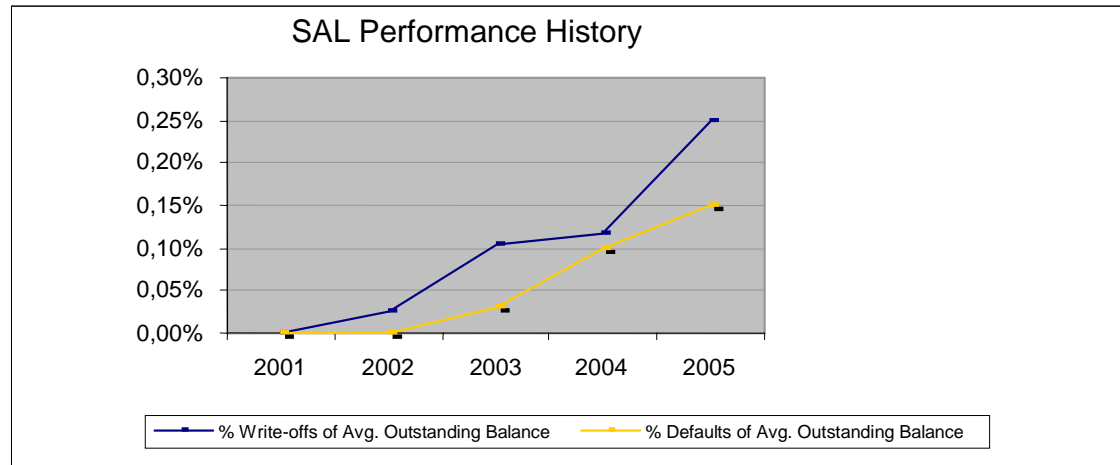


Figure 5.3.1B shows the performance of the SAL's from the first issue of these new products in mid-2001 to the end of 2005, in terms of write-offs and defaults. From the table the write-offs are increasing over the years and it is counted to 0.25% of the average outstanding balance at the end of 2005. The write-offs are done either when the borrower has died, or turned 65 years, in addition to some exceptional grounds.<sup>107</sup> The defaults on SAL's are also increasing in a somewhat similar pattern to the write-offs, amounted to 0.15% at the end of 2005. The definition of a default is when the claim is transferred to the The Swedish Enforcement Administration and Legislation (SEAL) for collection, after any write-offs or impairment, at the end of each year. Further, the recovery rate for the loans is 45% in both 2004 and 2005, and is defined as the repayments to CSN through the SEAL divided by the amount defaulted. The default rate and the recovery rate will be

<sup>106</sup> Please see Appendix, table 4, for statistical data included in the figure

<sup>107</sup> For instance, people receiving very little sickness assistance or whose study period has been long-lasting as a result of some handicap or disability

used as inputs for the expected loss calculation, which will be explained in the next section.

## 5.4 Rating and Analyzing Pool Default Risk

Ratings, as indicators of the default risk embedded in debt instruments, are based on expected loss (EL) or probabilities of default (PDs).<sup>108</sup> The estimate of EL or PD for a structured finance tranche will critically depend on the size (i.e., “thickness”) and position of that tranche in the loss distribution of the underlying asset pool. To obtain this an estimate of the asset pool’s loss distribution (the result of credit risk modeling) has to be combined with information about the structural specifics of the deal and its tranches. The main factors driving the loss distribution of any portfolio and, hence, the three main inputs into each agency’s structured finance rating methodology are estimates of: probabilities of default of the individual obligors (borrowers) in the pool; recovery rates; and the size of the portfolio. Consequently, estimates of tranche EL and PD, i.e. ratings, may differ across rating agencies due to differences in methodologies and/or assumptions. This, in turn, gives rise to “model risk”, i.e., the risk that the specific model used to size the credit enhancement for a given tranche and rating may inaccurately reflect the “true” risk of the tranche.

A rating reflects the ratings agency's assessment of the likelihood that the security will be paid in accordance with its terms. All else equal, the higher a security's rating, the lower a return it needs to offer, and thus a lower cost for the originator. Initially, the calculation of the size of the equity piece is made by using the expected loss of the reference portfolio.<sup>109</sup> According to that, the formula is:

$$\text{Expected Loss (EL)} = \text{Probability of Default} * \text{Portfolio Size} * (1 - \text{Recovery Rate})$$

By using the default rate (0.15%) and the recovery rate (45%) as calculated and presented in figure 5.3.1B above, the yearly expected loss for the underlying pool of assets is €2.27 million yearly or (€11.35 million /5-years).

$$\begin{aligned} \text{EL} &= 0.15\% * \text{€}2.75\text{bn} * (1-0.45\%) \\ \text{EL} &= \text{€}2.27 \text{ million / year} \end{aligned}$$

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<sup>108</sup> Ratings issued by Standard & Poor’s and Fitch are based on PDs, whereas Moody’s ratings are based on EL. These differences have a historical component – in order to enhance comparability between bond and structured finance ratings, each agency elected to base its structured finance ratings on the same measure used for its bond ratings.

<sup>109</sup> Fender et al (2005)

The expected loss is used to determine the size of the equity piece in the capital structure. Based on the rating's agencies "rules of thumb", the calculation of the size of the first-loss equity piece is calculated by multiplying the expected loss with a rating factor. The rating factor for an ABS deal triple-A tranche is 10<sup>110</sup>, and the product of this is thus €113.5 million or 4.12% of the total outstanding transaction amount. The equity piece will not be rated and will be retained by CSN. According to that, the size of the triple-A tranche is the rest of the reference portfolio amount, which is €2.7bn, or 95.88% of the total transaction size. The price on the triple-A tranche is set to EURIBOR + 10.5 bps, which is based on recent 5-year student loans ABS transactions in the UK.<sup>111</sup> The margin of 10.5 bps is the basis for the cost calculation of the ongoing costs with the transaction, and will be covered in later sections.

**Table 5.4 Final Capital Structure and Pricing**

Tranche	Size (€)	% of Total	WAL (yrs)	Spread (bps)
AAA	2 640 000 000	95,88%	5	3-Month EURIBOR + 10,5

## 5.5 Investor Distribution

Principally, large and sophisticated institutions invest in securitization instruments such as: Private pension funds, Credit unions, Government pension funds, Insurance companies, Government agencies, Money market funds, Banks and thrifts, Mutual funds, and Bank trust departments. The choice of these institutions to invest depends on the risk and return associated with the different classes of the securitization, and their risk tolerance. Investment in student loans securitization is considered secured in comparison with other types of securitizations, because of the stable and predicted flow of payments. The issuance of the transaction CSN 2006-1 is in Euro which could be more attractive to the European investors in addition to the Swedish investors, and the fact that there are investors abroad that would want to take on some Swedish risk.

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<sup>110</sup> Asset Backed Securities, Lehman Brothers, (2005)

<sup>111</sup> AAA Fixed Rate Spreads, September 2005- January 2006. European Securitized Products: 2006 Outlook, Citigroup Global Markets

## 6 Cost/Benefit Analysis

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*In this chapter, the expected costs of the transaction CSN 2006-1 are presented. Then the expected benefits for CSN and the Swedish Government are described. Finally a discussion is given concerning the costs and the benefits with a focus on answering the three questions from the problem discussion, in order to fulfill the purpose of the study.*

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### 6.1 Expected Costs

The expected costs of the transaction are based on the previous chapter, where the pricing on the triple-A tranche was presented. The other costs are based on the theoretical framework and the references to this. The references are previous transactions made in both the US and UK, and we find them to be representative for this case as well. Further, we find this cost analysis to be rather conservative and we expect potential differences to level out between the different costs and expenses.

**Table 6.1 Costs and Expenses of Transaction CSN 2006-1**

<b>ONGOING TRANSACTION COSTS AND EXPENSES</b>	<i>Expected (€)</i>
<i>Description</i>	
Coupons	2 770 000
Ongoing costs (swap fee, trustee, rating etc)	100 000
<i>Total</i>	<i>2 870 000</i>
<b>UPFRONT TRANSACTION COSTS AND EXPENSES</b>	
<i>Description</i>	
Structuring Fees	1 000 000
Underwriting Fees	1 000 000
Legal Fees	500 000
Rating Agencies	500 000
Other	100 000
<i>Total</i>	<i>3 100 000</i>
<i>Annualized Upfront Costs</i>	<i>620 000</i>
Total Ongoing Costs as a % of Transaction Portfolio Size	0.10%
Total Upfront Annualized Costs as a % of Transaction Portfolio Size	0.02%
<b>Total Annualized Transaction Costs</b>	<b>3 490 000</b>
<b>Total Annualized Transaction Costs %</b>	<b>0.13%</b>

As presented in the table above, the expected costs of the transaction are divided into two categories: ongoing costs during the life of the transaction and upfront costs. The ongoing costs include the coupon payment to the investors, and are calculated by multiplying the size of the triple-A tranche of €2.64bn by the spread on the FRNs which is 10.5 bps. This equals €2.77 million on an annual basis. The ongoing costs include the servicing fee to the trustee, which is holding the assets and disburses the coupon and principal payments to the investor, and the rating agencies also get paid a fee, which together with the swap fees<sup>112</sup> sums up to about €0.1 million per annum.

The structuring costs include for instance the documentation of the transaction and the estimation of the portfolio characteristics, and the underwriting fees are paid for issuing the securities to the investors and include for instance the distribution fees. Both of these fees usually go to investment banks or other financial institutions, and sum up to about €2.0 million per annum. The rating of the transaction including the different tranches is done by the rating agencies, which sets the pricing of each tranche and estimates the required credit enhancement to obtain the desired rating. The legal aspects have to be addressed including the tax and accounting issues, and along with the rating fees the cost sums up to €1.0 million per annum. Additionally, there might be other costs including system modifications and other changes needed for the transaction to run and perform as planned, and as this transaction is its first of its kind in Sweden, we believe €0.1 million is a reasonable amount to expect.

The upfront costs are assumed to be spread out during the life of the transaction and are thus annualized over the five year period to reflect this. The total ongoing costs of €2.87 million are equivalent to 0.10% of the total transaction amount of €2.75bn, and the total upfront annualized costs of €0.62 million amount to 0.02% of the outstanding transaction amount. The total percentage cost is 0.13%<sup>113</sup> or €3.5 million per annum.<sup>114</sup> It also needs to be stated that this is the cost without taking into account the 3-month EURIBOR rate, thus the total annualized transactions cost is 3-month EURIBOR plus 13 bps.

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<sup>112</sup> Both interest rate- and foreign exchange rate swap agreements

<sup>113</sup> Allow for rounding errors

<sup>114</sup> Horsewood, R., "Fees/Money for Nothing?", International Securitization Report, Tavakoli Structured Finance, Published 1 September, 2004

## 6.2 Expected Benefits

The following part presents some of the benefits of the proposed transaction CSN 2006-1 to CSN and the Swedish public sector:

- **Incremental Market Access**

Securitization affords CSN (Swedish Government) an alternative form of funding from the traditional issuance of debt. As the investors' risk is separated from CSN's credit risk, due to the bankruptcy remoteness of the SPV, CSN may not only access a new set of investors, but may also find additional appetite for those investors in order to broaden the capital market access. Thus, CSN can reduce reliance on the government for issuing new debt.

- **Subsidiary Level Financing**

Asset securitization enables CSN, and the Swedish Government, to isolate a single asset class of loans from the CSN's balance sheet and secure financing of new loans based upon the credit quality of this asset. As a result, this transaction allows CSN to finance these assets on their own merits with investors accustomed to analyzing similar assets. This allows CSN to leverage the securitized assets to a level appropriate with the default risk associated with the asset, which in most cases exceeds the leverage of CSN as a whole. In other words, securitization can reduce the reliance on funding from the Swedish Government through direct capital market access. Although Sweden has a triple-A rating and has access to low cost funds, and the ability to offer loans to CSN at low interest rates, securitization can still offer an opportunity to manage the credit risk. In case of a downgrading of the rating of Sweden for any reason, securitization will be the best choice to finance student loans.

- **Participating in Reducing Governmental Debt**

Asset securitization is usually characterized as a sale of assets, so, the Swedish Government represented by CSN will get rid of these loans and using the proceeds to finance students' needs without the need of borrowing or issuing debt to achieve the same goal. By using this instrument the Swedish government will decrease the outstanding debt to CSN, in other words, participating in reducing the general debt of Sweden.

- **Risk Management**

Student loan securitization can benefit CSN by providing the ability to manage and reduce the risk exposure to these loans by transferring the risk to the capital market. Although the one-tranche structure that has been used in the thesis has a limited effect on managing and reducing the credit risk, but it transfers at least the risk of catastrophic losses to investors or to providers of credit enhancement. The best way to manage and eliminate the credit risk is to use a multiple-tranche structure.

- **Potential Gains to The Economy**

Student loan securitization may have positive advantages to the Swedish market in general. It may contribute to the development and increase in the size of the transactions in the Swedish securitization market, by attracting more investors, with different interests and experiences. In addition, the securitization of student loans, as a public securitization could be the start for other public securitization transaction, in a way to expand the financing sources. By finding and expanding the financing sources that do not rely on direct governmental borrowing, and by having higher liquidity for their assets, the Swedish Government can have the potential for financing and improving the infrastructure in shorter time. In other words, instead of waiting several years to perform or improve some infrastructure projects, due to financial shortages, the Swedish government can securitize a specific type of assets and release the capital to perform these projects.

### **6.3 Discussion**

The main issue in securitization of student loans is the costs associated with the transaction and if it outweighs the benefits or not. In many securitization pricing discussions and implications, the issuers compare the cost of a proposed asset securitization transaction to their marginal cost of debt. Although it is difficult to compare the cost of issuing debt to finance student loans, it is even more difficult to compare and quantify the benefits that could be achieved through securitizing these loans. In a way to assess and quantify the ability of student loans to add significant value as an alternative form of financing student loans, the 3-month European Treasury Bill rate is set as a benchmark against the 3-month EURIBOR. This in order to be able to compare between the two costs of funding. The comparison in financing costs is made by comparing the spread between the 3-month EURIBOR plus 13 bps, and the 3-month T-Bill rate, which is assumed to be the cost of a simple bond issuance for RGK. The calculation assumes that RGK refinances their borrowing every three months, and that the transaction costs are excluded from the calculation. The assumptions that RGK refinances its loans every three months is reasonable concerning their outstanding portfolio of debt, which includes both long term government bonds and short term Treasury bills. The simple bond issuance cost is assumed to be the European Treasury Bill, set at 2.79%<sup>115</sup>. The 3-month EURIBOR is set at 2.91%<sup>116</sup> for the same date, and by adding the 13 bps this sums up to 3.04%. Thus, the spread between the T-bill denominated in Euro and the 3-month EURIBOR plus 13 bps, is 25bps. The spread is thus the cost difference between the two financing alternatives. This is in accordance with our expectations, because the Swedish Government can already obtain the cheapest cost of funding in the market.

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<sup>115</sup> This is the German Treasury Bill rate as of 2006-05-26 taken from [www.bloomberg.com](http://www.bloomberg.com), and the reader is referred to the Appendix, table 5, for more information on this data

<sup>116</sup> As of 2006-05-26 taken from [www.ft.com](http://www.ft.com), and the reader is referred to the Appendix, table 6, for the data used

According to the above cost comparison of securitization to traditional way of financing through bonds and bills, the benefits of securitization should more than offset this spread of 25 bps per annum in order to be an alternative way of financing for CSN and the government. We believe that the potential gains to the economy and the increased market access benefits are the most likely to offset this spread, or possibly even more than offset the cost difference. The benefit of potential gains to the economy is that a securitization frees up capital, and increases the government's financial flexibility, and thus the investing capabilities, which has been mentioned earlier. Additionally, securitization with student loans could mean an opening of the securitization market in Sweden and could activate the Swedish securitization market. There are of course reasons explaining the relatively low market size in Sweden, which are that Sweden has no problem with compliance with the EMU treaty concerning the deficit and also because the high rating of the government. However, in a worst-case scenario when the Swedish economy deteriorates substantially, leading to a threat of being downgraded, the benefit of efficient risk management can really apply to the government.



## 7 Conclusions

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*In this final chapter the focus is on giving a clear indication of the fulfillment of our purpose by stating the conclusions from the study. After that, we will make recommendations for future research.*

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### 7.1 Conclusions

According to the theory, there are many benefits to reap from securitizing assets, even for governments. It has been evidenced that countries with lower rating are the ones that benefit the most from securitization. But for the Swedish Government with the highest rating of AAA, the benefits are thus limited. This is probably the motivation behind the relative low activity in the securitization market in Sweden. However, there are benefits for these highly rated countries as well, including the transferring of credit risk, increased liquidity for alternative use and so forth. It is thus relevant to discuss the need of securitization in a Swedish setting. Especially when today the securitization in Sweden can legitimately set up a domestic SPV, and thus ensure the trustfulness in the transaction for the investors.

One of our initial questions to be answered in this study, was if securitization could be an alternative way of financing student loans? And the answer to this question is yes, if the benefits will offset the costs as expected. A securitization will change the current student loan industry, by giving more independence to CSN and less reliance on the government to provide with “unlimited” funds. These are the main effects of securitization on CSN and the government from a financing perspective. Yet, the second question is if securitization decreased the level of credit risk exposure related to the student loans, for CSN and the Swedish Government? And the answer to this is to a minor degree, if the transaction is implemented as in our case with a one-tranche structure with a triple-A rating and no government guarantee. The only credit risk that is transferred is catastrophic credit risk, leading to a larger loss in the capital structure unable for the subordination to cover. But an alternative transaction structure with multiple-tranches will most definitely mean a full credit risk transfer of the assets. More over, the third and final question to be addressed is whether there could be other benefits for the Swedish Government to reap by securitizing assets? And the answer to this is most certainly, yes, since there are evident benefits to the economy as a whole. While some of these are maybe more easy to grasp, such as more diversified capital markets due to the specific

risk-return characteristics of securitized assets, others are more indirect, such as increasing the government's financial flexibility.

Finally, there is the need of mentioning the uncertainty of the conclusions drawn in this study. This is due to the difficulty in assessing the benefits with a quantifiable number, in order to compare to the cost of securitization. Thus, it would be difficult for us to convince the Ministry of Finance, RGK and CSN of the benefits with securitizing student loan.

## **7.2 Recommendations for Future Research**

There are some suggestions for future research. The suggested recommendations can be seen as possible extension of the study made. One of these is to use the multiple-tranche solution as the structure of the securitization transaction, and thus be able to transfer a larger part of the credit risk associated with student loans than the structure chosen in this study. A cost/benefit analysis on this multiple-tranche structure could then be conducted and compared to the structure we have chosen. Another recommendation for future research is to find a way to accurately assess the value of the benefits of securitization, in order for the Swedish Government to correctly determine the overall value that the securitization transaction can provide.

## Appendix:

Figure 1 Alternative transaction structure for student loan securitization, the multiple-tranche structure

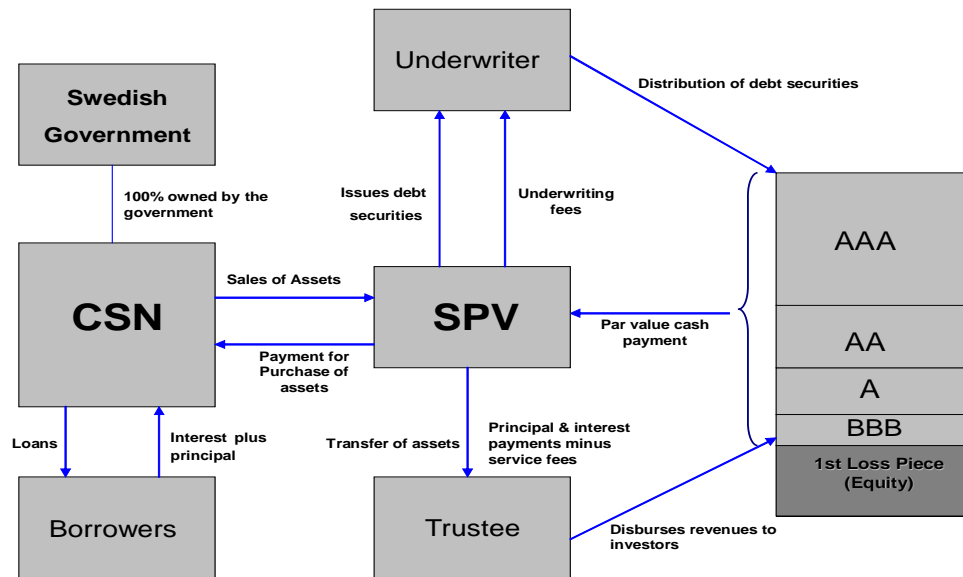


Table 1 Distribution by loan type

Loan type	Number of Reference Loans	Reference Loan Notional Amount (€)
SAL	584 803	2 750 000 000
<i>Total</i>	<i>584 803</i>	<i>2 750 000 000</i>

Table 2 Distribution by amount of debt of the borrowers at the end 2005

Amount Debt (€)	Number of Borrowers	% by Number of Borrowers
1-5 499	229040	39.2%
5 000-9 999	142039	24.3%
10 000-14 999	105807	18.1%
15 000-19 999	71060	12.2%
20 000-24 999	25840	4.4%
25 000-29 999	5496	0.9%

30 000-34 999	2174	0.4%
35 000-39 999	1125	0.2%
40 000-49 999	1309	0.2%
50 000-99 999	912	0.2%
100 000-	1	0.0%
<i>Total</i>	<i>584803</i>	<i>100.0%</i>

**Table 3 Distribution by Geographical Area**

Location in Sweden	Average Debt (€)	Average Annual Payment (€)	Average Annual Income (€)	% Annual Payment of Annual Income
Stockholm	9 639	730	14 043	5.2%
Uppsala	10 335	733	12 275	6.0%
Södermanland	8 377	707	12 698	5.6%
Östergötland	9 351	716	12 085	5.9%
Jönköping	8 417	700	13 595	5.1%
Kronoberg	9 326	714	13 239	5.4%
Kalmar	8 808	712	12 586	5.7%
Gotland	8 558	720	12 680	5.7%
Blekinge	8 519	706	12 974	5.4%
Skåne	9 450	722	11 812	6.1%
Halland	9 171	719	13 425	5.4%
Västra Götaland	9 407	724	13 381	5.4%
Värmland	8 858	708	13 073	5.4%
Örebro	8 727	708	12 715	5.6%
Västmanland	8 867	713	13 182	5.4%
Dalarna	8 338	711	13 394	5.3%
Gävleborg	8 354	604	13 338	4.5%
Västernorrland	8 168	705	13 840	5.1%
Jämtland	8 345	706	13 958	5.1%
Västerbotten	9 805	725	12 655	5.7%
Norrbottn	9 151	715	13 365	5.4%
<i>Total country</i>	<i>9 289</i>	<i>720</i>	<i>13 114</i>	<i>5.5%</i>

**Table 4 Student Annuity Loan Performance History**

SAL Performance History	2001	2002	2003	2004	2005
Average Outstanding Balance, in million EUR	2 796	11 478	23 232	34 900	45 950
Annual Write.off, in million EUR	0	3	24	41	114
Annual Defaults, in million EUR	0	0	7	35	66
% Write-offs of Avg. Outstanding Balance	0,00%	0,03%	0,10%	0,12%	0,25%
% Defaults of Avg. Outstanding Balance	0,00%	0,00%	0,03%	0,10%	0,15%
Recovery via SEAL, in million EUR	0	0	-	16	30
% Recovery of Default	0	0	-	0,454545	0,457143

**Table 5 German T-Bill denominated in Euro**

**Bills**

		<b>MATURITY</b>	<b>CURRENT</b>	<b>PRICE/YIELD</b>	
	<b>COUPON</b>	<b>DATE</b>	<b>PRICE/YIELD</b>	<b>CHANGE</b>	<b>TIME</b>
<b>3-Month</b>	N.A.	08/16/2006	99.4/ <b>2.79</b>	0/0.035	2006-05-26

Source: [www.bloomberg.com](http://www.bloomberg.com), 2006-05-27

**Table 6 EURIBOR rates**

**MONEY RATES**

<b>Country</b>	<b>Over night</b>	<b>Day</b>	<b>Change Week</b>	<b>Month</b>	<b>One month</b>	<b>Three months</b>	<b>Six months</b>	<b>One year</b>
<b>Euro Libor*</b>	2.61188	-0.001	-0.002	-0.053	2.76000	<b>2.91600</b>	3.06413	3.28125

Source: [www.ft.com](http://www.ft.com), 2006-05-27

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