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Instruments for Private Higher Education Financing

as Practical Solutions to Market Failure

Doctoral Thesis

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Declaration:

I hereby declare that I wrote my Doctoral Thesis on the topic “Instruments for Private Higher Education Financing as Practical Solutions to Market Failure” by myself and that all used literature and other sources are properly marked and listed in the enclosed references.

David Schmutzler _____

Date _____

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Abstract

Higher education financing has become an indispensable issue particularly in the developed parts of the world. Governments, scientists, economists as well as university leaders and students around the globe have understood that education must be regarded as a rewarding investment in the future of an individual and/or an economy, promising high rates of return. But education is increasingly expensive: escalating educational costs as well as the introduction or rise of tuition fees augment the students' need for higher education financing. On the other side, nondiscriminatory and ubiquitous access to higher education financing is mandatory to provide equal opportunities and to ensure that more students are able to proceed to college.

The dissertation analyses and compares the different higher education financing instruments available on the international markets. After an introduction into the topic, the cost and return of higher education will be demonstrated from an individual's perspective. As key element, four higher education financing instruments, by name conventional study loans, Income Contingent Loans, Human Capital Contracts and Human Capital Options, are described in detail. To compare them to each other, various parameters are defined to point out the key drivers of the advantageousness of any higher education financing instrument. These parameters are then applied to evaluate each of the four higher education financing instruments, enabling a quantitative comparison. The results lead to a recommendation for the best higher education financing instrument, i.e. the instrument seen as most convenient for the requirements of today's students. In summary, the dissertation searches to give a practical approach and solution to the question proposed by evaluating higher education financing instruments.

Abstract (deutsch)

In den letzten Monaten und Jahren ist das Thema “Studienfinanzierung” in vielen Teilen der Welt, insbesondere in den Industrieländern, aktuell geworden. Regierungen, Wissenschaftler, Ökonomen sowie Hochschulleitungen und Studierende haben erkannt, dass Bildung als eine Investition in die Zukunft eines Individuums oder einer Volkswirtschaft mit hohen Renditechancen verstanden werden muss. Aber Bildung wird immer teurer: steigende Studienkosten sowie die Einführung bzw. die Erhöhung von Studiengebühren tragen zum Wachstum von Nachfrage nach Studienfinanzierung bei. Auf der anderen Seite ist ein fairer und gleichberechtigter Zugang zum Studium Voraussetzung für eine bessere Durchlässigkeit eines Bildungssystems und eine höhere Studierendenquote.

Diese Dissertation analysiert und vergleicht verschiedene Studienfinanzierungs-instrumente auf dem internationalen Markt. Nach einer Einführung werden zunächst die Kosten und entsprechenden Renditen eines Studiums aus der Sicht von Studierenden untersucht. Im Folgenden erklärt und analysiert die Arbeit vier Studienfinanzierungsinstrumente, namentlich der klassische Studienkredit (“conventional study loan“), der einkommensabhängige Studienkredit („Income Contingent Loans“), Humankapitalkontrakte („Human Capital Contracts“) und Humankapitaloptionen („Human Capital Options“). Um die Instrumente vergleichbar zu machen, werden mehrere Parameter als Kernfaktoren für die Vorteilhaftigkeit eines Studienfinanzierungsinstrumentes definiert. Diese Parameter werden dann auf die vier beschriebenen Studienfinanzierungsinstrumente angewendet und ermöglichen so einen quantitativen Vergleich. Das Ergebnis führt zu einer Empfehlung für das beste Studienfinanzierungsinstrument, welches die Anforderungen der Studierenden am besten erfüllt.

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List of abbreviations

AG – Aktiengesellschaft (German stock corporation)

BAföG – Bundesausbildungsförderungsgesetz (German law about state grants)

CEO – Chief Executive Officer

CHE – Centrum für Hochschulentwicklung (Centre for university studies)

ebs – European Business School

GDP – Gross Domestic Product

GMAT – Graduate Management Admission Test

GmbH – Gesellschaft mit beschränkter Haftung (German limited liability company)

GPA – Grade Point Average

GSE – Government Sponsored Entity

HCC – Human Capital Contract

HCO – Human Capital Option

HEC – Higher-Education Contribution

HECS – Higher-Education Contribution Scheme

ICL – Income Contingent Loan

IRR – Internal Rate of Return

KfW – Kreditanstalt für Wiederaufbau (German state bank)

KG - Kommanditgesellschaft

NASPA – Nassauische Sparkasse (German regional savings bank)

NPV – Net Present Value

NSLSC – National Student Loans Service Centre

RSA – Republic of South Africa

SAT – Scholastic Aptitude Test

SGC – Study Grant Contract

SLC – Student Loan Corporation

SMC – SallieMae Corporation

TPP – Tuition Postponement Program

USP – Unique Selling Proposition

Chapter 1

Motivation

The question of higher education financing is no younger than the institutions of higher education themselves. Higher education financing has been of strong interest to the author since his studies at the private European Business School (ebs) in Oestrich-Winkel in Germany. Many students at ebs were unable to find sufficient financing to pay for tuition fees and living expenses. Others even abstained from studying at ebs solely because of financial restrictions. If a student does not organize his[1] studies due to his preferences, at best being the reputation of a university and/or the course of study, the outcome is usually suboptimal in two ways: individually and economically. If an optimal study is hindered by financial hurdles, not only the student himself, but also the economy as a whole is producing less welfare than possible. Only with a fair higher education financing instrument this problem can be solved.

Since the beginning of higher education, its financing has had two sources: private and public. Around the world, public potentials of higher education financing have obviously been exploited and have no further room to grow. Almost everywhere, public expenditures for education are either increasingly cut down or remain on an unsatisfactory level. Therefore it becomes obvious that the future of education financing in general, and higher education financing in specific, lies in the hands of private capital coming from different sorts of investors. This led the author to consider classical and innovative instruments for higher education financing and compare them to one another.

[1] The following text refrains from using and repeating the masculine and the feminine forms for practical reasons.

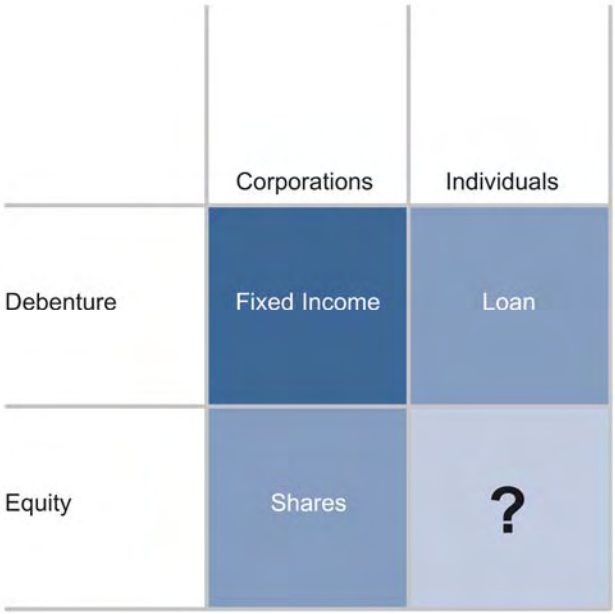
Chapter 2

Hypothesis and problem formulation

2.1 Hypothesis

Considering all conventional higher education financing instruments which are based on debt and which are available today, i.e. loans in their different forms, the author is convinced that new models must be created in order to meet the requirements of students. When looking at a matrix describing the common ways of financing corporations and individuals, one finds a field hitherto left vacant.

Figure 2.1: Classical financing possibilities for corporations and individuals



The author is convinced that *an equity based solution is better for higher education financing than a debenture based solution* (hypothesis 1). This solution would then fill the vacant field.

Regarding the two income contingent higher education financing instruments which are known today, Income Contingent Loans (ICLs) and Human Capital Contracts (HCCs), the author finds that *Human Capital Contracts are the best solution for higher education financing* (hypothesis 2).

Finally, the author wishes to show *that Human Capital Contracts are a practical and socially sound solution to the problem of failure in the market of higher education financing and can efficiently close the gap between a students' financing need and a students' financial resources* (hypothesis 3).

Human Capital Contracts are thoroughly explained in chapter 9. For the reader to better understand this passage, it is briefly laid out here how HCCs function: as an equity-based higher education financing instrument, HCCs regulate the cash-flow between the seller (student) and the buyer (investor) of the contract. Most importantly, this means the fixation of the higher education financing and the payback. For the financing, the HCC fixes the amount of money the student receives from the investor, which must be used to finance the tertiary studies, and the dates the money is paid out. Regarding the payback, the HCC fixes a percentage of the future income of the student that the student will have to pay back after job entry over a certain, pre-defined period of time, which is also fixed in the Human Capital Contract. A HCC can therefore be regarded as a higher education financing instrument that invests in the future success of a given student: the higher the future income of the financed student, the higher the payback to the investor. On the other side, low future incomes from the students will lead to a low payback. As a result, the payback to the investor can be higher or lower than the financing amount the student originally received.

2.2 Problem formulation

The hypotheses stated above can be transformed into three questions: firstly*, "is higher education financing based on equity-like instruments superior to higher education financing based on debenture-based instruments?"* Secondly, *"are Human Capital Contracts better than Income Contingent Loans?"* And thirdly, "*do Human Capital Contracts enable individuals to study in their preferred, i.e. individually optimal, way?"*

In order to answer these questions, it is necessary not only to compare higher education loans with direct investments in human capital (i.e. HCCs and HCOs), but also to compare all instruments known to theory and practice to each other.

As the main target, this dissertation therefore aims to find out the best higher education financing instrument. Also, it wants to point out the advantages and disadvantages of each higher education instrument examined and described, as this helps to understand and identify the areas where improvement is necessary. Therefore, this work may be taken as a starting point for the development of new, revised models for higher education financing.

Chapter 3

Methodology, structure and literature review

3.1 Methodology

As the question of higher education financing can be split into two halves, one must differentiate between the macroeconomic and microeconomic dimensions of higher education financing: the first question concerns the macroeconomic financing of the higher education institutions form the universities' perspective. Primarily, this question analyses the possible introduction of tuition fees or the public expenditure used to finance the higher education sector.

The second question concerns the microeconomic financing of higher education for individuals, i.e. from the students' perspective. Here, it is asked what possible means a student has in order to finance his studies. This question is not only concerned with the possible appliance of tuition fees. Microeconomic higher education financing also deals with the financing of living expenses. As this dissertation wants to exclusively focus on the latter, i.e. the microeconomic level, it does not claim to answer the question on the macroeconomic level as well.

The dissertation is based on qualitative analyses of data about private higher education financing instruments[2]. As a special area of higher education financing, private higher education financing has only little quantitative data available.

[2] Higher education financing instruments are understood as models in which one party (i.e. the student) receives financing form another party (i.e. the investor) without direct and immediate return. Much more, the return takes place in the medium to the long term and is of pure financial nature. Therefore, a side job, a scholarship or the support from one's own family are not defined as higher education financing instruments.

Therefore, this dissertation is based on qualitative data analysis, i.e. researching and examining the data about the mode of operation, practicability and advantageousness of the different private higher education financing instruments. These three requirements were converted into six evaluation criteria. Each criterion was then applied to each higher education financing instrument examined and given an evaluation between 1.0 (excellent) and 6.0 (unsatisfactory). As the author finds the different criteria to be of unequal importance, a weighting[3] was performed in order to receive a fair result.

Figure 3.1: *Exemplary evaluation of a higher education financing instrument*

Name of higher education financing instrument	excellent (1.0)	very good (2.0)	good (3.0)	medium (4.0)	satisfac-tory (5.0)	unsatis-factory (6.0)	Weighting	Result
1st criterion: income contingency		X					0.2	0.4
2nd criterion: availability				X			0.2	0.8
3rd criterion: flexibility					X		0.1	0.5
4th criterion: feasibility			X				0.2	0.6
5th criterion: financibility	X						0.2	0.2
6th criterion: adjacent requirements		X					0.1	0.2
Final Result								**2.7**

It is important for the reader of the dissertation to understand that the universal topic of the dissertation has been examined more thoroughly in practice than in theory. Therefore, the dissertation has a rather practical approach and examines the instruments introduced from the standpoint of a practioneer, as it was the intention of the author to produce a result that has practical relevance for the markets and therefore for the future of privately financed higher education. In order to do so, the author had to use the data not exclusively from essays, articles, books and internet sources, but also hat to consider the experiences and publications from the corporations actively working in the market of private higher education financing. Consequently, the dissertation contains an above-average percentage of resources from private corporations.

The choice for this type of methodology becomes obvious when looking at the alternatives. As until today only very few people have been dealing with the full range of higher education financing instruments presented and examined in the

[3] The justification of the weighting is found in chapter 6.

underlying dissertation, no representative quantitative data would have been found. It was more advantageous to base the dissertation on relevant qualitative information already found in the market and using this data as a starting point for the subsequent analysis and (quantitative) evaluations. Only a comparison of the different instruments of private higher education financing made it possible to conclude with a recommendation for the best instrument.

As the problems of higher education financing are versatile and diverse around the world, it was necessary at some points of the dissertation to concentrate on a country or a region as the analysis of every region or even every country with their specific problems facing higher education funding would have extended the scope of the dissertation beyond acceptable levels. The largest countries in the pan-European continent have a similar stance on education, probably emerging from a comparable history of the development of education. Other regions of the world like the Anglo-American or Eastern Asian countries have always had a very different approach to education itself, including their stance on financing higher education. Using debt in order to finance a desired product, for example, has been much more common in the US or the United Kingdom than for the people living in France, Spain, Italy, the Czech Republic or Germany. With different conditions in different countries and societies, no general statements should be given. Therefore, the author will base his general theory and his priori assumption on the continental European region.

However, it can also be assumed that the superiority of Human Capital Contracts is – at least in theory – valid for all regions. It remains the opinion of the author, that Human Capital Contracts are the first best solution for all parties involved in every country in the world. As many suboptimal instruments of higher education funding have already emerged and are a strong pillar of a grown system, it will not be possible for Human Capital Contracts to fully substitute these instruments. Whilst in the European market none of these instruments with a history in other markets have a strong track record, it also seems logical for the author to focus on this part of the world, where neither customs nor habits of the population could tamper the findings of this thesis.

3.2 Structure

With the general theory for this thesis already pointed out, the author considers Human Capital Contracts to be the best solution to the problem of higher education financing. In the subsequent passages of this work, the author will therefore compare different sources of higher education funding by elaborating and describing their specific advantages.

After an introduction into the topic of higher education financing as well as human capital development and financing in chapter 4, the starting point of the dissertation is the general problem of higher education financing: chapter 5 will look at the rise of the cost of higher education funding, describe the returns of higher education, expose the hindrances to a functioning market and demonstrate the consequences of a market failure by pointing out the negative effects of higher education financing deficiencies both on an individual and an economical basis.

Subsequently, the dissertation points out the elemental factors of the problems of higher education financing as well as the requirements for an optimal new instrument for private higher education financing: chapter 6 enumerates the six main criteria for an optimal higher education financing instrument that must be fully met:

1. Income contingency, reducing the risk at payback for the student
2. Availability to a broad public, ignoring the financial background of a prospective beneficiary
3. Flexibility, giving the student freedom to chose his course of studies freely, without being limited by the fact of a possible payback
4. Feasibility meaning that a possible solution must not only be advantageous in theory, but must also be capable of surviving in practice
5. Financibility, pointing out that it must also be profitable for the investor to make the reserves available
6. Adjacent requirements, completing the catalogue of conditions for an optimal solution

In a next step, the author analyses the different available instruments for private higher education financing – regardless whether they are already and practically

available on the worldwide higher education markets or if they are still a theoretical construct: chapter 7 examines conventional study loans, chapter 8 looks at Income Contingent Loans, chapter 9 regards Human Capital Contracts and chapter 10 analyses Human Capital Options.

Focusing on Income Contingent Loans and Human Capital Contracts as well as the advantages of the latter, the author will try to prove the pre-eminence of Human Capital Contracts in plural spheres: in theory and in practice as well as for students and for financiers, i.e. the investors of the contract.

In all four chapters 7 to 10 the dissertation explains the theoretical mode of operation for each higher education financing instrument. In subsequent subchapters, real life examples are given as the history of the instruments is laid out (if applicable). Lastly, the third universal subchapter then evaluates the accordant higher education financing instrument by evaluating its advantages and disadvantages in regards to the six criteria mentioned above. The last chapter (chapter 11) then summarizes the findings and looks into the future of higher education financing.

3.3 Literature review

The literature used in the underlying dissertation comes from very diverse origins. First of all, the author resorted to the few books and articles specifically written about the comparison of higher education financing instruments. Also, some publications with a broader focus, usually covering the topic of higher education financing itself, but without comparing the specific available instruments, were taken into consideration. Many of the works dealing with (higher) education were found not useful for the analysis.

As the field examined in this thesis is still quite new to the scientific world, the literature and sources used mostly derive from recent publications. Most of the sources concerning higher education financing originate in the United States. However, some specialists form other countries have been able to overhaul the

advance of the United States tom some extent. Also, the author already published diverse works over the past five years, which have been helpful for this dissertation.

Naturally, the Internet played an important role in collecting the necessary resources for this thesis. Starting with the keywords “Human Capital Contract”, “financing higher education”, “Income Contingent Loan” and “Human Capital Option”, the author was led to many new aspects. As some of the higher education financing instruments dealt with are still very new (as for example Human Capital Contracts or Human Capital Options), some important information could only be found on the World Wide Web.

However, many printed sources were used to gather a broad range of information, mainly material written about higher education financing. As most of the literature was published between 1990 and 2006, the author did not include references after January 2007. Also, concerning the works before the 1990s, the author limited his research to few examples like the Tuition Postponement Program at Yale University and to the very beginnings of private higher education financing: after the World War 2, human capital emerged as an important productive factor besides labour and capital. Milton Friedman was among the first to bring up the idea about Human Capital Contracts. Therefore, the author only included literature published after the years in which Milton Friedman wrote his most famous work.

Most importantly, the experience, know-how and expertise from the providers of private higher education financing models were found to be very helpful. Through various prospectuses, brochures and Internet presences of the leading firms dealing with higher education funding as well as access to their managers, useful data was discovered. The author himself being the CEO of CareerConcept, Europe’s only corporation offering Human Capital Contracts, which is also acting as a broker of student loans, has been able to capture specific know-how of the topic. Therefore, the dissertation also refers to papers published by the author.

Chapter 4

Introduction

4.1 Introduction to higher education financing

Everyone acknowledges the importance of education. The question of individual higher education is posed to every prospective student at the beginning of his studies. As some students do not seem to have any difficulties answering this question and financing their individual higher studies, because they are financed by their parents and families or are granted stipends or scholarships, others remain in a prolonged search for the right answer to the question. The intangible nature of education makes it difficult to finance through conventional market mechanisms, e.g. through loans (Palacios 2002b). If a satisfactory answer cannot be found, some prospective students might also turn away entirely from the possibility of a higher education and start their careers without going to college or university.

Given the strong correlation between education and income, one might assume that policy makers should enforce the higher education of the population, as nobel laureate Theodore Schultz states “the key investment in human capital is education” (1963, p.45). The table below shows that the differences between different levels of education are enormous, both in terms of average annual income, as well as in terms of lifetime income.

Table 4.1: *Average incomes at different education levels*

Highest Education Level Achieved	Annual Income (1999)
Professional Degree	USD 109,600
Doctoral Degree	USD 89,400
Master's Degree	USD 62,300
Bachelor's Degree	USD 52,200
Associate Degree	USD 38,200
Some College	USD 36,800
High School Graduate	USD 30,400
Not High School Graduate	USD 23,400

Highest Education Level Achieved	Lifetime Income (40 years)
Bachelor's Degree	USD 1,667,700
Associate Degree	USD 1,269,850
High School Graduate	USD 994,080
Not High School Graduate	USD 630,000

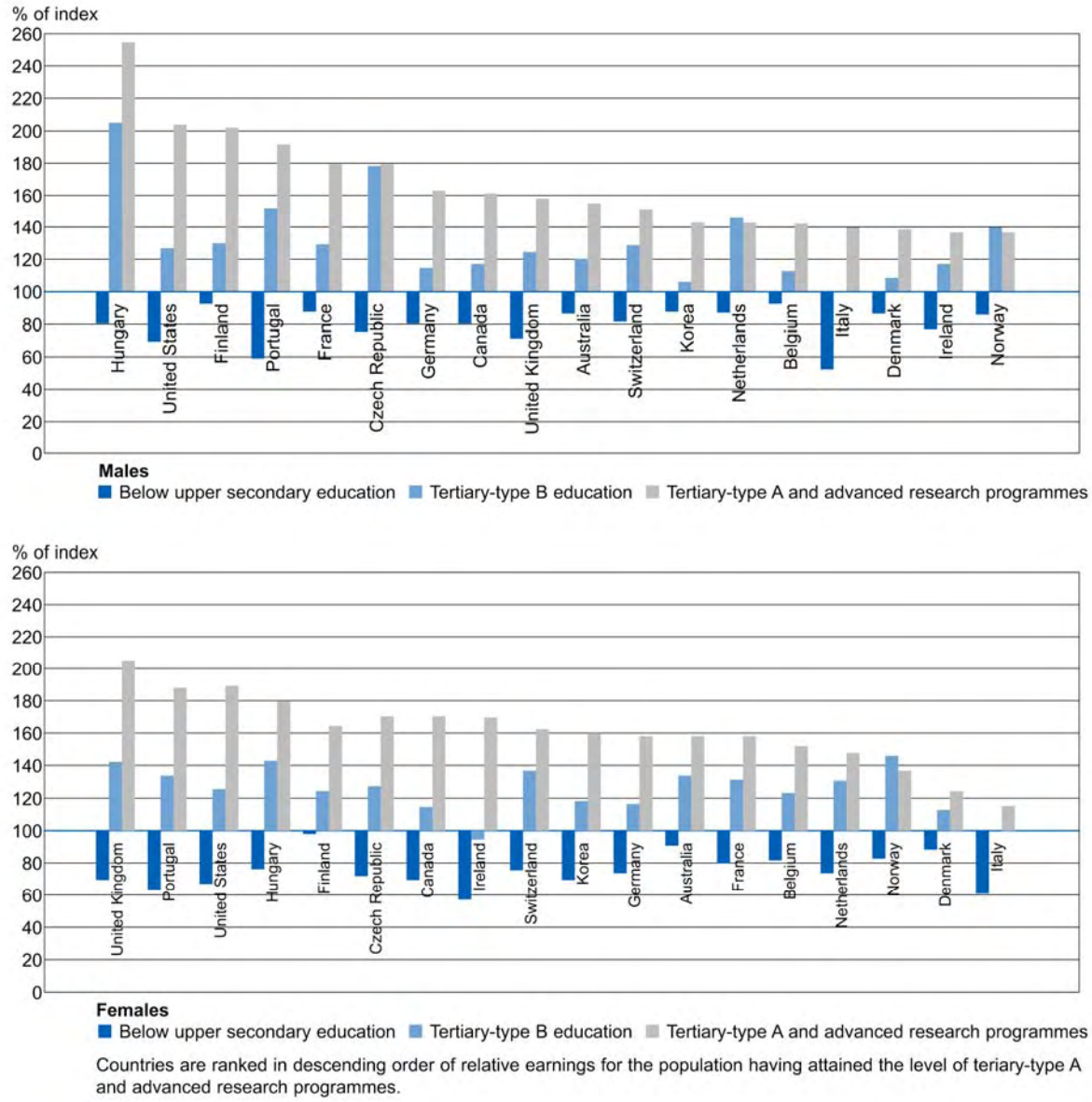
Source: IIEI (2007).

The results remain the same for both genders, even when looking at different countries: the charts below show the difference between the incomes of differently educated groups, namely being “upper secondary education”, “below upper secondary education”, “tertiary type-B education”[4] as well as “tertiary type-A education”[5]. The results validate the statement of Becker (1993), that “many studies have shown that high school and college education [...] greatly raise a person’s income, even after netting out direct and indirect costs of schooling [...].“

[4] Tertiary-type B programmes are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes. They have a minimum duration of two years full-time equivalent at the tertiary level. *Source:* OECD (2003a).

[5] Tertiary-type A programmes are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Tertiary-type A programmes have a minimum cumulative theoretical duration (at tertiary level) of three years’ full-time equivalent, although they typically last four or more years. These programmes are not exclusively offered at universities. *Source*: OECD (2003b).

Figure 4.1: *Relative earnings with income from employment (by level of educational attainment and gender[6] for 25 to 64-year-olds, 2001)*



Note: upper secondary education=100
Source: OECD (2003c).

The arising question is: “should the general public, i.e. the tax payer, finance higher education rather than the individuals who will profit from a better education, being the academics themselves?”

[6] The difference between the income of males and females predominantly still comes from the so-called “gender gap”. Gary Becker tries to explain this phenomenon by pointing out the fact that women are more likely to accept part-time work as they usually pause or quit their career for some period of time after having children. As a result, they are less likely to invest in education (Becker 1992, p. 45).

It is commonly argued that public financing of higher education has disadvantageous economical effects: one side states that – in case of a publicly financed higher education system (i.e. without tuition fees) – the better-educated academics who tend to earn significantly more income over their lifetimes are financed by the non-academics making considerably less. The argument continues, stating that this subvention from the low- to the high-earners could never be economically and socially favourable (Hess 2002). The question is posed repetitively: “why should academics be allowed a free-of-tuition education that is partially and indirectly financed by non-academics through taxes, a group that will never directly benefit from this capital transfer?” Therefore, the theory behind the student contribution is based almost entirely on the assumption of substantial personal and private benefits from the higher education (Johnstone 2001, p.3).

The other group argues with the expected decrease of higher education consumption in the event of the introduction of general tuition fees, thus harming the economy as a whole as less capable and academically talented individuals proceed to the tertiary sector of higher education. The reasoning is logical and understandable: a scenario with less academics in a given economy tends to produce less tax income and consequently less wealth. Therefore, it must be the aim of any economy to produce as many high-earners as possible.

Proceeding from theory to practice, most public sources for the higher education of individuals tend to decrease. Regarding the public treasuries around the world, one finds them empty since most countries have exhausted their public funds. Governments everywhere, especially of developing countries, also of some developed economies, cannot afford to provide fair and ubiquitous access to education. Even though it is commonly known in practice that increased spending in the field of (higher) education will lead to a more prosperous future and has some of the highest rates of return, not only for an individual but also for an economy, the strict financial constraints that many countries are facing make it impossible to concentrate on the long term growth. Consequently, one must look at other ways for the old problem of higher education financing.

In the opinion of the author, fair higher education financing – under the assumption of existing tuition fees – can only be achieved by offering socially sound higher

education financing instruments. However, the author wants to refrain from taking a political position on the topic of tuition fees. It will not be asked whether higher education should be financed privately or publicly. For the rest of this thesis, it is presumed that private financing is the only way of higher education financing, whereas public financing is non-existent on an individual, e.g. microeconomic, level.

This thesis examines, assesses and evaluates innovative private solutions to the problem of higher education financing, thereby comparing them to each other, whilst simultaneously concentrating on the use of private investors and capital to resolve a problem of public policy.

4.2 Introduction to human capital development and financing

"An investment in knowledge always pays the best interest." This statement by former US president Benjamin Franklin[7] (1732) reflects the core of the idea of human capital financing. The question whether growth is an exogenous factor has been researched by many scientists. Whilst Mankiw, Romer and Weil (1992) suggest that an investment in human capital necessarily produces growth, Pritchett (1996) finds that an advanced educational system does not necessarily coincide with an augmented growth rate of a given economy. Others, as Dessus (2001), suggest that the differences in the educational systems around the world alter the effect that education has on growth. However, after subtracting the bias originating from not taking into account the differences between unequal educational systems, Dessus also finds the positive impact of education for growth. Therefore, the author will follow the results by Dassus and assume a principally positive correlation between education and growth. Although the underlying dissertation focuses on the microeconomic advantages and disadvantages of different higher education financing instruments, the research only makes sense if implying that education has a positive effect on growth also on the macroeconomic side. Therefore, the author postulates that an economy that invests in developing the human capital of its population will grow, simultaneously strengthening its political and economic stability, thereby competing better in the global market, and improving the general

[7] 1706-1790; *Source:* Wikipedia (2007).

quality of life. Not only scientists agree to this necessity of education, also today's business leaders, such as Jürgen Kluge, former CEO of McKinsey Germany, define education to be the decisive factor of an economy's success in a globally competitive world (2003, p.14).

Although the macroeconomic advantageousness of education is arguable, for the individual higher education is a valuable instrument of his human capital development. Human capital development in return gives individuals the greatest gift one can ever be granted: the opportunity to differentiate oneself through acquiring specific skills. But not only the individual benefits from human capital development via higher education, but also the economy as a whole and thus the entire population profit from well-educated individuals. They tend to earn above-average wages, pay more taxes and spend more of their income in absolute terms, thus increasing the prosperity of the economy.

However, the development of human capital, especially in the case of higher education is expensive. Urbánek and Nepolská (2003) find "if the individual decides to educate, he […] must invest some money." Also, Meier (2002) rhetorically asks, if investments in education are worthwhile.

Most students do not have the financial resources required to pay for their very own (higher) education. Their parents or families commonly have rather very limited financial means, may be unwilling to pay for their child's education or may not have the backing or collateral required to take on large amounts of debt. Consequently, in many cases, the development of human capital remains suboptimal not due to intellectual incapacities, but due to financial hurdles. There are too many academic talents that are not optimally seized. And there are insufficient other sources for students wishing to pay their way through college or university.

The expression of "human capital" originates from the Nobel price winner Gary S. Becker, whose publication "Investment in Human Capital: a theoretical analysis" from 1964 remains famous among experts. The term "Human Capital Contract" derives from Roy Chapman, who introduced it to the US Congress in 2001. Other expressions can be used analogously to the term Human Capital Contract. These

synonyms include education investments, human capital backed securities or future earnings contracts.

The macro scientific field analyzing and focussing on Human Capital Contracts can is called human capital theory or human productivity theory. Other than ancient theorists like John Locke or Adam Smith, who believed that knowledge and skills are intangible goods, the author believes, that – with the help of such instruments as Human Capital Contracts – knowledge and skills can (partially) be made tangible. Of course, knowledge, intellect and academic talent, all being the very basis of human capital, will never be physical goods. Therefore, one has to think very universally and abstractly about human capital when referring to it as a tangible good. But as time moves on and the world is discussing the importance of human capital and the imperative of developing it to an optimal extent, especially for countries without rich incidences of natural resources, it is important to change one's perspective and views about human capital as an untouchable good. It is, in the opinion of the author, a good the development of which will at some point lead to a free market of human capital without boundaries or taboos.

With this reasoning, the author generally agrees with Nobel price laureate Milton Friedman, who introduced the idea of equity investments in students as an alternative to students loans many years before the first human capital investments ever took place. To Friedman, conventional loans were not suitable for higher education investments, which, so he reasoned, were connected to high risk, thus resulting in interest rates, which would have to be prohibitively high in order to justify the risk related to the investment. Friedman was the first visionary in history to make the transition into practice and proposed a private market of higher education financing. His thoughts are easily comprehensible: if private investors had the possibility to participate in a student's future success the same way they can participate in a company's future success through buying an equity stake, the amount of financial funding the student receives would be independent of the amount the student would have to pay back, meaning that the payback can be more or less than the original amount received, depending solely on the future development of the students' income. The idea comes close to the way of seeing an individual as a company – with the same chances of success, of future incomes and cash-streams and possibilities of failure under bad "management".

However, Friedman's idea was not received well: the main aspects of the criticism were the high transaction costs connected to any form of Human Capital Contract. In early years and without the internet, the contact with the students would have had to be in writing, consequently leading to high postal shipping and informational search costs.

Soon after Friedman's proposal, another type of higher education financing evolved: Income Contingent Loans are nothing else but conventional consumer loans with regular payments being calculated relative to the former student's income. ICLs are running until the total value of the funds received including interest rates are paid back. Thus, an interest rate was defined; only the duration of the loan was flexible and dependent on the income of the borrower: the lower the income, the smaller the monthly or yearly payments, the longer the period of payback and the higher the absolute amount of interest paid.

The first institution to implement an Income Contingent Loan was Yale University in New Haven, Connecticut. Its so-called Tuition Postponement Option originated in the early 1970s. Many years later, the Australian government introduced the "Higher Education Contribution Scheme" or "HECS". But it was not until recently, in the late 1990s, that Income Contingent Loan programs became widely accepted in different parts of the world.

One argument for the success of Income Contingent Loans might be the development of information technology, especially the emergence of electronic mail and the wide use of personal computers, as the transaction and calculation costs of Income Contingent Loans are comparable to those of Human Capital Contracts. As Shiller (2004) states: "financial instruments have always depended on technical innovations. During the last two centuries, technological advances that decreased the cost of data storage and use […] were responsible for the growth of increasingly complex financial instruments. Today, computers and digital storage devices are expanding exponentially our capacity to process and store data, thus enabling the creation of financial arrangements that would not have been feasible before." Although Income Contingent Loans are different to Human Capital Contracts in the sense that they are not instruments of equity financing, both instruments' pay out schemes are connected to the future income of the financed students.

Taking the idea one step further, Human Capital Options could soon develop with human capital as the underlying asset. Analogous to the world of financial options, the main advantage of those instruments is the small capital requirement on the investor's side. Other than an investor of Human Capital Contracts, the investor of a Human Capital Option can achieve the same return with much less capital invested. However, HCOs are only a "bet" on the future development of an individual's remuneration. The student only receives the price for selling the option, which always will be less than selling a corresponding stake in his future income directly, which is the case with Human Capital Contracts. On the other side, Human Capital Options can be used to hedge fluctuations in future incomes.

Another parallel to conventional instruments in the world of modern finance, the models of Income Contingent Loans, Human Capital Contracts and Human Capital Options can be combined in any desired way or combination. The possibilities are almost endless and leave much room for imagination.

Above all, ethical and legal questions arise. In the opinion of the author, there are no valid ethical concerns, as long as the decisions of the financed students cannot be actively affected in any way. One question that has not been answered yet is the question of possible and lawful implementation in different countries around the world. There are numerous positive examples of successful implementations as for example in South America, the US or Germany. However, it would go beyond the scope of this dissertation to examine the legal framework in every region or even every country around the world.

All instruments, especially Human Capital Contracts, have to find convincing answers to strategic and financial concerns. Most prominently, there is obvious asymmetric information about the student and the investor. The student, on one side, has the advantage of knowing his own – not measurable – skills and intentions. One the other side, the investor has the advantage of knowing more about the average income development of a specific student in a specific field of study. The question remains, which advantage accounts for more.

The term "Education Fund" was introduced by the author of this dissertation and can be understood as a portfolio of Human Capital Contracts held by a conventional

company or corporation acting as a fund or a virtual fund. The term “fund” also relates to the nature of funds grouping a set of investments on one side and combining a group of investors on the other side with the aim of reducing volatility.

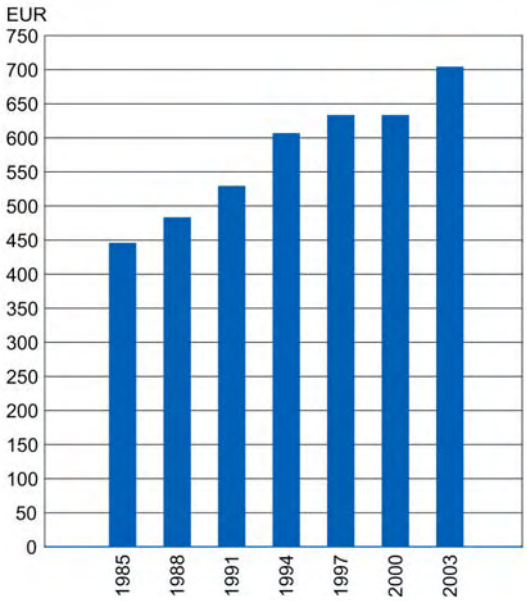
Chapter 5

The market of higher education

5.1 The microeconomic cost of higher education

The costs for a course of studies at a university or college have been growing continually: in 1985, the monthly costs for a typical student at a German university was – expressed in Euro – approximately 440 Euro (Bundesministerium für Bildung und Forschung 2004, p.157). In 2003, this cost has grown to 700 Euro per month, an increase of almost 60%. Caused by climbing costs for rent, growing living expenses and increasingly expensive study material, the total cost of study keeps on rising, even in real terms, including the countries rate of inflation.

Figure 5.1: *Development of monthly cost for higher education*



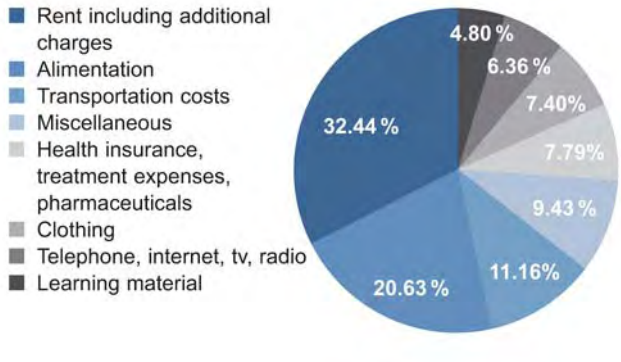
Note: numbers for Germany
Source: Bundesministerium für Bildung und Forschung (2004, p.157).

In total, a higher education at a university in Germany costs on average approximately 50,400 Euro (Deutsches Statistisches Bundesamt, 2007). And in contrast to other countries, tuition fees are just being introduced there. Also, the numbers above do not include the costs for a semester abroad or an internship.

If one regards the different positions that add up to the living expenses as a whole, one finds rent to be by far the largest position. About one third (32.44%) of the monthly budget of the "typical German student"[8], is used for rent (Bundesministerium für Bildung und Forschung 2004, p.214). This figure represents the arithmetic average of all "typical" students studying at a German university or college, regardless of their place of study, including students living in off-campus dormitories or living in their own flat, be it alone or in a shared community.

Due to the German Ministry of Education and Science, the next largest positions are alimentation (20.63%), transportation (11.16%), health related expenses (7.79%), clothing (7.40%), communication (6.36%) and learning aid (4.80%). However, this statistic does not survey possible costs for tuition fees, as tuition fees had not been imposed at the time of the elevation.

Figure 5.2: *Breakdown of monthly cost for average student without tuition fees*



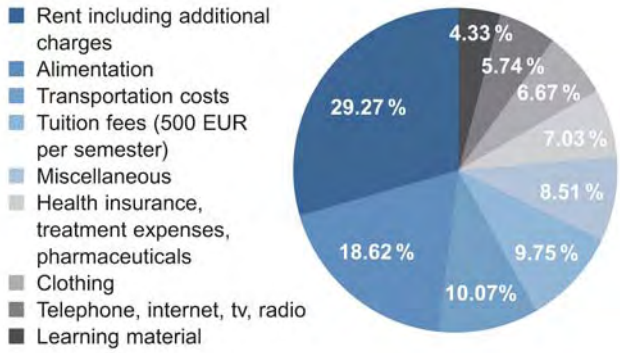
Note: numbers for Germany
Source: Bundesministerium für Bildung und Forschung (2004, p.214).

Examining the specific situation in Germany, where general tuition fees are charged from winter 2006 in specific federal states of Germany, one must add another position in the cost distribution. Including the tuition fee of 500 Euro per month in, for

[8] The „typical" student is defined as single, not living with his parents and studying an undergraduate course.

example, the federal state of North Rhine-Westphalia[9] is imposing, the chart looks as follows:

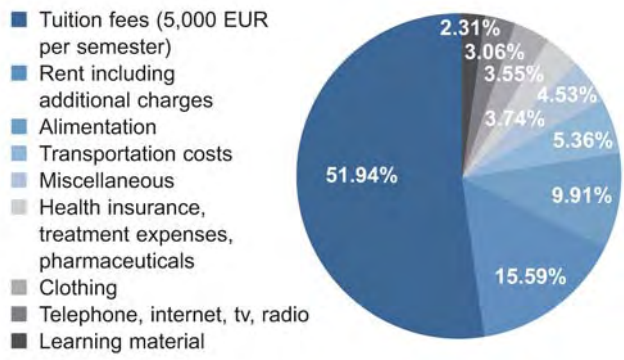
Figure 5.3: *Breakdown of monthly cost for average student including tuition fees of 500 Euro per semester*



Note: numbers for Germany

In the figure above, tuition fees do not play a major role. However, there are certain talks throughout continental Europe not only to introduce tuition fees ubiquitously, but to substantially increase them after their introduction to up to 5,000 Euro per semester. With this scenario given, tuition fees can account for more than 50% of a student's budget.

Figure 5.4: *Breakdown of monthly cost for average student including tuition fees of 5,000 Euro per semester*



Note: numbers for Germany

[9] Every public university may decide on imposing tuition fees.

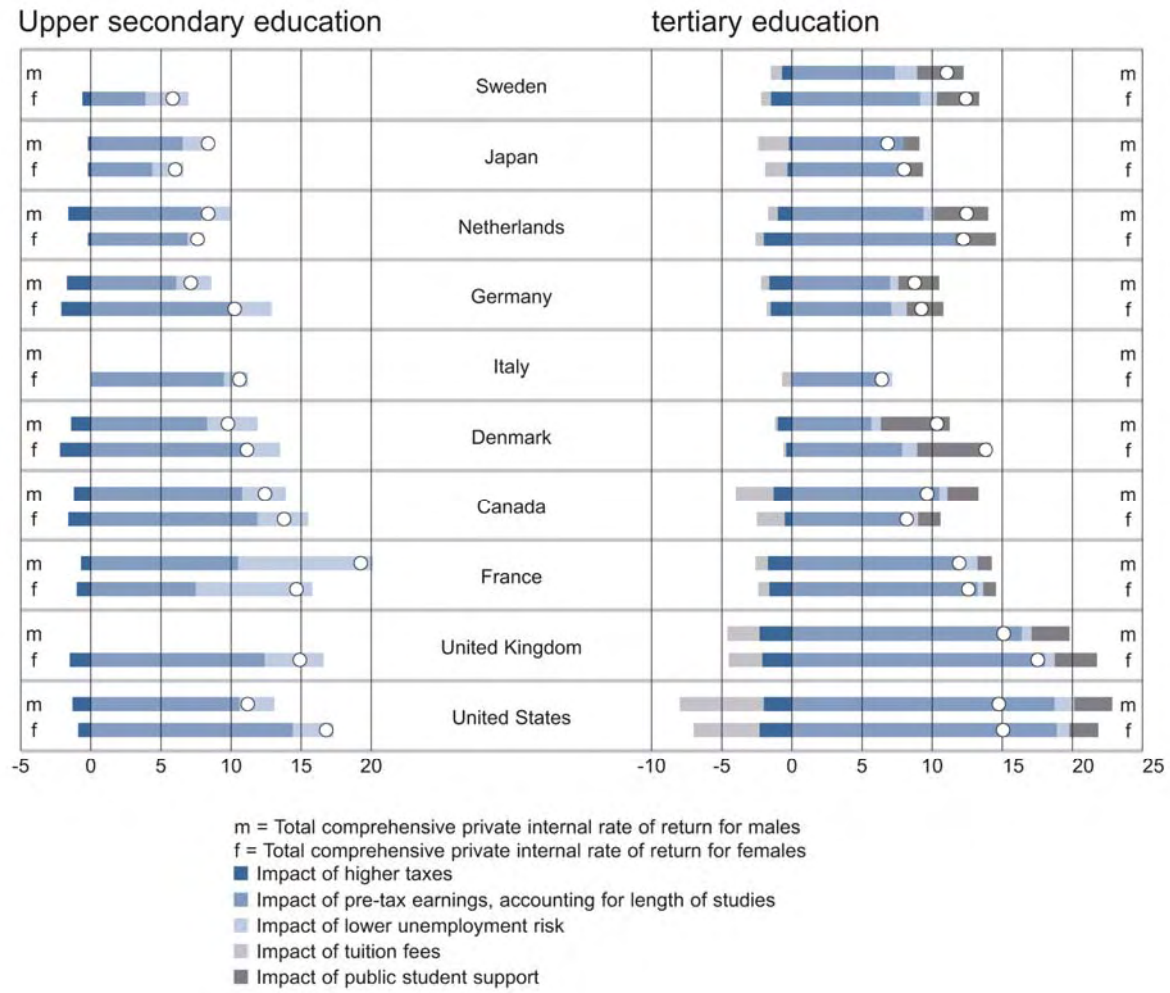
In every case, it becomes obvious that the cost of higher education will increase further, requiring new and innovative solutions to finance the growing gap between income and costs for a typical student.

5.2 The microeconomic return of higher education

The value of education remains difficult to measure. It can be divided into two spheres, the “moral and economic value of education” (Palacios Lleras 2004a, p.9). The moral value encompasses the satisfaction each individual derives from a better education. Education indirectly increases general well-being through a higher self-esteem and the ability to make proper use of one’s intellect (Frey and Stutzer 2002, p.66). Above all, higher education increases the quality of life in an economy through a strengthened democracy.

However, when referring to the return on education, one usually talks about the economical return, which can be measured monetarily. On an individual basis, this return must be considered directly correlated with the income of the individual. However, there are certain economists who also take into account society’s profits from higher education. Let’s consider the individual economic value of higher education first. As Miguel Palacios Lleras (2004a, p.12) puts it: “the private economic value of education comes from the additional earnings an individual can obtain with additional years of schooling.” The higher the difference between lifetime earnings of academics (i.e. those who have completed a tertiary education) and non-academics (i.e. all those without a higher education, like high school/college dropouts or high school graduates), the higher the return on higher education will be.

Figure 5.5: *Comprehensive private internal rates of return to education (1999-2000)*



Source: OECD (2003c).

As can be seen from the graphs, the education itself plays the most important part in calculating the internal rate of return of education. Neither the impact of pre-tax earnings, nor the impact of a lower unemployment risk, nor the impact of public student support has a similar effect. However, the effects in terms of internal rates of return are most dominant in the field of primary education. Also, the lower the income group, the higher the rates of return:

Table 5.1: *Returns to investments in education, by per capita income group (1994)*

Per Capita Income Group	Mean per capita (USD)	Social			Private		
		Primary %	Secondary %	Higher %	Primary %	Secondary %	Higher %
High income (USD 9,266 or more)	22,530	13.4	10.3	9.5	25.6	12.2	12.4
Low Income (USD 755 or less)	363	21.3	15.7	11.2	25.8	19.9	26.0
Middle Income (to USD 9,265)	2,996	18.8	12.9	11.3	27.4	18.0	19.3
World	7,669	18.9	13.1	10.8	26.6	17.0	19.0

Source: Psacharopoulos (1994).

The logical consequence on high rates of return on higher education is more students proceeding to tertiary education. When comparing the rates of return from different countries, the findings are unsurprising. The lower the standard of education or the GDP per capita in a given country, the higher the rate of return from private education will be, especially in the tertiary sector (last column). For the focus of this thesis, the findings suggest an introduction of socially sound higher education financing instruments especially in developing countries.

Table 5.2: *Returns to investment in education by level (2002)*

		Social			Private		
Country	Year	Primary	Secondary	Higher	Primary	Secondary	Higher
Argentina	1989	8.4	7.1	7.6	10.1	14.2	14.9
Australia	1976			16.3		8.1	21.1
Austria	1981					11.3	4.2
Belgium	1960		17.1	6.7		21.2	8.7
Botswana	1983	42.0	41.0	15.0	99.0	76.0	38.0
Brazil	1989	35.6	5.1	21.4	36.6	5.1	28.2
Canada	1994					7.8	13.0
Chile	1989	8.1	11.1	14.0	9.7	12.9	20.7
China	1993	14.4	12.9	11.3	18.0	13.4	15.1
Colombia	1989	20.0	11.4	14.0	27.7	14.7	21.7
Denmark	1964			7.8			10.0
Ecuador	1987	14.7	12.7	9.9	17.1	17.2	12.7
Ethiopia	1996	14.9	14.4	11.9	24.7	24.2	26.6
France	1976					14.8	20.0
Germany (West)	1978					6.5	10.5
Ghana	1967	18.0	13.0	16.5	24.5	17.0	37.0
Hong Kong	1976		15.0	12.4		18.5	25.2
India	1995				2.6	17.6	18.2
Italy	1969					17.3	18.3
Japan	1976	9.6	8.6	6.9	13.4	10.4	8.8
Mexico	1992	11.8	14.6	11.1	18.9	20.1	15.7
Nigeria	1966	23.0	12.8	17.0	30.0	14.0	34.0
Sweden	1967		10.5	9.2			10.3
United Kingdom	1986	8.6	7.5	6.5			
United States	1987		10.0	12.0			
Yemen	1985	2.0	26.0	24.0	10.0	41.0	56.0

Source: Psacharopoulus and Patrinos (2002).

Turning to the social value of education, one finds this number much harder to calculate. As the value of education for an individual can be measured in internal rates of return, net value or net present value, the social value is a much more complex formula. Without going into details, it is stated again that the logical chain of a higher education benefits an economy through faster growth, higher spending, higher taxes as well as many other influences. The conclusion is simple: it must be each countries aim to achieve a rather high rate of return on higher education. Only then more people will consider a tertiary education.

5.3 Hindrances to a functioning market

From the individual's view, an investment in knowledge, or education, is always very risky. Barr (2001, chapter 11) compared a relative high-risk investment in education to a relative low-risk investment as the acquisition of real estate. Barr summarizes his findings in four points:

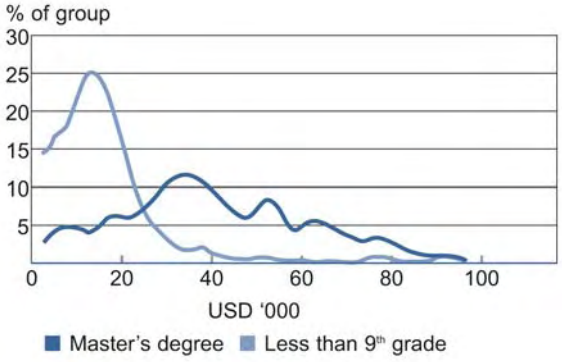
1. For potential students, education has "unknown benefits", as no prospective student presumably has any direct experiences with education. In the case of buying a house, for example, the student has a good chance of knowing what it is like to live in one's own house. One finds this argument to be especially true in the case of low-income families with no academic history. Here the prospective student does not have a role model in his family giving him some kind of idea about the return on higher education.
2. The risk of not being able to complete the studies is – subjectively – very high. The investment will probably bring no return after dropping out of college or university. A house, on the other side, has for many hundred years been considered as a valuable asset. The risk of the house becoming worthless is minimal.
3. More even than real estate, higher education is illiquid. There is – yet – no way for an individual to sell his higher education and/or the product of his higher education: his human capital.
4. Unlike a house or any other physical asset of value, higher education cannot serve as collateral. This disadvantage of course is closely connected with the argument laid out in point 3: if an asset cannot be sold, it can hardly be regarded and used as collateral.

Regarding these four arguments and having a typical risk-averse[10] student in mind, one can quickly conclude that the student will usually prefer the investment in a house rather than the investment in higher education. This, of course, bears truth when both investments carry the same expected rate of return.

[10] Risk aversion can be expressed as the unwillingness of an individual to make a decision always resulting in a positive expected value.

The “goodness” of an investment can always be measured in three terms: rate of return, volatility and liquidity. We have already considered the – non-existent – liquidity of higher education investments. Let us now regard the volatility of higher education investments. The following graph shows the income distribution for households with a master’s degree in the USA.

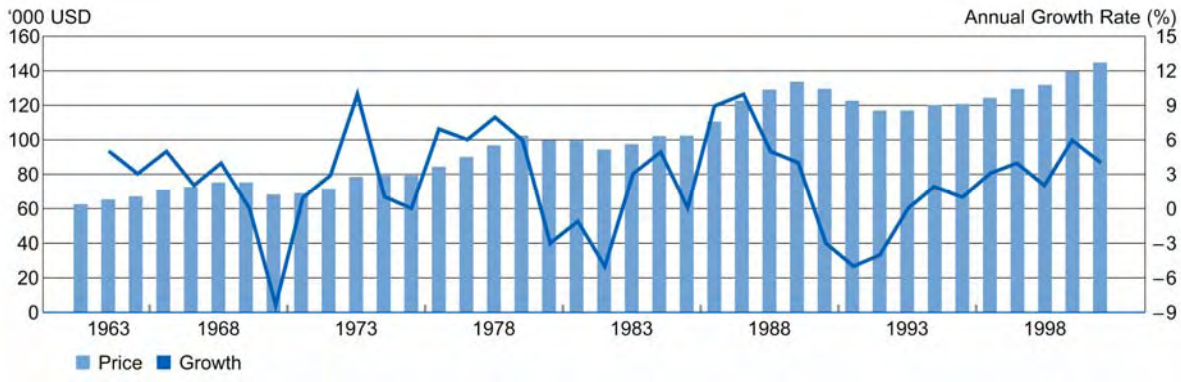
Figure 5.6: *Income distribution for households (in the USA)*



Note: data for ages 25-34, data on incomes higher than USD 100,000 not shown, graph “smoothed”
Source: US Census Bureau (1999).

The distribution has a bandwidth of almost 100,000 USD. When looking at a comparable graph for the volatility in housing prices, one finds them to be less risky.

Figure 5.7: *Development housing prices (in the USA)*



Source: US Census Bureau (1999).

This leaves only one parameter to make up for the inferiority of higher education investment to real estate investments in terms of volatility and liquidity: the rate of return[11]. Unless the rate of return is equal or even less than that of real estate investments (or investments at other markets), a rational investor (i.e. prospective student) will always prefer buying a house to going to college.

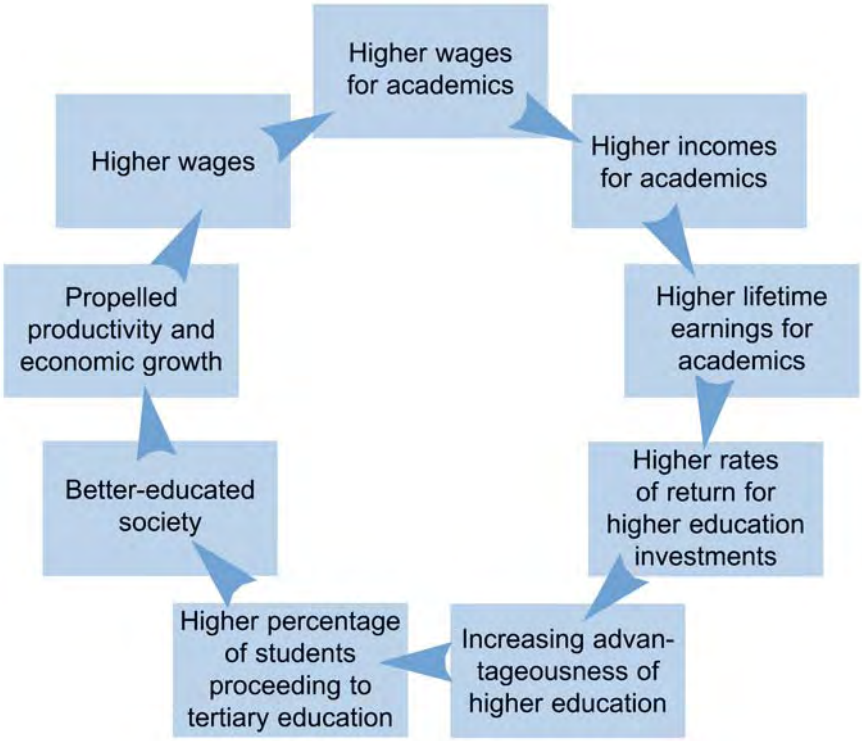
In the case of a financed higher education, the rate of return must be understood as a net figure: one must subtract the cost of financing from the gross rate of return in order to achieve a realistic view. Only if the net rate of return of higher education lies above the comparable net rate of return of a real estate investment, individuals might consider a tertiary education.

Steering the view to that of a potential higher education financier, one finds that market prices of any higher education financing instrument, in terms of the interest rate, must be rather high as a lot of risk is involved, as pointed out above. This in return raises the cost of capital for a potential student, simultaneously diminishing the net rate of return of his higher education investment. At this point, the likely market failure in a privately financed market of higher education becomes clear.

There is only one logical solution to this dilemma: above average rates of return for higher education investments. Only if the net rate of return of a higher education investment (e.g. after the cost of financing) compensates for the illiquidity and high volatility involved in the investment, will it become interesting for individuals. This can only be done by politics and economy. It is the responsibility of policy-makers and corporations to ensure high rate of returns. This, in return, will not only help the individual who proceeds to university, it will also benefit society as a whole due to higher productivity and economical growth. In summary, one can form a chain of reactions to an altered rate of return for higher education investments.

[11] Here, the rate of return is referred to as being purely of financial, i.e. economical nature. A moral value, or rate of return, as discussed in chapter 5.2, is neglected.

Figure 5.8: *Chain of reactions of an increased higher education investment rate of return*



In the following chapters, this dissertation will presume the rate of return for a tertiary education to be above the rate of return of all higher education financing instruments considered. There are also other – theoretical – hindrances to a functioning market of (private) higher education investments. First of all, asymmetric information plays an important role on both sides.

Students, as the potential capital borrowers “know best their own capabilities, while lenders have only very limited information” (Palacios Lleras 2004a, p. 26). Lenders are not in full possession of the information they would need in order to fully evaluate the intended deal: they can only picture the student’s academic, intellectual, and social abilities and career ambitions. The more information the lender wants to gather, the higher the transaction costs will be. At one point, the transaction costs will surpass the probable profit of the lender financing the borrower.

This asymmetric information will – again, in theory – lead to adverse selection. Especially in the case of any income contingent higher education financing instrument, students who expect to earn low will tend to be in favour whereas

students who expect to earn high will tend to search for other financing measures. In consequence, one might expect borrowers to have an altered, unfavourable portfolio of lenders. In practice, however, students are almost always very risk-averse. Their subjective feeling of risk involved of a higher education surpasses the facts by far. Also, no correlation has yet been established between the students' own career expectations and the possibility of an above-average career. There is only limited empiric proof of very good students (i.e. academic (over-)achievers) becoming above-average earners. Additionally, the financial industry has already developed instruments to counter adverse selection. For example, a differentiated pricing system will help to treat students equally not in relative, but in absolute terms. Finally, there is also asymmetric information on the investor's side: if the borrower is a professional financial services provider he will have good access to the expected incomes of academics in any field of study. Maybe the borrower will even have numbers on the expected earnings of students in a specific field of study and at a specific college or university. In this case, the borrower might be even able to use this knowledge gap in his favour.

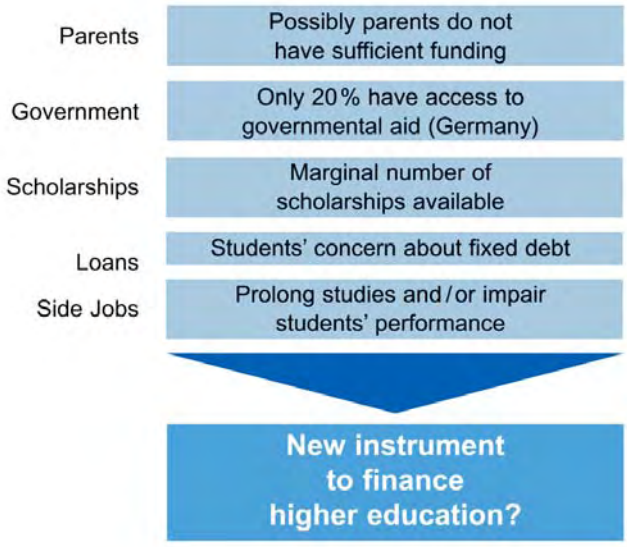
Therefore, the problem of adverse selection shall only be regarded as a theoretical one. Some authors also believe in moral hazard tampering the (former) student's behaviour during the payback phase. As Gargh (2004) points out, "Human Capital Contracts may present a moral hazard because the requirements of giving investors a percentage of income may impel some students to choose riskier, lower paying careers." Carrying this argument one step further, such that moral hazard would also affect borrowers of higher education loans, one theoretical possibility is students moving to other countries or trying to become personally bankrupt just to avoid paybacks. In practice no rational individual would, due to the opinion of the author and due to the experience of CareerConcept AG, one of three firms worldwide offering Human Capital Contracts, alter his life only because of a small percentage of his future earnings, which would automatically imply the abandonment of, or have a significant effect on, the other, much larger, percentage of his future earnings. One can therefore conclude that hindrances to a functioning market might exist numerously in theory. But in the last decades, the financial industry has found means to reduce these hindrances almost completely. With conditions being good enough, e.g. a rate of return of higher education investments being much higher than the cost of capital for those investments and them being advantageous over

other methods of investments, one can be certain of a functioning, efficient and professional market.

5.4 The sources of higher education funding

This section will regard the typical financial sources for an average student. One can conclude that there are five – classical – dominant sources for student financing, which are explained below. However, each source seems to have either limitations or obvious disadvantages.

Figure 5.9: *Problems of conventional higher education financing methods*



Source: Krieg and Schmutzler (2006).

Parents: the largest part of the study budget regularly comes from the parents of the students. One strong argument for this type of funding is that parents usually are in a better financial situation than their children, or will be, at least, in a better position to borrow from the private sector (Barr 2004). The majority of typical German students receive some form of funding from their families (89%) (Bundesministerium für Bildung und Forschung 2004, p.11). Overall, roughly 50% of the students' monthly income comes from parents. 12% even live alone from their parents' financial

support. On average, students receive 435 Euro per month form their parents. German courts even ruled that the students are entitled to 600 Euro support per month, which is by far more than the amount handed out to most students. With the upcoming collapse of the pension schemes in mind, many parents will reduce their support more and more, as they will have to make their own living. This development can already be observed when analyzing the trend of the support over the last years: even though the support has grown in nominal and even real terms, the growth in real terms has been much slower relative to the development of the cost of living. If this evolution continues to proceed, students will be more and more responsible for paying their own way through university. Also, the parents' contribution varies substantially between the lower and higher social classes.

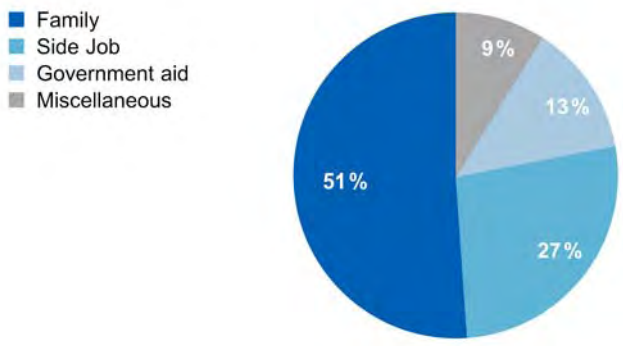
Government: in several countries, subsidised loans, which sometimes do not have to be paid back in full or whose payback relates to the later income and/or performance of the student, are a common source for higher education funding. In Germany, for example, this government type of loan is based on a law called "BAföG – Bundesausbildungsförderungsgesetz". The BAföG-loans are awarded solely on the basis of the parents' income. The actual qualifications of the students in regards to their academic and/or personal achievements do not play any role. Only 23% of all German university students receive aid through the BAföG-system (Bundesministerium für Bildung und Forschung 2004, p.16). The average monthly amount of the loan equals 352 Euro, which again equals only a fraction of the monthly budget needed. Recent discussions have been showing that the unfair practices are of no economical use. Thus, Germany, but also other countries throughout Europe are rethinking the abolition, or at least a significant restructuring of their public loans schemes.

Scholarships: in Europe, scholarships are much rarer than in Anglo-American countries. In Germany, only about 2% of students enrolled in college or university programmes receive some sort of scholarship or stipend (Schmutzler 2005a). Most of the time, the scholarships granted are capped at a fixed amount. Only very few students receive an amount required to fully finance their higher education. Thus, the scholarships can only be regarded as an extra income. The facts are only slightly different at other European countries, where the "scholarship culture", if there is any at all, is substantially different to that of the United States.

Loans: study loans are being offered increasingly. However, the number of products on offer varies strongly from country to country. In Germany, for example, the number of offers has been growing considerably offer the last couple of years. For example, the Deutsche Bank and the public-run Kreditanstalt für Wiederaufbau (KfW) were the first financial services providers to offer any sort of bank loans to students. There are also regional loans available, 41 in total for Germany (Langer 2006, p.8). Many loan types have certain requirements, with the result that not all students are able to apply. For example, the Deutsche Kreditbank offers a loan that requires at least two semesters of successful study (Deutsche Kreditbank, 2007). Other loans cap the maximum monthly payout at 500 Euro, much less than the average amount required per month. Furthermore, none of the loans finance students studying abroad, working on their Ph.D. or fulfilling a postgraduate master-education.

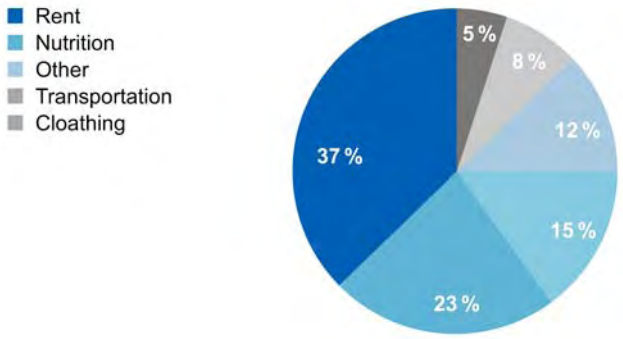
Jobs: jobs are also very important as a source of income for students. In Germany, jobs add up to roughly 27% of the monthly budget (Bundesministerium für Bildung und Forschung 2004, p.12). Approximately 70% of all students have a job, circa 20% of the available time budget during undergraduate studies is used for jobs. This shows how important side jobs are for many students. However, the usual positive effects of an internship, i.e. the practical know-how, do not apply to side jobs. On the other hand, the negative consequences of side jobs are a prolonged study period and worse study grades. Both have also negative effects for the individual and for the economy as a whole. First, the individual reduces his personal “human capital worth” when studying longer with less success. His future income can decrease significantly, when the actual study period is higher than the average study period of his peers. Also, a later job entry causes a later income. The two effects can add up to an amount exceeding 100,000 Euro. Second, the economy suffers from less tax income, as the student will start his job later and with less earnings.

Figure 5.10: *Breakdown of typical student's income*



Source: Bundesministerium für Bildung und Forschung (2004, p.11).

Figure 5.11: *Breakdown of typical student's spending*



Source: Bundesministerium für Bildung und Forschung (2004, p.15).

5.5 Evaluation of available sources

The fact that approximately 50% of the monthly budget for a student comes from his parents underlines the strong connection between social background and higher education. While parents of higher social classes contribute about 64% of the budget, students from the less privileged classes collect only 27% from their parents (Bundesministerium für Bildung und Forschung 2004, p.176).

The tense situation in most public treasuries does not allow the expansion of public expenditures for individual higher education financing. Thus, the government will

play a decreasingly important role for students when it comes to the funding of their studies. Also, if public funds are related to the family income, one can also observe another relation: many parents earn too much to be classified as a family “in need” but at the same time do not earn enough to be able to finance the studies of their children. The low percentage of students receiving scholarships does not surprise, as the money is handed out to the students without any sort of repayment duty. In monetary terms, the granter of the scholarship loses the money. The public seems to be demanding more scholarships for the students, for example funded by the economy. But companies are facing a growing pressure to be internationally competitive and for obvious reasons find it difficult to give away money “for free”. There are other countries, as for example the United States, where scholarships or donations to higher education institutions have a history.

Whilst judging higher education financing through side jobs, one has to consider the content of the jobs: most side jobs, like cab-driving, waiting in restaurants or bars etc., are not related to the course of study. Thus, there is no connection between the field of study and the side job. The negative consequence of performing side jobs is the prolongation of one’s studies as well as the impairment of one’s study results (grades etc.). A positive consequence could be the practical experience from working at a relatively young age. But practical experience can also be achieved by absolving internships that are close to the core of one’s studies. However, internships are usually not well paid for. If a student wants to become an intern, he will consequently have to find another source of income, as side jobs are not realistic due to the shortness of time. Another important argument that disqualifies side jobs, at least for students within the European Union, as a serious higher education funding alternative, is the so-called “Bologna-process”. The Bologna-process was initiated in order to harmonize the European higher educational system. In the future, member states of the EU will increasingly introduce Bachelor- and Master-titles at their universities and let expire their national degree systems. In consequence, students will not have the possibility to take as much time as desired in order to finish their studies. Much more, the timeframe to finish their studies is predefined. This in return leaves less room for side jobs, as students will have to focus much more on their studies.

Upcoming and growing student loans, on the other hand, will be able to cover the funding demand of students without any problems. However, if student loans were the perfect solution to the problem of higher education funding, this thesis could end here. Unfortunately, student loans are not the perfect solution and their disadvantages to students need an in-depth explanation. Different surveys and studies have shown, that – regardless of the grades of students – most students have a high degree of risk aversion. The risk aversion is underlined by the fact that most students prefer income-contingent payback-schemes to conventional student loans when it comes to higher education funding. The dominant reason for this is the fixed debt. A young student does not know how the future job will pay and whether he will be able to pay back the fixed rates within a given time frame. It is rather difficult for a young student to have a realistic picture about his own future income potential. Thus, many students refrain from taking a loan with fixed payments. The experiences of the German higher education solutions provider CareerConcept AG show that the risk aversion exists in all social classes. However, risk aversion is pronounced in the financially weaker social classes, because, in the case of a sub-average income or even unemployment, these students will not be able to rely on family resources in order to pay back the loan plus interest. Generally speaking, the risk aversion is understandable in each individual case. However, there is no rational reason for it: unemployment among academics and the – statistic – probability of a sub-average career development is relatively low.

To conclude the evaluation, it is emphasized that the conventional sources of higher education financing, including study loans as an example of a higher education financing instrument, are insufficient.

5.6 Individual and economical consequences of financing deficiencies

As stated earlier, the individual consequences of financing deficiencies can be quite significant. This chapter will exclusively deal with monetary consequences of financing deficiencies and neglect the social or personal impacts. The largest impact any financing deficiencies can have in the given context is certainly the case of an individual not accessing higher education out of financial reasons. If the financial

background restricts the advancement to college or university, lifetime earnings will be significantly less. This comparison also takes into account the earlier job entry of non-academics. In most countries, like in Germany, the higher earnings compensate for the fewer years of professional job work. However, it can also be regarded that the difference of remuneration between academics and non-academics tends to decrease, as corporations are increasingly valuing practical job experience.

The scenario of an individual completely abstaining from higher education only due to financial hurdles probably remains unlikely. However, another scenario is presumably much more common: individuals not conducting their favoured course of study or not absolving their study at their favoured place (i.e. the preferred university or college) because of financial restraints. If one equates this with an individual not conducting the optimal study in a monetary sense, financial deficiencies are again the reason for a much lower lifetime income.

If a student for example had the qualification to study economics at Harvard University, but is not given the means to do so, he will probably study at a university or college that meets his financial possibilities. Now, let the student proceed to a rather small and unknown community college. It becomes obvious that with a degree from the community college the student will not be able to receive the same job offers and to receive a comparable income as in the case of him holding a Harvard diploma. Thus, in an optimal case, the choice of one's university should never be bound to financial considerations.

Thirdly, financing deficiencies can also account for students not proceeding abroad or to a private university, which might be the better choice for the specific situation. Thus, the "market value" of the student is not developed optimally, again accounting for a less than ideal career development with lower than possible wages. Above all, every individual decision in the context of higher education should optimally be made without regarding the financial opportunities one might have.

Just like financing deficiencies have a bad impact on an individual's wealth, they tend to have a negative effect on a nation's wealth. The relation between well-educated academics and a higher-than-average income has been testified many times. If an economy produces either less academics or academics with a lower

income as a result of their individual financing deficiencies, the economy itself will suffer from diminished tax incomes and less spending power. Any potential student who does not proceed to college or university just because he does not have the financial resources to do so, and therefore chooses to absolve a non-academic career, will earn substantially less over his lifetime than in the case of a higher education.

The vicious circle is initiated, as less income tends to result in a decreased willingness to spend money for consumer goods, which usually boosts the economy. Also, almost all tax systems in the world apply a relative income tax, meaning that a lower income produces lower tax income for the nation in return.

5.7 Conventional ways of higher education funding – a summary

It can be concluded that – with the enumerated conventional ways of higher education funding – the social background determines strongly one's educational opportunities. The ideal setting, that every single student has sufficient start-up capital for an investment in an (higher) education is non-existent. Consequently, precious human capital is left unused for the individuals as well as the entire economy. If only a small percentage, for example 10% of all students in a given country would not form their studies in an optimal way or form due to – short-term – financial deficiencies, the – long-term – damage to the economy becomes obvious. It can be expected that the real percentage of high school and university students, which abstain from an optimal – and costly – education, is even higher. The only conclusion to be made is to find new, innovative and socially sound private sources of higher education funding.

Chapter 6

Requirements for an ideal higher education financing instrument

6.1 Income contingency

There are certain requirements a new higher education financing instrument has to meet. One particular requirement is the income contingency of the payback. Income contingency comes in two forms: “pseudo” and “pure”. A socially sound and acceptable funding solution will have to be a pure income-contingent solution. Pure income-contingency[12] (Jacobs and van Wijnbergen 2005, p.23) is referred to when a student has to pay back a certain, pre-defined percentage of his future income over a fixed amount of time, as in the case for Human Capital Contracts. The height of the percentage and the length of the payback period are defined at the beginning of the financing period and are calculated on an individual basis. An exemplary student, who has obtained 300 Euro per month over 48 months in higher education financing (e.g. 14,400 Euro in total), pays back 8% of his future income over his first five years in a job. If the student had obtained only 150 Euro per month, he would have to pay back only 4% over five years. The great advantage for the student is the absence of a fixed debt: the student does not have to pay fixed monthly rates that are independent of his income. With a pure income-contingent solution, the student pays exactly what he is able to pay according to his financial situation. In the example above (payback 8% over five years), the students knows that 92% (i.e. 100% - 8%) of his income will always remain his own.[13] After five years, the payback

[12] In the following evaluation of the criterion “income contingency”, pure income contingency is rated excellent (1.0).
[13] Before taxes

is finished. This means, that the student may have paid more or less than the amount he originally received. Let's consider the following cases:

Case A - the student earns an income according to the following:
Year 1: 25,000 Euro
Year 2: 27,000 Euro
Year 3: 30,000 Euro
Year 4: 34,000 Euro
Year 5: 40,000 Euro

Taking 8% of each year's income, the sum adds to 12,480 Euro. In this case, the student pays less than he received. At first sight, this might seem as a good deal for the student. However, case A also implies that the student does not have a high income. Much more, he earns below average.

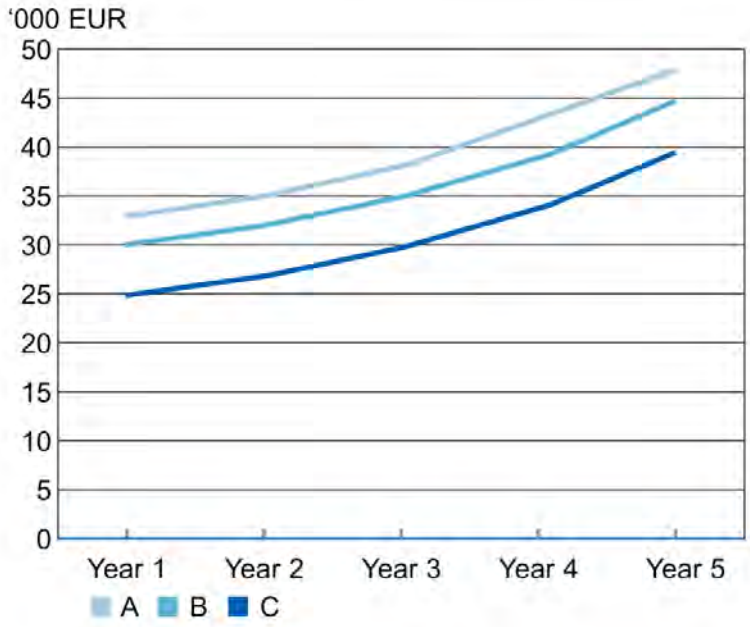
Case B - the student earns an income according to the following:
Year 1: 30,000 Euro
Year 2: 32,000 Euro
Year 3: 35,000 Euro
Year 4: 39,000 Euro
Year 5: 45,000 Euro

Taking 8% of each year's income, the sum adds to 14,480 Euro. In case B, the student pays back almost the same amount he was financed with.

Case C - the student earns an income according to the following:
Year 1: 33,000 Euro
Year 2: 35,000 Euro
Year 3: 38,000 Euro
Year 4: 43,000 Euro
Year 5: 48,000 Euro

Taking 8% of each year's income, the sum adds to 15,760 Euro. In this case C, the student pays back 1,360 Euro more than he was handed out. These 1,360 Euro then stand for the premium the lender receives for the risk involved.

Figure 6.1: *Earnings in different scenarios*



The advantage for the student with pure income-contingent financing solution becomes obvious: the student does only face a minimized risk and is encouraged to invest in his own career. Some providers of regular student loans try to market their loans as income-contingent by relating the payback to the income in some way. However, the payback period is flexible and lasts until the student has paid back the premium plus interests. With these pseudo income-contingent solutions[14], cases A and B of the tables above are not achievable, as the student will always have to pay back significantly more than he received. Therefore, one cannot talk about risk minimization as in the case for HCCs. Instead, students taking ICLs face a much higher interest-rate risk than students taking conventional loans, since the interest payments are not defined a priori and are theoretically unlimited. However, both forms of income contingency, pseudo and pure, are advantageous to higher education financing instruments that are not income contingent[15].

[14] In the following evaluation of the criterion "income contingency", pseudo income contingency is rated good (3.0).
[15] In the following evaluation of the criterion "income contingency", non-existent income contingency is rated unsatisfactory (6.0).

6.2 Availability

An optimal higher education financing instrument should be available to all social classes to ensure equal opportunities. The permeability of any higher education system should increase due to the introduction of the new higher education financing instrument. Any higher education funding instrument should be granted independently from social and financial aspects of the applicants. The assignment of means to the students should be exercised independently from the income and wealth of their parents (“need-blind-admission”, as customary at most American universities). Only the quality of the students, i.e. their personal and academic profile, should be considered when judging the applicants. Conventional collateral, as for example an endorsement of a bank, must be neglected. Other requirements, as the successful completion of one’s pre-diploma, are of minor advantage, as they start too late: a high-school graduate thinking about moving on to college needs financing directly from his first year in college. Additionally, the higher education financing instrument should not be restricted in any other direction: neither field of study, personal financial background, gender, age, origin, form of degree (for example bachelor or master), nor type or location of higher education institutions and its form of governance (e.g. private or public) should be regarded when admitting financing.

Some might argue that availability must be equated with a general right to receive the funding, regardless of the human capital the students carry. However, it is important to understand the difference between the condition “availability” depending on the source. If the capital comes from a public source, “availability” refers to all students being able to receive some form of financial financing, regardless of heritage or financial background. When talking about availability for a publicly financed higher education system, every student should have access to it. “Availability” for a private market of higher education financing instruments must be understood differently. A private market would never function if it had to finance each and every student with the same conditions, independently of his abilities. Thus, it must be either the price that will compensate for a low academic and personal profile of a given student or, with a selection process at hand, students will have to apply for a private form of financing. In this case, “availability” must be understood in the way that all good, e.g. “worthy” students must be granted the financing. Different

selection models will eventually emerge from the different players in the market. To explain one of the more developed processes, the selection process “CareerPotential” of German Human Capital Contracts provider CareerConcept is explained.

- Beginning of case study -

To identify the best students out of all applicants, in terms of the best career expectations, CareerConcept uses a five-step process.

1. Pre-Screening: CareerConcept receives the multi-page application form filled out either electronically or manually per mail. In this first step, each application is evaluated due to the professional perspective of the student. Different factors are considered: first, the reputation of the higher education institution and its ranking are considered. Second, the course of study is valuated, as is the sectoral development.
2. Analysis of the written application form: this step of the evaluation process is divided into two halves.
    a) Objective aspects: this part focuses on the academic and professional record as well as intellectual abilities of the student. High school GPAs, possible pre-diploma grades, professional experience, special IT- and or language-skills etc. are evaluated.
    b) Subjective aspects: this step analyses the personal development of the applicant. Especially his social, political, charitable or extra-curricular engagements will find a positive evaluation. Also, any scholarships or special prices won will help. Finally, evaluations from peers or professors and teachers of the student, as usually use in the application procedures of US-higher education programmes. A letter of motivation, written by the applicant himself, completes this step.
3. Assessment centre: an online assessment centre helps to evaluate personal and socio-personal aspects of the student applicant. A total of up to ten criteria, such as ability to work in teams, creativity, ability to work independently, willingness to learn etc. is evaluated and quantified.

4. Interviews: in a fourth step, CareerConcept uses psychologists to conduct so-called “structure interviews” and/or “stress tests” with the applicants. Above all, the students’ social abilities shall appear at this stage.
5. Committee: in the last step, all gathered information is compressed and put into an evaluation raster, whilst the different criteria are weighted differently, as described in figure 7.2.

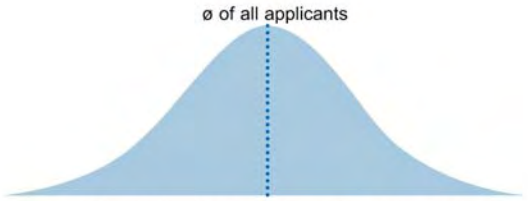
As can be seen from the illustration, CareerConcept ranks all applicants in nine sectors, each being given a grading form “AAA” (top 3.5% of all applicants), via “BB” (middle 21% of all applicants) to “C” (worst 3.5% of all applicants). Only if the student is, in any of the 32 given criteria, among the top 39.5%, which equals the rating “BBB”, he receives a credit. The allocation of points is as follows:

- top 3.5%: 1.0 points
- top 9.5%: 0.75 points
- top 21.5%: 0.5 points
- top 39.5%: 0.25 points
- not in top 39.5%: 0 points

Each criterion is then given a weighing. For example, the course of studies (weighting 300%), the graduation point average of the German high school diploma “Abitur” (500%) count much more than the letter of motivation (75%) or the possible receipt of scholarships or stipends (50%). The weighting for each criterion is then multiplied by the scale explained above. For example, if a student is among the best 3.5% for the criterion “Evaluation form professor”, the specific result for that criterion is 1.0 points multiplied by the weighting 75% (1.0 x 0.75 = 0.75 points). The points for every criterion are added to one sum. The result determines whether the student is accepted to the program or has to be declined. The process allows for a lot of flexibility: CareerConcept knows the exact distribution of points from all applicants. If, for instance, the management of CareerConcept wishes to accept only the top 6% of all applicants, it knows that students with a final score below 28.5 points do not qualify.

- End of case study –

Figure 6.2: *Exemplary selection process*



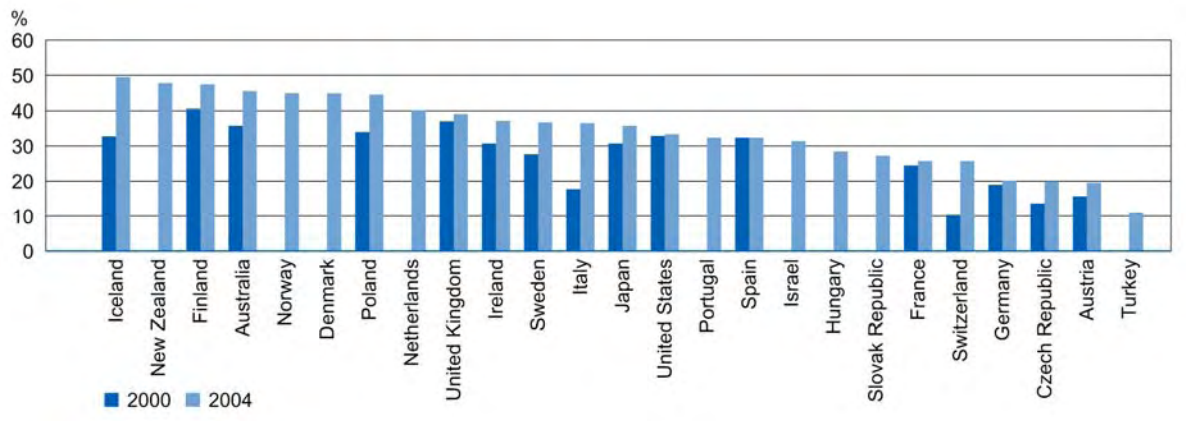
Exemplary illustration of a selection process	Distribution	3.5%	6%	12%	18%	21%	18%	12%	6%	3.5%		
	Sector	1	2	3	4	5	6	7	8	9		
	Rating	C	CC	CCC	B	BB	BBB	A	AA	AAA		
	Scoring	0	0	0	0	0	0.25	0.5	0.75	1.0		
1st step: Pre-Screening (possible criteria)											**Weighting**	**Result**
College / university Ranking									X		2.0	1.500
Ranking course of study										X	3.0	3.000
Form of final degree									X		1.25	0.938
Career aspiration									X		1.25	0.938
2nd step: Analysis of application (possible criteria)												
High-school GPA									X		5.0	3.750
Pre-diploma GPA										X	4.0	4.000
Practical experience									X		2.0	1.500
Work experience abroad								X			2.0	1.000
Foreign language skills									X		1.5	1.125
IT know-how									X		0.75	0.563
Score aptitude tests										X	1.5	1.500
Award / distinctions							X				0.5	0.125
Scholarships / stipends								X			0.5	0.250
Extracurricular engagement							X				0.5	0.125
Social / cultural / charitable engagement							X				0.5	0.125
Evaluation from professor										X	0.75	0.750
Self-evaluation									X		0.25	0.188
Letter of motivation										X	0.75	0.750
3rd step: Assessment-Centre (possible criteria)												
Persistence								X			0.25	0.125
Ability to work in teams										X	0.25	0.250
Tolerance to stress									X		0.25	0.188
Creativity							X				0.25	0.063
Accurateness										X	0.25	0.250
Willingness to learn								X			0.25	0.125
Level of independency										X	0.25	0.250
Personal responsibility										X	0.25	0.250
4th step: Interviews (possible criteria)												
Appearance									X		0.5	0.375
Persuasiveness										X	0.5	0.500
Self-confidence									X		0.5	0.375
Ability to communicate									X		0.5	0.375
Conflict resolution skills										X	0.5	0.500
Overall social skills									X		0.5	0.375
5th step: Selection committee												
Total score									X		33.0	26.125

Source: CareerConcept AG (2006a, p.37).

Each higher education financial services provider will develop his own process of rating an applicant. Not every process will be as detailed as the one explained above. However, it lies within the very interest of the potential borrower to find a test that constitutes a strong correlation between the outcome of the test and the ability of the lender to pay back.

Turning back to a publicly financed higher education system, a general right to receive some (governmental) form of higher education financing will with no doubt encourage more people to absolve a higher education. But even with a higher education financing instrument with a fair degree of “availability” as explained above, the percentage of students advancing to a higher education will could increase from its present values. Above all, the availability for any form of a higher education financing instrument, be it public of private, should be met to a satisfactory level.

Figure 6.3: Students advancing to higher education



Source: OECD (2006).

6.3 Flexibility

For the borrower, any higher education financing instrument should be flexible in various dimensions. First, the finance amount should not be predefined. Rather, it should be up to the student to decide what amount he wants to receive. Logically, boundaries should limit the amount, causing the student not to ask for sums beyond

his needs. Also, the amount must be grantable in small steps. For example, it is not useful to offer the student only a financing of either 200 Euro or 1,000 Euro per month. Optimally, the student should ask for the exact amount reflecting his monthly needs, which might add up to - for example - 525 Euro. For efficiency reasons, the lender might compromise on offering the amounts in 5, 10, 25 or 50-Euro steps.

Second, the solution should be able to meet the varying needs of the students: it should allow the students the financing of all relevant costs, including the financing of tuition costs, living expenses, study abroad, study material and internships (Schmutzler 2003). As for the tuition fees, the higher education financing instrument should be able to cover them up to 100% of the costs. Also, the timing of the payments must be decided upon by the student. Students should be able to define when the funding starts. Only the students know when they need the money in their accounts. However, as soon as the dates of the payments are agreed, the payments are usually fixed. If the student decides to wish different payments and/or different dates, as for example in the case of changing fields of study, the optimal solution would meet his preferences.

Third, the financing must also be flexible during the payback period. The primary question is that of an advanced repayment: is the student allowed to cancel the contract and pay his obligation at any time, even during the actual financing phase? In an optimal scenario, this requirement must of course be met. However, one must also consider the side of the lender. A private market only works if both sides agree on a deal. If the lender gives a great amount of freedom and flexibility to the borrower, but is not holding any valuable rights himself, the lender might not be willing to accept the deal. Besides the question of termination of the contract, the instrument must at least provide the flexibility of deferring or repositioning the payments. If, for example, a former student is in between two jobs but has currently no income, the paybacks should be deferred until he starts his new job.

6.4 Feasibility

With the term feasibility, the author refers to the ability of a higher education financing instrument to be practical. There are certain practical restrictions that a theoretical model might face. For example, a model where all tuition fees and living expenses are financed and with no interest rate imposed is not feasible, as resources always have a budget constraint and an expected rate of return. Consequently, the basis on which any useful higher education financing instrument builds upon must be a market place. Only when demand and offer in consonance the instrument will work.

Also, efficiency and effectiveness are dominant criteria within the field of feasibility. They are the prerequisites of a functioning higher education financing market. The effort and resources, i.e. the factors labour and capital, that are invested in any higher education financing model, must be in due proportion to the outcome. It will make no sense e.g. for five civil servants to work fulltime just to finance one student. The proportions must be realistic, the (software) systems efficient and the responsibility assignments as well as the business organisation effective, be it public or private. Thus, the core question concerning the requirement “feasibility” must be: can the theoretical model of the higher education finance instrument function in practice? Naturally, only those solutions where the question can clearly be answered with “yes” will survive in the future of higher education financing. However, one must also regard the social, financial, technical, juridical and political background. The laws in one country might prohibit the implementation of a Human Capital Contract or require a bank licence for every education fund, thereby increasing the costs of implementation to a prohibitively high level. Also, financial resources in one country might allow a pure publicly financed higher education financing system, whereas the majority of developed countries will probably not be able to exclusively finance higher education publicly, making a “public” solution infeasible. When Milton Friedman in 1952 proposed what is today called Human Capital Contracts, he discarded the idea at the very same instant, as he knew that the transaction cost of any Human Capital Contract would be too high in order to make the solution work efficiently. Certainly, in the 1950s, neither Internet nor email was available, making a smooth and inexpensive communication between borrowers and lenders impossible. Approximately 50 years later, information technology has improved or rather

emerged, completely changing the premises for efficient communication. Ameliorated information technology will, of course, positively affect every possible higher education financing system.

6.5 Financibility

One can distinguish between two types of financibility: the incoming and the outgoing financibility. The term “incoming financibility” wants to express the ability of the higher education financing instrument to find the required sources of funding, be it either private or public. Incoming here refers to the funds moving “inside” the higher education funding instrument from any other source. Without the incoming financibility, i.e. the ability to be financed or to find sufficient sources of funding, no higher education funding instrument will be implementable in practice. Thus, it is one sufficient condition each instrument must hold.

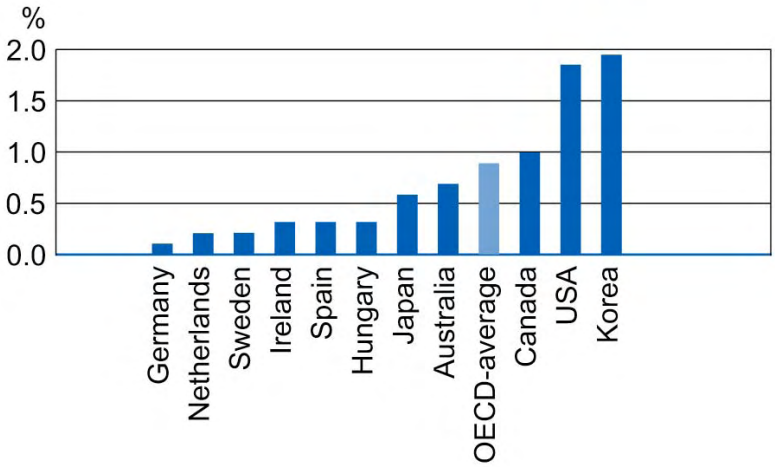
The “outgoing financibility” characterizes the ability of a higher education financing instrument to finance a student’s course of study. Here the transfer of means between the higher education financing instrument and the borrower, i.e. the student, is described. The incoming financibility, on the other hand, refers to the transfer of capital between the original investor and the higher education financing instrument.

6.6 Adjacent requirements

Regarding the financial restrictions or even problems of the public finance sector in most countries, the ideal higher financing alternative should be entirely private with no public subventions of any form. Subventions have been in use for many years, appearing in the form of deductions (e.g. students have to pay back less) or interest rate subventions (e.g. students have to pay interest rates below market prices). A privately funded financing instrument would hold the advantage of reducing the public sector budget and link the actual costs directly to those who profit from a

higher education. Thus, no rearrangements take place. It is not optimal for an economy to redistribute from the (tendentious less earning) non-academics to the (tendentious more earning) academics. Also, the economy would profit from the creation of an entirely new market with new jobs and rising corporations. Global spending on higher education is more than USD 2 trillion (Moe 1999, p.34). The private sector accounts for about 20% of this, mostly in the form of fees (Patrinos 2004). Private spending makes up a large proportion of total direct education spending in developing countries (25%) than in Western Europe (12%). Above all, the private households and the overall private sector spend very little on higher education.

Figure 6.4: *Private sector spending for education (as percentage of GDP)*



Source: OECD (2006).

Additionally, only a higher education financing instrument that provides binding legislative security to both parties, will be successful. Only an instrument with the assurance of being valid, binding and enforceable, will be considered by investors (Roy Chapman 2004, p.99).

Finally, when evaluating the criterion “adjacent requirements”, public subventions have a negative and legislative security of the higher education financing instrument have a positive effect.

6.7 Weighting for evaluation

For the weighting of the six criteria named above, the author referred to contemporary literature evaluating different higher education financing instruments. Basing his weighting on the findings of Müller (2007), Langer et al (2006), Schmutzler (2003) and Stiftung Warentest (2006), the author came up with the following method of calculation. The weighting proposed is mainly a mix of the weightings used in the publications above. Also, the author considered own argumentations for his choice laid out below.

Because of the less risk involved for the students and the higher motivation to invest in their own studies, income contingency is weighed with 20% in the following evaluation of the different higher education financing instruments. Only three marks are given: for pure income contingency excellent (1.0), for pseudo income contingency good (3.0) and for non-existent income contingency unsatisfactory (6.0). As income contingency takes away risk from the students and consequently leads to more students proceeding to tertiary education, the author wants to penalise higher education financing instruments that are not income contingent with this gross scale.

In comparison to the different higher education financing instruments examined below, the criterion of “availability” is weighed with 20% for the evaluation of the higher education financing instruments researched. Similar to “income contingency”, availability is a very important criterion, which decides on who can profit from the financing of the accordant instrument. Only when good students are always given access to higher education financing, the instrument will receive a good grade.

“Flexibility” is weighted with 10%, as the author argues flexibility to be important, but at the same time it is more important that a higher education financing instrument works and is practical than it is in need of full flexibility. Therefore, flexibility is seen to be a valuable “add-on”, but is no prerequisite for a functioning higher education financing instrument. The weighting is disproportionately small.

In the evaluation, feasibility is weighed with 20%. Only a higher education financing instrument that has the potential to become widely acceptable and that can be

realized under many circumstances hat chances of success. Feasibility is therefore put on par with the two criteria mentioned first, income contingency and availability.

“Financibility” is a term not used in the examinations of the works named above. It is rather a creation of the author, as financibility is a prerequisite of a functioning higher education financing instrument. Without the financiblility, the instrument is only of theoretical value. Therefore, financibility is weighed like the other important criteria at 20%.

Adjacent requirements are weighed with 10%, as any higher education financing instrument must be given the chance to receive good marks even without meeting the parameter described within the criterion of adjacent requirements. In contrast to the findings of Langer et al (2006), and similar to those of Schmutzler (2003), adjacent requirements are given less importance in the evaluation described in chapters 7 to 10.

Chapter 7

Conventional study loans as a possible solution?

7.1 Conventional study loans – how they work

The first financing concept that comes to mind when thinking about financing problems of individuals is loans. Regular loans have been financing individuals - or better -, their needs, for many years. Conventional study loans do function analogously to loans widely known in the credit services sector. “A conventional, or ‘mortgage-type’ loan carries a rate of interest expressed as an annual percentage of the amount borrowed, a repayment period, or the amount of time the borrower has to repay the loan, and repayment terms, such as whether the payments are to be in equal monthly instalments, or instalments that begin small and increase over time, or some other arrangement that yields a stream of payments sufficient to amortize the loan at the contractual rate of interest” (Johnstone 2001).

After a credit test is run on the loan applicant to check his creditworthiness, a certain sum is paid out from the creditor, which usually is a bank. The credit test can include numerous factors and usually checks for two criteria in particular: the “material” and the “personal” creditworthiness. The first takes into consideration any form of tangible assets that the applicant possesses and that can be used as collateral. If, however, the student applicant does not hold any valuable assets suitable for collateral, any form of bank or loan guarantee may in some cases substitute the collateral. Here, either a bank or individuals, usually family or friends of the applicant, guarantee in writing, that, in the case the student does not or cannot pay

back the loan as previously fixed, the guarantor will cover the debt. If the guarantor is a bank, the guarantee usually either costs a percentage of the guaranteed sum or the bank in return requires assets to issue their guarantee. This prerequisite already shows the difficulty an applicant might face when coming from a socially and financially unstable background and some form of collateral is required.

The test of the personal creditworthiness provides the same exogenous chances to everybody. Here, the student applicant's personality is rated. This might include his academic achievements, his future career opportunities, his reliability to pay back as well as his social and/or emotional intelligence. The rating of the applicant's academic achievements might include his grades in high school (GPA), his grades in college or university, if he is not a first-year student, his diploma degree grade, if he has already completed an undergraduate course of studies and his achievements in supra-regional test scores, as for example SAT or GMAT. The usual criteria taken into account when rating a student's future career opportunities are the ranking of his course of studies and his school, the career expectations of his course of studies including his expected income as well as other criteria that may add positively to his career chances, as foreign languages spoken, studies abroad, practical experience from internships or side jobs etc. The student's payback reliability or probability usually considers the student's social background, particularly his family, his criminal and credit history as well as the overall impression. Lastly, his social and/or emotional intelligence is rated, and might be even tested, according to different characteristics as ability to work in teams, level of motivation, resilience, level of autonomy and independency as well as analytical and intellectual capacity.

Only if the student gets a good rating in the credit test, he will be granted a loan. However, if the creditor is a state-run institution and not a private corporation, there might be no test for creditworthiness, as it is in the political, social and economical interest to hand out loans to every student, in order to enable him to study. This chapter will, however, concentrate on the approach of the private economy to hand out conventional study loans. Therefore, the existence of a test of creditworthiness is presupposed.

After the student applicant is identified as a potential debtor, he receives an offer. The most interesting variable in the offer usually is the price of the loan, i.e. the rate

of interest that has to be paid. Most banks charge a differing interest rate, as the default risk of the applicant of not paying back also varies from person to person. Thus, the better the applicant ranks in the prior application process, the lower usually is the price for the loan. However, the interest rate can also depend on the exogenous factors, such as the macroeconomic level of interest rates. After the two parties agree and the loan contract is signed, the debtor receives the financing. The sum can be paid out in the form of a one-time payment, then called a lump sum, or it can be paid out in recurring, monthly or annual payments.

There are many possibilities for the payback scheme. Many banks require the student to already pay the current interest even during the time of payout. This, of course, has two sides. As the interest is not accrued so fast, the absolute interest payments are smaller than in the case of a later payback start. However, as the student usually has no other source to pay back the interest rate than from the loan itself, he will have to take on a larger sum of debt than originally required, which again amounts to – in absolute terms – higher interest rate payments. Some contracts fix a certain date for the payback to begin, neglecting the fact whether the student is still in college or has completed his studies. Other offers give the student more flexibility and do not set a fixed date. Here, payback begins after the student has entered a job. Going even one step further, there are also examples of loans that have to be paid back only when the student earns a certain amount of money. This might be seen as a first step towards Income Contingent Loans. However, the author assigns even those loans as described into the cluster of conventional study loans, knowing that they are to be defined somewhere between the two groups.

To summarize, the scheme of conventional study loans is very variable and flexible. There are many different ways banks, financial services providers and other institutions hand out conventional study loans to students throughout the world.

7.2 History and examples of conventional study loans

7.2.1 USA

The United States have – by far – the most developed higher education financing market in the world. Many banks, corporations or even higher education institutions such as colleges or universities offer student loans. The most prominent example is the company SMC, better known as SallieMae[16]. SMC is America's "leading provider of student loans" (Sallie Mae, 2007). The company „owns or manages student loans for nearly 10 million customers", administers „more than USD 11 billion in college savings", either directly or through its subsidiaries and employs „approximately 12,000 individuals at offices nationwide". Sallie Mae was founded in 1972 as a so-called government-sponsored entity (GSE). The privatization process began in 1997 and was completed at the end of 2004. Since then, all ties between SallieMae and the federal government were eliminated. As one of the largest companies in the US, Sallie Mae is listed on the Fortune 500. As of December 1, 2006, the market capitalisation was approximately USD 18 billion.

Besides SallieMae, there are many other institutions offering conventional study loans in the US. For example, Citibank, Wells Fargo and Bank of America have been in the business for many years and are operating profitable in this business field. Also, many smaller firms have been pushing in the sector. Examples are MRU Holdings (www.myrichuncle.com), the Student Loan Finance Corporation (www.slfc.com) or NellieMae (www.nelliemae.com). However, one must differentiate between the sole brokerage of financing and the offering of student loans. Many institutions only pass the publicly-backed state loans to the students, generating a return for the services. Others, usually the larger institutions as Citigroup, really hand out the loans to the students, including them on their balance sheet as receivables.

The history of study loans in the USA seems to be very different to Europe. This may have to do with the different cultures and different levels of willingness to take on loans. As is widely known, the quota of people that hold a loan of some form is much higher in the US than in continental Europe. Consequently, the emergence of

[16] Sallie Mae has just been bought by an investment group led by private equity firm J.C. Flowers & Co., Bank of America and JPMorgan Chase.

student loan products has started much earlier in the US. After SallieMae was privatized, a functioning market for higher education financing products emerged. Experts expect the market for private student loans to exceed 80 billion USD worth of loans handed out to students by the year 2018 (Maydorn Report 2007).

7.2.2 Germany

As continental Europe is widely diversified and the dominant economies within the continent, i.e. Germany, France, Italy and Spain, have again lived through a very differing development of higher education financing, the author wishes to concentrate on one particular nation, because this is the best way to give concrete examples. Being German, the author chose Germany as the example for Europe. Conventional, private study loans are relatively new to Germany. Only since 2004 loans were offered to a broad range of students. Before, some smaller, regional banks, usually belonging to the so-called “Sparkassen-Gruppe”, a private savings bank group operating throughout the nation, offered singular loans to selected students at the few German private universities.

To give an example, the “Nassauische Sparkasse”, or “NASPA”, was one of the first financial services providers to offer a conventional study loan to students at the European Business School in Oestrich-Winkel. Executives at NASPA expected students at the European Business School to have a relatively low default risk, as their average incomes after graduation were above average. Also, the motivation of the bank was not only to earn money, which could have been only a minor factor as only a few loans were applied for per semester and the rate of interest was below the price that would make up for the risk and marketing as well as product development costs involved. The interest of the bank lay within an image effect. The aim was to show the public that the bank as one of the first institutions in Germany would support education. The problem with these loans was the lacking grade of product standardization. Even though a handful of banks did offer conventional student loans in particular regions of the nation before 2004, each product was very individual. Not only the price differed, but also the application procedure as well as the characteristics such as maximum financing amount and payback modality.

In the year 2004, “Deutsche Kreditbank” was the first bank to understand the market potential of student loans. For the first time in Germany, students could apply for a student loan throughout the country.[17] The parameters of the loan were standardized: students could apply for up to 500 Euros per month, the rate of interest was set at 5.85% p.a. and payback was not to start until graduation. These conditions were understood as very fair by the majority of the students. Some students, however, did not understand why they should end up paying more than they originally received. Here, the understanding of the German culture in the sense that “education must be free” clearly becomes obvious. Only a couple months later, the largest German private bank, “Deutsche Bank” as well as other players entered the market with similar products. At the end of 2006, roughly 40 offers existed in the market of higher education financing with conventional study loans. The growth of the market, seen from the banks side, became obvious.

7.2.3 Other countries

In many other countries numerous offers for conventional study loans exist. One very interesting example is the corporation SLC, which stands for Student Loan Corporation, based in the United Kingdom. SLC is entirely owned by the British government. Therefore, interest rates are subsidized and low: they are linked to the rate of inflation and are adjusted each year in line with the Retail Prices Index (RPI). For example, for the academic year starting September 1, 2006, going through August 31, 2007, the interest rate amounts to 2.4% p.a. Also, in Canada the governmental National Student Loans Service Centre (NSLSC) issues student loans for Canadian students. The Canadian state loan program also funds postgraduate students their way through college.

By looking at and comparing the different – public and private – study loans on offer, one finds that Anglo-American countries (such as USA, UK, Canada and Australia) have a much broader range of options. Here, the idea that (higher) education is an investment rather than a consumption good is deeply anchored in the minds of the

[17] The nationwide offer began 2005.

population. Whereas in the majority of countries in continental Europe, people still believe that (higher) education should be made accessible to everybody through financing the education free for those who benefit from it.

It would go beyond the scope of this dissertation to enumerate further examples of conventional study loans throughout the world. That is why the author lets the matter rest here.

7.3 Evaluation of conventional study loans

In this and the following chapters, the respective higher education financing instruments are reviewed and evaluated. Therefore, the author uses different dimensions. If one compares a world with conventional higher education loans on offer with a scenario that does not provide any financing options for students, one must certainly be in favour of conventional study loans. However, there are certain negative aspects connected with conventional study loans which should be described.

Before the characteristics are examined in depth, it shall be pointed out here that most higher education financing instruments – in theory – have a very similar structure during the payout period. Each instrument examined in this and the following chapters (except for the chapter dealing with Human Capital Options) has the same possibilities in the payout phase: the exact timing as well as the height of the sums paid out is completely independent from the scheme of payback. As the spectrum of payout opportunities does not differ from one higher education financing instrument to another, the differentiation and valuation can only base on the payback model.

One aspect in the focus of the analysis is that of possible indebtedness. As conventional study loans are structured just like regular consumer loan products, the chance of a student not being able to pay back in times of either high financial charging, an unfavourable income-development or even both, remains high. Most regular loans will require the student to start his payback either at a fixed date set in

the loan contract or as soon as he finishes his studies, regardless of whether he finds a job and receives a monthly salary. The major disadvantage of the conventional study loan therefore is the detachment of the rate of payback from the financial situation during payback.

At least in the private world, most banks will, in the event of a student not being able to pay back, rather postpone his payments until he again receives a regular income from a new job in order to secure the payback and lower the level of default, thus somehow linking the payback to the student's finances in a non-standardized way.

The two most obvious parameter conditions of a conventional study loan are the price of the loan (i.e. the interest rate) and the mode of payback. The latter can be either in the form of constant rates, the so-called annuities, or in the form of rising monthly or yearly rates. Here, the amortisation increases in relation to the interest to be paid over time. In any case, neglecting the defaults of the conventional student loan, the payback sum is – due to the interest rate - higher than the sum originally received.

Table 7.1: *Example of conventional study loan*

	Date	Student A	Student B
Income p.a.	Y1 through Y3	50,000.00 EUR	100,000.00 EUR
Cash Flow	Y1 through Y3	9,179.50 EUR	9,179.50 EUR
Payout Y0	01.01.2007	15,000.00 EUR	15,000.00 EUR
Payback Y1	01.01.2008	–5,820.50 EUR	–5,820.50 EUR
Payback Y2	01.01.2009	–5,820.50 EUR	–5,820.50 EUR
Payback Y3	01.01.2010	–5,820.50 EUR	–5,820.50 EUR
Total Payback	Y1 through Y3	–17,461.51 EUR	– 17,461.51 EUR
Interest Rate p.a.: 8 %			

As can be seen from the – simplified – example above, which uses a 8% p.a. effective interest rate and an annuity payback, the total payback is the same for student A and for student B, independent of their individual income: the second column shows the yearly average income for the years 2008 (Y1) through 2010 (Y3).

With an income twice as much as student A, student B has the exact same cash flows in the years 2007 until 2010. As explained before, this attribute is characteristic for the conventional study loan type. Therefore, conventional loans are given the grade “unsatisfactory” (6.0) in the evaluation of the criterion “income contingency”.

Turning to the criterion of “availability”, it must be pointed out that many conventional loans still function only with some form of collateral. Also, many loans are restricted to a certain group: students holding a pre-diploma, or students studying in some specific course of studies. Therefore, “availability” is only graded “satisfactory” (5.0). Next, conventional loans are usually not very flexible: most loans on the (international) market (except the US), are capped at a rather low minimum. Many loans either only finance living expenses or tuition fees. Also, minimum financing amounts are common. Positively, most loans remain unaltered in case of a change of the course of study. However, payback dates are usually set and payments cannot easily be deferred. Therefore, “flexibility” is rated medium (4.0).

Conventional study loans are the most common way of higher education financing. They have already proved their feasibility and are therefore ranked “excellent” (1.0). Moving on to the criterion of “financibility”, the sub-criterion of income financibility is also rated “excellent”, as many banks are already financing students with large amounts of money and resources seem to be quasi unlimited. The outgoing financibility, described as the demand of the market, can be described as rather weak, when compared to other higher education financing instruments. For most banks, the demand is the limiting factor for further growth with conventional study loans. Therefore, the outgoing financibility is rated only satisfactory, producing a result of good (3.0) for “financibility”.

Lastly, many conventional loans, even in the private sphere, are still subsidized. However, legislative security shall be regarded as given, as many loans, either in the form of consumer loans or conventional study loans, have already been handed out in many countries. Over weighing the first sub-criterion of public subsidy, the criterion “adjacent requirements” is rated satisfactory (5.0).

To summarize, the main drawback of a conventional student loan is the income independent payback. The payback for a conventional student loan is – per

definition – constant, regardless of the individual's income. As a result, the conventional study loan receives a grade of 3.9 (medium).

Figure 7.1: *Evaluation summary for conventional study loan*

Conventional study loan	excellent (1.0)	very good (2.0)	good (3.0)	medium (4.0)	satisfac-tory (5.0)	unsatis-factory (6.0)	Weighting	Result
1st criterion: income contingency						X	0.2	1.2
2nd criterion: availability					X		0.2	1.0
3rd criterion: flexibility				X			0.1	0.4
4th criterion: feasibility	X						0.2	0.2
5th criterion: financibility			X				0.2	0.6
6th criterion: adjacent requirements					X		0.1	0.5
Final Result								3.9

Chapter 8

Income Contingent Loans as a possible solution?

8.1 Income Contingent Loans – how they work

"It makes little sense […] to subject borrowers to conventional fixed nominal interest rates on their debts." Financial adviser and Yale professor Robert J. Shiller, a mastermind in modern economic theory, argues that Income Contingent Loans would fulfil a risk management function for the borrower, an insurance function for the lender and therefore be superior to conventional loan models (2003, p.139). This chapter looks at and describes the non-public, private funding option Income Contingent Loan (ICL).

Income Contingent Loans are regular loans with one specialty: the repayment rate is not fixed, but dependent on the income of the debtor. There are several possible ways in which ICLs function: for example, repayment begins only with the income exceeding a certain threshold. Other Income Contingent Loan schemes have designated progressive rates for payback: the higher the income, the higher the payback. However, the nature of any Income Contingent Loan still is a loan: the payback will remain higher than the financing amount. Under any circumstances, defaults of any kind excluded, the student will have to pay a premium for the lender providing him with the means for a certain amount of time, i.e. the debtor will have to pay interest. In spite of some presentations to the contrary an ICL is not per se any "cheaper" - for most student borrowers - than a conventional loan merely because

the repayment obligation is expressed as a percentage of income or earnings (Johnstone 2005, p.15).

Income Contingent Loans have been on the international higher education financing market since 1970 (Palacios Lleras 2004a, p.123). Different countries, such as the USA and Australia have implemented ICLs successfully. When looking at the history of Income Contingent Loans, one can conclude four main prerequisites for the successful implementation of ICLs, as Bruce Chapman has done in his works (Chapman 2004, p.27).

1. A reliable, preferably universal, system of unique identifiers; for example, tax identification or national pension-plan account numbers
2. An efficient way of determining with accuracy, over time, individuals' incomes
3. Accurate record keeping of the accruing liabilities of students (while studying)
4. A collection mechanism with a sound and, if possible, computerized record-keeping system

A possible fifth condition would include a strong legal framework and a functional judicial system, as found in most developed countries.

8.2 History and examples of Income Contingent Loans

8.2.1 The Tuition Postponement Program at Yale University

In the US, Yale University is the most prominent example. In 1971, Yale started the so-called Tuition Postponement Program (or TPP) (Shiller 2003, p.143). Originally designed to be offered only until 1976, the program was prolonged until 2001. The TPP had certain specialties for the early 70s: besides being income-contingent, a novelty per se, loans were also taken together to form "group loans", which resulted in a mutual responsibility among fellow students (Palacios Lleras 2004a, p.124). This had broad implications, as each student had to continue to make income-contingent payments until not only his individual account was cleared, but until the entire group balance was zero (Yale, 1971). This rather collective approach meant that students

had to carry the default risk of their randomly selected ex classmates – with high differences between the absolute and present value terms between high-earners and low-earners or even defaulters. Logically, this “redistribution scheme” was not accepted well enough by the “regular” high-earner and the public in order to carry on successfully: with TPP, students with high earnings had to pay more than in the case of a regular, non income-contingent loan whereas students with low earnings paid less than with comparable instruments. In this case, one might also presume a possible scenario where payback is below funding, as one’s peer group may come up for the difference and the interest not paid.

In the TPP, the interest rate was not pegged but rather variable, creating an additional risk for the students. On the other side, the Yale administration was free to vary the interest rate to reflect Yale’s own cost of capital. But the interest rates were not the main problem. The flaws of the project were much more the negative public opinion and the high default rates (Bulkeley 1999). The latter obviously was increased through the group-mechanism, as certain individuals did not longer feel obliged to compensate the “inefficiencies” (i.e. lower incomes) of the fellow classmates, ending up in a low payback morale, measurably lower even that that of conventional student loans: high-earners did not want to pay subsidies for the below-average achievers. Default rates were measured at 15%, which was much more than the forecasted failures.

Additionally, a change in the tax laws of the US no longer allowed for students to deduct their interest payments from their personal tax owing. This, of course, resulted in a dramatically risen cost of capital (post tax) for the individuals, who chose the TPP at Yale. The adding problems of the TPP, namely being the low payback morale and the high default rate, the unfavourable tax regulations, the cohort group system and thus the growing perception of fair regulations in the student body brought the system to an end in 2001. This year, Yale not only started handing out new loans to students, but also forgave remaining negative group balances such that the system could be shut down completely.

When looking at the Yale TPP, one can draw numerous conclusions. First, the very long maximum repayment period of 35 years created a “perpetual obligation” (Palacios Lleras 2004a, p.126). When paying back a loan over such long amounts of

time, the relative value of the payback in terms of the original financing amount can be perceived as unfairly high: even with modest interest rates of – for example – 8% p.a., an annuity loan's aggregate payments equal more than three times its net value. For example, if a student had received a loan of 50,000 USD, the total payback would have been 150,156 USD. If the payment had not been constant but ascending every year, the ratio would lie even above 3.0.

Secondly, a university does not have the core competence required to effectively manage loans. Unlike a bank, colleges and universities do not have any software or systems installed making efficient loan management possible. Also, smaller higher education institutions would usually have to appoint an extra employee, who might be – according to the size of the college or university and the number and amounts of loans handed out – completely uneconomical. Furthermore, when it comes to paying back, Yale did not have any experience, know-how and expertise in debt collection, which again resulted in rising default rates.

Finally, the "growing perception of inequity" (Palacios Lleras 2004a, p.129) through redistributing means from the low-earners to the high-earners resulted in a collapse of the system. As Palacios' example shows, the Yale "cohort system" is very fragile. Subsidizing the payback within a certain group of randomly collected peers can have enormous effects on the "willingness" and motivation to pay back. If, as in Palacios' example presented, in a group of ten, one student – for which reasons whatsoever – defaults, the psychological barrier for the second student who is closest to defaulting within the remaining group of nine, decreases, as he knows that the other eight will pay back his loan. If this second student then decides to payback, the chain continues with the third student closest to default within the remaining group of eight. This vicious circle is being set off. When, for example, three students or thirty percent of the group default, the payback of the remaining seven individuals, under the conditions of equal distribution of the loan amounts, will each have to pay back 43% more. When looking at these numbers, it is easily understandable that the motivation to come up for the debt of a "foreign" fellow student will diminish dramatically.

8.2.2 Australia's Higher-Education Contribution Scheme Program (HECS)

The Australian government introduced HECS in 1989 (Bruce Chapman 2004), after they were proposed by Bruce Chapman, currently the director of the Centre for Economic Policy Research at the Australian National University. Against the opinion of most policy makers around the world, who considered Income Contingent Loans to be impossible to implement", Australia underwent a different, self-assured way. In Australia, all students are subject to tuition fees. In early years, the majority (i.e. 75%) of these fees were subsidized by the state. This way, students had to carry only 25% of the actual costs of a university education. In 1974, Australia changed the system of higher education dramatically, with the government paying not 75%, but 100% of the tuition fees. There were several problems connected with this change, namely being the growing demand for higher education in the following years and a – negative – public opinion about the state paying tuition fees for its students. The latter is built upon the understanding, that it is unfair for a state to subsidize tuition fees, when it is the subsidized, i.e. the students, who will on average earn more in the future anyway. Thus, Australia once again changed the way it thought about university fees. The common goal now was the introduction of fees without restricting students with low or no family income from attending college. The solution was the simultaneous implementation of tuition fees and ICLs. Before the programs would start, two questions had to be answered: how high should the cost to be charged be and should there be different costs for different students following different career paths?

According to Palacios (2004a, p.134) and due to the positive "neighbourhood effects" obtained by society from the higher education of a country's citizens, the "optimal fee for higher education should be less than 100 percent of the cost." The first question was answered with a look back to the times before tuition fees were abolished. Once again, the government charged around 25% of the actual costs.
The second question was somewhat more difficult to be answered. The reasons for this question to arise were different analyses that found the average costs of different fields of study varying. For example, Chapman says that the average cost of a medicine education is approximately five times as high as the average cost of a law education (Palacios Lleras 2004b, p.134). Although different fees for different

careers were discussed for a long period of time, the decision was to introduce the same fee for everybody.

The real interest rate was fixed at zero percent. The annual repayment rate was set progressively, allowing higher income-earners to pay back a higher rate. Also, a certain threshold took the risk from students that no one would have to make payments if not earning more than this predefined amount. With the interest rate being zero, payback was simple: students just had to pay back a certain percentage of their income, with the percentage according to their income, until the entire amount was paid back. Students were also given the opportunity to pay the fees up front, with their enrolment. In this case, they would be granted a 25% discount. Most students, however, chose to defer their payments through the HEC scheme.

8.2.3 Other examples of Income Contingent Loans

HECS was one of the first examples for Income Contingent Loans. Before Australia and besides the US, Sweden for example introduced a similar type of higher education funding loan. The income contingency was based on the agreement that repayment was deferred when the borrowers income was below a certain, pre-defined level. The news about HECS were – above all – of administrative nature: HECS used the Australian tax system for repayment collection. The intention was to keep default rates as low as possible. After having been modified numerous times, HECS today is considered as a full-scale success. This is confirmed when regarding the fellow countries that introduced similar systems after the success become probable. New Zealand, the Republic of South Africa and the United Kingdom all introduced Income Contingent Loans as a means of higher education financing. New Zealand was first with its introduction in 1991. Similar to HECS, New Zealand collected the debts through the national tax authorities. However, New Zealand also went one step further than Australia: in addition to tuition fees, Kiwi students could also finance their living expenses. The reasons for the government of RSA (Republic of South Africa) were entirely different: here, the goal of balancing racial indifferences (e.g. also access to higher education for everybody) was dominant. Collection was carried out through a specially designed government loans office.

Finally, in 2003, the United Kingdom decided to introduce income contingency to its conventional student loan scheme. Collective authority is the national security system.

8.3 Evaluation of Income Contingent Loans

Using the argumentation pointed out earlier, it becomes obvious that a world in which Income Contingent Loans are offered is preferable to a world in which they do not exist. This should be recognized, as an offer of any kind always constitutes only a possibility and never an obligation to demand the proposal. Thus, students are free to accept or decline the offer due to their own will.

As Shiller (2003, p.148) sums up, not only individuals, but also governments and corporations, could and – from a risk management perspective – should underwrite such loans by committing a percentage of their future income. Also, compared to conventional study loans, it must be concluded that Income Contingent Loans are a priori superior, as they take away risk from the student being financed and spread it among the financiers. If there is only one investor, he, as a general rule, is usually financially more potent than the student. In most cases the financier will be a bank or a financial services provider. Consequently, the financier can accept more risk than the student. In another scenario, where there exists a group of financiers, the outcome is even better, as the risk is spread among each member of the consortium. Above all, Income Contingent Loans are a definite improvement from regular loans. In specific, let’s consider the criteria of evaluation.

As “income contingency” is given to some extent and can be referred to as “pseudo” and not “pure”, Income Contingent Loans receive a valuation good (3.0). “Availability” must be judged in a worldwide context, as there are already some regions (e.g. for example Australia), where Income Contingent Loans are offered to students regardless of their place or course of study. However, Income Contingent Loans are not broadly available. If they are, the availability is usually worse than for regular study loans, as the risk involved is higher for the financier. Also, in some cases Income Contingent Loans are still restricted to students in financial need

rather than meeting the necessity of handing out capital to students with sufficient academic and personal qualifications, as in the case of need-blind admission. Therefore, availability is judged with unsatisfactory (5.0). The “flexibility” is comparable to that of regular loans and is judged with medium (4.0). As there is slightly more work involved during the payback period, the “feasibility” is rated very good (2.0). “Financibility” and “adjacent requirements” are on par with regular study loans and are given the marks good (3.0) and satisfactory (5.0), respectively. As a result, Income Contingent Loans receive a total point average of 3.5.

Figure 8.1: *Evaluation summary for Income Contingent Loan*

Income Contingent Loan	excellent (1.0)	very good (2.0)	good (3.0)	medium (4.0)	satisfac-tory (5.0)	unsatis-factory (6.0)	Weighting	Result
1st criterion: income contingency			X				0.2	0.6
2nd criterion: availability					X		0.2	1.0
3rd criterion: flexibility				X			0.1	0.4
4th criterion: feasibility		X					0.2	0.4
5th criterion: financibility			X				0.2	0.6
6th criterion: adjacent requirements					X		0.1	0.5
Final Result								**3.5**

Chapter 9

Human Capital Contracts as a possible solution?

If an individual is compared to a corporation one will find numerous similarities. For example, just like a corporation an individual will produce future earnings and future wealth. Similar to the corporate level, there are individuals who produce more and others who produce less wealth. In order to fully seize their potential, corporations are in constant search for money to help them grow, acquire assets and execute important investments, be it through equity or debt capital (Schmutzler 2005b).

Until recently, individuals have only been able to finance their (education) investments through debt. However, a new equity-like way of financing emerged recently: the so-called Human Capital Contract (HCC). After conventional study loans and Income Contingent Loans, HCCs are the newest method of higher education financing used in practice. The conceptual idea to sell a portion of one's future income in order to finance one's education – and thereby, on average, simultaneously raising the net present value of one's future income streams – is rather old. Nobel laureate Milton Friedman (1962, p.103) already proposed such a method in the early 60s: "The device adopted to meet the corresponding problem for other risky investments is equity investment plus limited liability on the part of the shareholders. The counterpart of education would be to 'buy' a share in an individual's earning prospects; to advance him the funds needed to finance his training on condition that he agree to pay the lender a specified fraction of his future earnings." However, prohibitively high transaction costs forbid the implementation of this concept at that time. Only after the emergence of modern information

technology in the 1990s the question whether HCCs could be implemented efficiently came up again.

9.1 Human Capital Contracts - how they work

The nature of the Human Capital Contract “protects the student against periods in which earnings are small or nonexistent. Further, it relieves the student from high payments if his [..] career path is less profitable than planned” (Palacios 2002a). A Human Capital Contract is an agreement in which an investor provides financial support to an individual in exchange for a percentage of his future income for a predefined period. In practice, HCCs are used to finance the higher education of students, who have to pay back after graduation and job entrance. Like a venture capitalist sees in a company an asset with growth and earnings potential, the investor of a Human Capital Contract sees the same in an individual. Like a venture capitalist acquires a share of the future success (in terms of future profits) of a company by financing its (early) development, an investor of a Human Capital Contract buys a portion of the future success (in terms of future income) of an individual. And like a venture capitalist usually invests in a portfolio of companies, an investor of Human Capital Contracts can also invest in a group of talented individuals, thus also creating an investment portfolio.

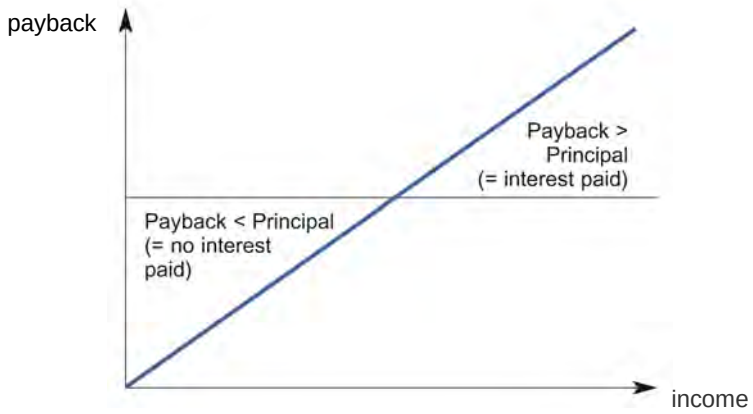
However, two other major differences exist between human capital venture capital investments. Firstly, the human capital investment is limited in time. Secondly, unlike the venture capital investor, the human capital investor has only few possibilities to directly influence his investment. Financed human capital individuals must, for legal and ethical reasons, be free to choose their field of study, their college or university as well as their future employer and career path. However, just like in the world of venture capital, the human capital investor may help the financed individual (i.e. student) to find a well-paying job through his network of contacts, thus not only supporting the student through capital, but also through know-how and contacts.

How does the HCC work in detail? The Human Capital Contract constitutes the height of the payments to the student and their exact dates. The student, on the

other hand, commits himself to paying a percentage of his future income, which is determined a priori. Also, the duration of payback is defined upfront. However, there usually exists no set date for the beginning of payback. Much more, the HCC defines the beginning of the payback period as the first month in which the students enters his first full-time job after graduation. By definition, there is no necessary redemption: if the student earns very low, the investor is unlikely to receive a return on his investment. Therefore, HCCs cannot be regarded as loan contracts, but rather as special financial contracts or as bets on the future earnings of the financed students (Hummel and Gersch 2006, p.30). Or, as Vergara (2004) states, Human Capital Contracts shall be regarded as a form of credit arrangement, but not as a loan.

The seller of the contract, i.e. the student, can only pay back if his income is positive. Contrary to loans, students do not have to take on a fixed debt and are therefore encouraged to invest in their own careers. In any way, students are certain that they will be able to pay back, as a – major – percentage of their future income will always be theirs.

Figure 9.1: *Payback of a Human Capital Contract*



9.2 The content of the Human Capital Contract

There are indefinite ways of constructing a Human Capital Contract. However, some essential regulations must be included in any HCC in order to protect the investor

against possible fraud. For obvious reasons, only one type of a HCC can be explained below. The author uses the example of the “Studienfördervertrag” or “Study Grant Contract” (SGC) of German CareerConcept AG, as this is the form of HCC, which has been used the most in worldwide practice (CareerConcept AG, 2007). The SGC is made up of four parts.

In the first part, the SGC defines the name of the seller (i.e. the student) and the buyer (i.e. the investor). The investor may be an individual natural person or any other kind of legal entity, such as a firm or a corporation. In the following, the SGC states the mode of operation: it is laid out that the buyer transfers a price to the seller in return for a certain percentage of the seller’s future income over a pre-defined period of time.

The second part of the contract begins with the constitution of the price. The price must be understood very abstractly. To comprehensibly explain the mode of operation of a HCC, or the SGC in specific, one can also speak about a transfer of money from the investor to the student in a first step (instead of speaking about paying a price) and a reciprocate transfer from the (former) student to the investor in return. The payment of the investor can serve different goals: it can be used for financing possible recurrent tuition fees, general periodic living expense or one-time expenditures the student might have. As the majority of the financing amount required by the student is needed on a recurring basis, the price for the SGC is usually not paid in one settlement. Rather, the student will receive the money whenever he is expected to necessitate it. For example, payments for tuition fees are usually required once per semester or trimester, living expense financing payments are usually paid out on a monthly basis. Therefore, the HCC does not only define the height of the payment from the investor to the financed student, it also defines the exact dates of payout. For example, the corresponding passage named §1 of the SGC from HCC pioneer CareerConcept AG (2007, p.2) of a tuition financing of a student reads: “The investor is obligated […] to pay the grant recipient a total amount of *x* Euro […] for the duration of the grant. The grant recipient is entitled to the grant provisions for the duration of *y* months, beginning in *[month] [year]*.”

Logically, the student must meet certain formal criteria, even after the selection process, in order to be eligible for the financing. Thus, §2 of the Study Grant Contract requires the student to be enrolled in a higher education program further described in the contract. Also, “insofar as the grant recipient is no longer authorised to attend the course specified […] and/or no longer achieves the otherwise usual proof of performance, this shall be deemed to constitute a ‘discontinuation of studies’ as defined in the contract.” The discontinuation then results in the right of the investor to terminate the Study Grant Contract with immediate effect. In such a case, the grant recipient must repay the investor the grant payments received to the date the termination becomes effective plus a pre-defined interest. The repayment amount is the usually due for payment between one to sixth months after receipt of the termination. The investor may of course, on request, in accordance with dutiful judgement, accept the repayment in instalments by the grant recipient at a level the grant recipient can reasonably be expected to pay.

Going back to the normal case, the third constitutional part of a SGC then defines the payback. Again, the payback must not be regarded as a one-time fee. Much more, the payback is exercised over a certain period. Thus, this second part regulates the percentage of the income the student has to pay back after graduation (“repayment rate”) as well as the period, usually measured in months, within the student must comply his commitments. In particular, §3 defines the duration of payback. In the specific Study Grant Contract example underlying, “the grant recipient is obligated to make monthly earnings-related repayments to the investor for the first *x* months after successful completion of his studies.” Next, the amount of the grant repayment is defined. In §5, the repayment rate fixes the percentage of the future earnings, which the student has to pay back to his investor. It is essential to understand the difference between the actual repayment and the repayment period, which is defined in §5 and per definition lasts longer than the number of months which the student has to repay: the actual repayment can take place within the repayment period at any time. If the student has a so-called “earning-month” (definition see below), he is required to pay back income-contingently. This concept gives the (former) student the flexibility to take a vacation, change jobs, proceed to a higher degree etc. and still pay back according to his income.

The fourth part of the SGC then conceptualises the terms used. There are different philosophies regarding the definition of income that is the basis for the student's payback. One side argues that the payback shall only accord to the education of the student and should therefore include only the actual salary as well as possible job-related bonuses of any monetary kind. The other side argues that any form of income, be it in direct context to the education or not, shall be included, even such incomes as heritages, income from property, capital income as well as lottery wins. CareerConcept believes that the payback should be in direct relation to the education, taking into account only salaries and bonuses. CareerConcept defines earnings in §7 as "the sum of positive monthly income/receipts derived from the grant recipient's entire professional activity. Positive monthly income/receipts derived from ancillary activities, which are exercised outside a full professional activity […], are also to be included. Negative income/receipts are only to be taken into account insofar as they reduce positive income/receipts from the same professional activity in subsequent months; furthermore, negative income/receipts will not be taken into account when determining earnings." The income types eligible for the determination of "earnings" are income from industry, income from self-employed work and income from non-self-employed work. In the case of non-self-employment, earnings are determined in accordance with the income received; tax deductibles are not to be taken into account. Items of income/receipts which do not constitute monthly income/receipts by the grant recipient are, for example, those derived from the management of one's own assets, for example from capital assets (interest, dividends etc.) and renting/leasing as well as increases in assets due to inheritance, gifting or equalization of combined increased net worth. Other items not included in the monthly professional income/receipts are, for example, income from commercially active partnerships, insofar as the commercial activity of the partnership is not related to the professional activity of the grant recipient. At CareerConcept, the monthly professional income/receipts of the grant recipient includes all assessed advantages, which are due to him as a result of his professional activity in the respective calendar month, insofar as they are paid in other calendar months – even after the repayment period has elapsed. Individual asset advantages derived from professional activity, which cannot be clearly (or possibly partially) attributed to a specific calendar month, because, for example, they are payable annually or for specific circumstances (for example profit share, bonuses, annual bonuses, Christmas bonuses, holiday bonuses, anniversary

donations etc.) are, for the purpose of determining earnings, to be attributed to the calendar year with which they are most closely associated (for example, because they are paid for circumstances occurring in a given calendar year). They then increase in equal measure the earnings for every calendar month of the respective calendar year that is an earning month. The last sentence above leads to the term “earning month”. The term earning month is also clearly defined in the Study Grant Contract. It is “a calendar month in which the grant recipient is gainfully employed full time

- with a work load of at least *x* hours per week
- earns an income of a least *y* Euro and
- is employed predominantly overall within the European Union or the United States of America.”

Also, a month is not considered an “earning month” if

- the grant recipient is unemployed
- the grant recipient does not practice his professional activity due to an illness, which has lasted for more than *x* weeks
- the grant recipient is completing training-related activities (such as, in particular, work experience, voluntary work, professorship, thesis, doctoral or post doctoral qualification or comparable activities)
- the grant recipient’s earnings are derived from professional activity which is practiced jointly with or opposite affiliated persons (especially relatives, non-marital partners or their relatives or companies in which the above named have a stake of more than *x%* either alone or jointly) (for example, employment in parent’s company, joint company with spouse etc.)
- the grant recipient’s earnings derive from professional activity performed in conjunction with a company in which the grant recipient has a stake in excess of *x%* (for example, activity as a self-employed businessman, activity as a partner with more than a *x%* stake in the partnership; non-self-employed activity with respect to a corporation, in which the grant recipient has a stake in excel of *x%*).

This broad definition of earnings helps to eliminate insecurities and potential interpretation problems. The definition also relates the payback directly to the latter occupation, which, in most cases, should be a product of the higher education the investor has financed. Also, the exclusion of self-employed grant recipients helps to diminish cases in which students seek to take advantage of the contract.

The SGC shall not be explained in every detail. Also, it cannot contain rules for all possible scenarios. Although Fletcher (2004) points out that the main concern of a HCC is how the contract will be treated under bankruptcy laws, the SGC, for instance, does not contain regulations concerning indebtedness. However, HCCs usually have a few more specialties the author wisher to emphasize:

1. In some cases or jurisdictions it might be helpful or even necessary, according to the respective law, to define a payback cap. This can be either in absolute (as a maximum amount) or relative (as a maximum effective interest rate) terms. This cap, or “upper limit”, gives further security to the student, whilst simultaneously taking away further profit chances from the investor: if, for example, an upper payback limit is set at an interest rate of 12% p.a., the investor will – under no circumstances – be able to make more profit than 12% p.a. The student, on the other side, knows, that – even with an extraordinarily high income development and fast career, he will pay no more interest than 12% p.a. It is the decision of the two contractual parties to decide upon a possible upper payback limit.
2. Also, the investor might find it useful to determine advance payments. Thus, the Human Capital Contract will already define an absolute (usually monthly) amount, which the student has to pay after the payback period begins. The student may then, at any point of time, prove that he is earning less. This will then lead to a diminished monthly payment. At the end of the calendar year, the account is to be adjusted.
3. It is essential for any Human Capital Contract to define the process, if a student will not be able to pay back his financing amount income-contingently. This, of course, is the case with for example
    - students, who decide not to work at all
    - unemployed students

- students who prefer to work in a way such that the time at work is not defined as an earning month (see above)

CareerConcept has found an elegant way to transfer any remaining debt into a regular loan which is to be paid back non-income contingently: if the grant recipient has made repayments for fewer than the defined number of earning months after the repayment period has elapsed (“absent earning months”), he must repay the remaining amount plus a pre-defined interest rate from the due date of the individual grant payments in the ratio of the remaining earning months and the earning months originally laid out. For example, in the case of 4 absent earning months and presuming a period of 72 earning months to be paid back, each individual financing payment is to be repaid in the fractional amount of 4/72 = 1/18 plus interest.

4. In order to determine the actual earnings of a student received, it is essential for the investor to look at different documents. CareerConcept suggests a four step process:
   i. The grant recipient is obligated to submit a written breakdown of his professional income. The earnings breakdown must correctly, completely and individually list all details necessary to determine the earnings of the specific student. In particular, the respective professional earnings and their associated professional outgoings must be listed separately for each month of the elapsed calendar year for all the grant recipient’s professional activities.
      - The grant recipient shall further submit his current applicable income tax assessment notice for the elapsed calendar year. A certified copy of the tax notifications or documents is to be presented upon request.
      - The grant recipient shall present a copy or – on request – a certified copy of his employment contract.
   ii. Finally, the grant recipient is obliged to notify the investor about any changes relating to already anticipated income in future, which influence the level of earnings.
5. The investor might also find it useful to be given a direct debit authorisation by the grant recipient from an account in the particular country where the contract was closed. The direct debit authorisation can then be used for the

purpose of handling advance repayments and/or any follow-up repayments due to the repayment calculation in addition to interest.

6. To insure the investor against the possible death of the grant recipient, which happens with a probability of 0.25% during studies (Braunwarth 2005, p.18), the investor may, for the duration of the Human Capital Contract, take out life insurance in the grant recipient, with the investor being the policy holder and beneficiary and the grant recipient being the insured party. Therefore, the grant recipient shall be obligated to submit the necessary declarations and documentations in this respect, and especially the grant recipient must sign the insurance contract as the insured party.
7. The contract may also include a confidentiality paragraph concerning personal information about the grant recipient. In this case, the investor is obligated to handle in the strictest confidence all personal information concerning the grant recipient.
8. A paragraph, in which the grant recipient declares that all information submitted by him in the application process is complete and correct as well as that he is not over-indebted nor any insolvency proceedings have to date been initiated against his assets nor will any application for bankruptcy proceedings in the foreseeable future take place nor exist any – to the knowledge of the grant recipient – circumstances which could endanger or render impossible the implementation of the underlying contract, could be desired by the investor. Another paragraph giving the investor the right to terminate the contract with immediate effect, in case the grant recipient has given incorrect or incomplete information with regard to the declarations prior made, could be added. In such a case, the grant recipient could be obliged to, within a certain duration fixed in the contract, repay the investor the financing payments received plus a pre-specified rate of interest from the due date of the individual grant payments.
9. An enumeration of the information duties of the grant recipient could be helpful as well. The investor may ask the grant recipient to present one, some or each of the following items/information:
   a. any achieved and valid study certificates
   b. information about the completion of studies
   c. voluntary or non-voluntary discontinuation of the study course

d. Any professional activity after completion of studies, giving essential details (in the case of non self-employed work, especially employer, position, remuneration, duration; for self-employed work, especially company, position, anticipated profit) as well as any change in these details

e. any change of address

f. any change of the grant recipient's bank details

g. any other important circumstances in connection with the HCC

10. The right of termination of the contract is a very difficult question. It is suggested by CareerConcept, that the right to ordinary termination by the grant recipient and the investor is excluded. Only "in the event of extraordinary termination [by the investor], the grant recipient must, within 90 days of receipt of notification of termination, repay the investor the financing payments received until termination plus interest in the amount of *x*% p.a. from the due date of the individual grant payments.

    A possible reason for the extraordinary termination of the contract from the investor's side could be the intentional false provision of information by the grant recipient or the voluntary or non-voluntary discontinuation of his studies.

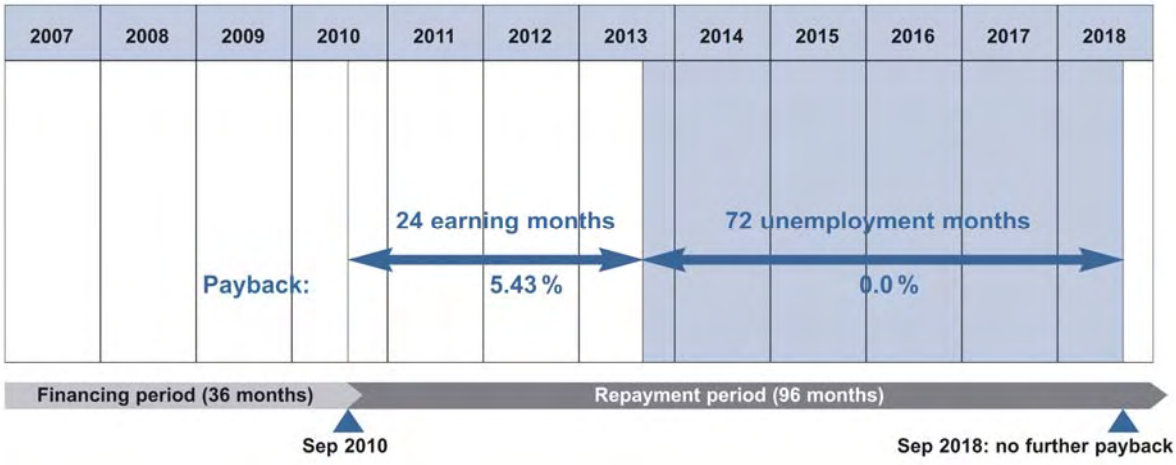
    If one wants to give both parties the right of ordinary repayment, one should be aware of the possibility of the entire Human Capital Contract concept to collapse, as every rational grant recipient would, in the case of above average earnings, always terminate the contract, leaving the investor with the fixed interest rates and no chance to receive a higher internal rate of return. On the other side, every rational grant recipient earning below average would leave the contract running, as the payback will be less than in the case of an ordinary termination, leaving the investor with an internal rate of return even (much) below the termination interest rate defined in the Human Capital Contract. There are, however, certain conceptual ideas that could alter the Study Grant Contract in a way, that an ordinary right of termination could be included without simultaneously losing substantial internal rate of return basis points for the investor, but these concepts are rather complicated and shall not be a matter for discussion in this paper.

11. Any Human Capital Contract should also include an interest on arrears: if the grant recipient falls into arrears with his payment obligations, the due repayment will incur interest of a specified interest rate.

12. In order to take away even more risk from the student, the Human Capital Contract can allow the student not to pay back at all in the case of long-term unemployment: if there are fewer than a specified number of earning months when the repayment period has ended and if the grant recipient has been unemployed for more than *x* calendar months, the grant recipient can be released from the obligation to make repayments in respect of the absent earning months.

The twelve points discussed above shall only give the reader an idea of how detailed a Human Capital Contract might be. The enumeration does claim to be a complete catalogue of the possible parts of a Human Capital Contract.

Figure 9.2: *Payback scheme for unemployment case (5.43% of income over 60 earning months to be paid back)*



Back to the “normal case”, in which a student would then pay back the fixed percentage of his future income according to the value specified in the Study Grant Contract, beginning with his first month in occupation. A graphical example of the normal case underlines the simplicity of the concept:

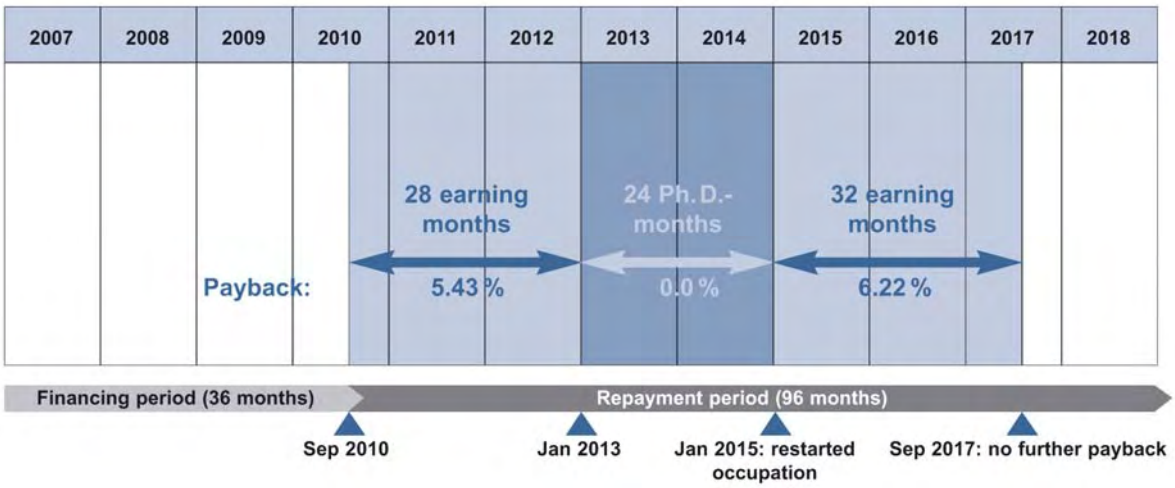
Figure 9.3: *Payback scheme for normal case (5.43% of income over 60 earning months to be paid back)*

Also, in order to protect the investor from a later-than-expected repayment commencement, the SGC determines a specific date (for example “November 1, 2010”). If repayment has not begun until this specified date, the student must pay interest on the repayment still standing out. An example: if the investor expects a certain student to begin his first job in August 2010, but the student begins work exactly one year later (for example because of a prolonged vacation) the investor will not only receive the exemplary 5.43% of the future earnings of the student, but will get 5.43% * 1,07^1 = 5.81%, with a interest rate of 7% fixed in the Study Grant Contract. This regulation safeguards the investor from losing money when receiving the payback later. Thus, any month the student does not work after August 2010 (also if he has worked before and is currently making a pause) will cost the student an effective interest rate:

Figure 9.4: *Payback scheme for vacation case (5.43% of income over 60 earning months to be paid back)*

If the students does not have a job during the repayment period, and – for example – follows a Ph.D.-program, the payback is also subject to an interest rate:

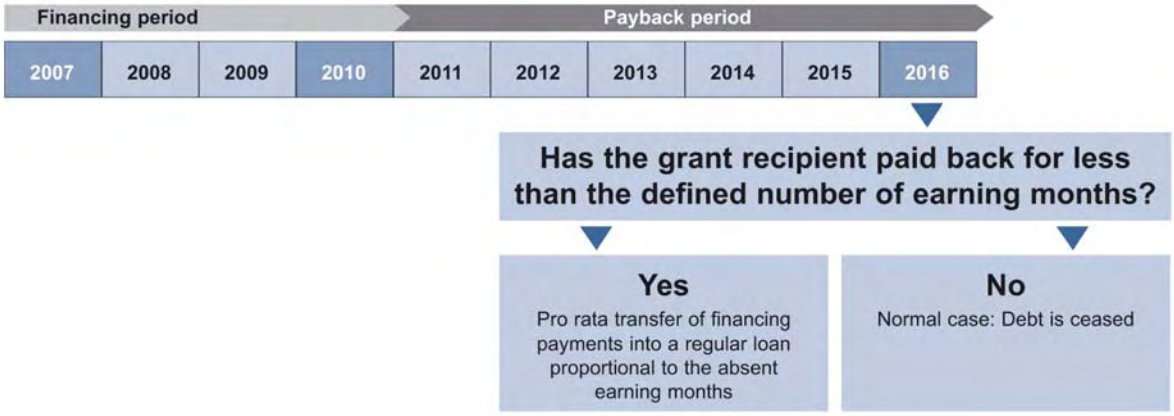
Figure 9.5: *Payback scheme for Ph.D. case (5.43% of income over 60 earning months to be paid back)*



Of course, one might argue that a Ph.D.-degree will in most cases lead to a higher degree of income and thereby giving an additional advantage the investor. Since

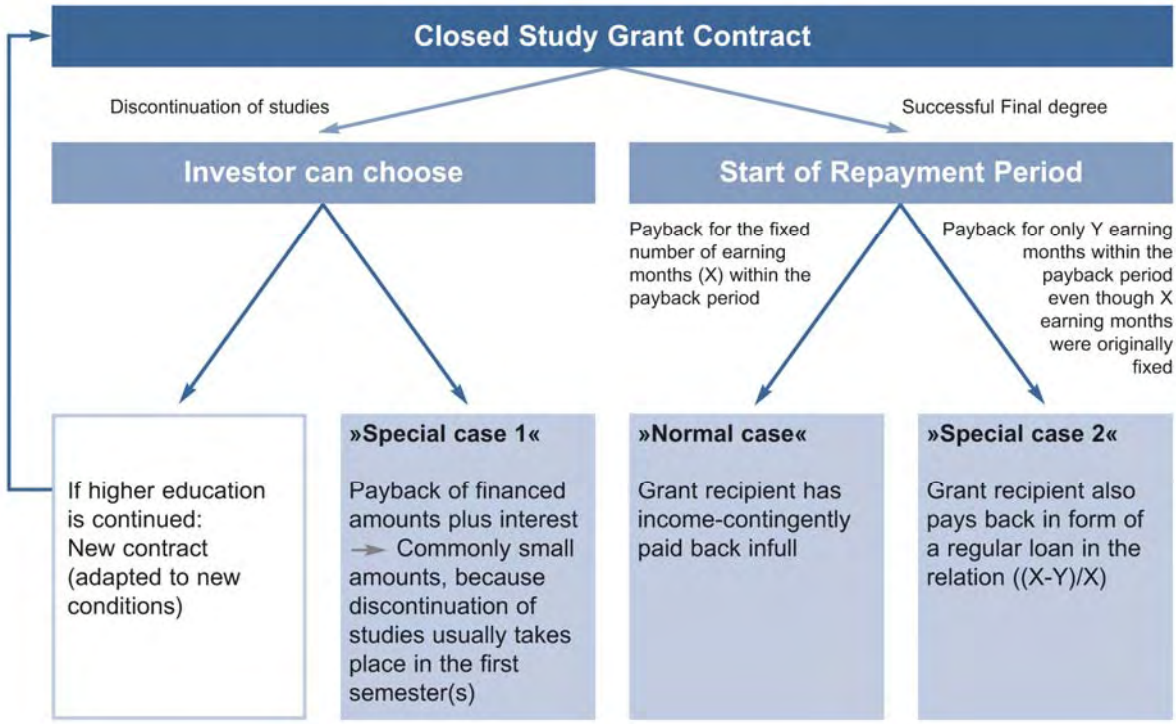
these months have been months of vacation, orientation or maternity-leave, which usually lie in the student's decision sphere rather than in the investor's decision sphere, the investor would be disadvantaged. Consequently, a regulation defining a point of time after which the payback will increase is a fair deal to both the student and the investor. In the case of an absent earning month, the rule can be determined as follows.

Figure 9.6: *Rule for "absent earning months"*



To conclude this chapter, the following chart shows all three possible cases for the payback. In the "normal case", the student will pay back the entire duration income-contingently. In the "special case 1", the grant recipient will not successfully complete his studies and therefore pay back the financing in the form of a regular (student) loan. And in "special case 2", the student will pay back partly income-contingently and partly non-income-contingently, as he will not have paid back the full number of defined earning months at the end of the defined payback period:

Figure 9.7: *Overview of payback mechanism*



9.3 A sample calculation

Let us presume a student, Steve Sampler, who wishes to finance his higher education through a Human Capital Contract. In order to do so, an investor must come into agreement with Steve about the conditions of the Human Capital Contract. The basis for the calculation of the conditions is the expected income Steve will earn when he has finished his studies. The buyer of the HCC will look at the average incomes of Steve's peer students in the same course of study. If Steve were an – average – economics student, one would regard the average incomes of economics students holding the same diploma Steve is also striving for. At time t0, all economics graduates are expected to earn on average:

- for their first year of work: 42,000.00 Euro
- for their second year of work: 44,100.00 Euro
- for their third year of work: 46,305.00 Euro

- for their fourth year of work: 48,620.00 Euro
- for their fifth year of work: 51,051.00 Euro and
- for their sixth year of work: 56,284.00 Euro.

The investor might get this information from any data base storing this sort of facts or the corresponding federal statistical office. However, since Steve will not enter his job at time t0 and still has his study ahead of him, the given data are not valid for the future. Therefore, the data must be inflation-adjusted with a given rate. Let r = 0,0221 be the inflation rate prognosis of the investor. The inflation rate must be predicted not only for one year, but for the period between t0 and the point of time the investor expects the student to enter his job and starts paying back. In the example, the duration is 5.42 years, as the student is going to study for five years and the average time between graduation and job entry for the peer group equals 0.42 years, summing up to 5.42 years. In consequence, the expected, inflation-adjusted real values for the future income of Steve are:

- for his first year of work: 42,000.00 Euro x 1.0221 ^ 5.42 = 47,282.83 Euro
- for their second year of work: 44,100.00 Euro x 1.0221 ^ 5.42 = 49,646.97 Euro
- for their third year of work: 46,305.00 Euro x 1.0221 ^ 5.42 = 52,129.32 Euro
- for their fourth year of work: 48,620.00 Euro x 1.0221 ^ 5.42 = 54,735.50 Euro
- for their fifth year of work: 51,051.00 Euro x1.0221 ^ 5.42 = 57,472.28 Euro and
- for their sixth year of work: 56,284.00 Euro x 1.0221 ^ 5.42 = 63,363.49 Euro.

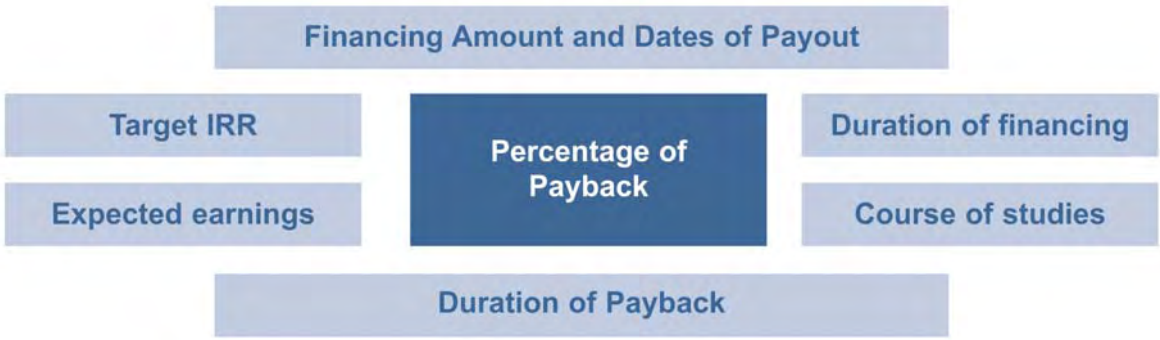
From this base, the investor and the student must agree on the financing amount of the student. Given the three possible financing pillars (living expenses, tuition fees, one-time payment), let the two parties agree the following:

Table 9.1: *Case study sample calculation*

Financing Pillar	Payment	Number of Payments	Sum	First Payment	Last Payment
Living Expenses	300 EUR	25	7,500 EUR	01.04.2007	01.04.2009
Tuition Fees	2,500 EUR	4	10,000 EUR	01.05.2007	01.11.2008
One-time Payment	2,000 EUR	1	2,000 EUR	–	01.02.2008
		Financing Total:	**19,500 EUR**		

The payments for the living expenses will be paid on a monthly basis, whereas the tuition fees will be paid out according to the due dates at Steve's university, i.e. every six months, if the school runs a semester-based curriculum. The cash-outflows (i.e. capital transfer from the investor to Steve) are therefore already pre-determined and are taken into account when calculating the conditions. The next two parameters to be considered are the internal rate of return the investor expects and Steve's desired payback duration. Let the investor aim for a rather high IRR of i=11.50% p.a. and Steve choose a repayment period of 72 months. Steve is certainly aware, that if he had chosen a shorter period, the payback percentage, which is still to be calculated, would have been higher. With the expected IRR, the financing amounts and their corresponding due dates as well as Steve's expected earnings development (including his expected time of job entry and time of payback fixed) there is only one variable to be calculated:

Figure 9.8: *Percentage of payback as missing variable*



One must now ask which percentage the student has to pay back of his expected earnings in year one to six in order to achieve the investor's targeted rate of return. If payback happens on a monthly basis just as the financing did, the following results show:

- Payback percentage: 9.75%
- Financing amount received: 19,500.00 Euro
- Total payback: 31,442.71 Euro
- Profit investor: 11,942.71 Euro

- IRR investor: 11.50% p.a.
- Student interest paid: 11.50% p.a.

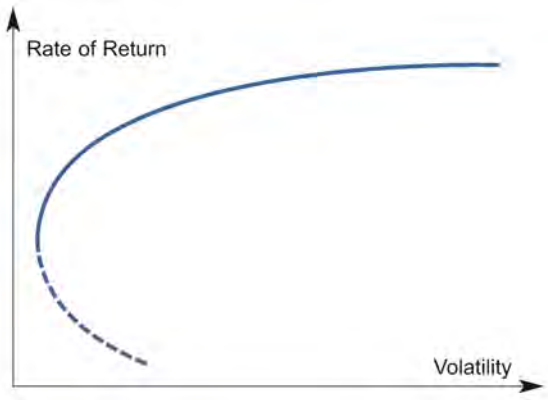
As a result, Steve has to pay 9.75% of his future income in order to achieve the desired outcome.

9.4 Education Funds as a portfolio of Human Capital Contracts

Education Funds can be understood as a portfolio of Human Capital Contracts. In a first step, investors bring liquidity to the fund. Investors are made up of four groups: corporations, foundations, individuals as well as universities themselves (Strate and Meyer 2006). Theoretically, the government or other public institutions could invest in Education Funds. There can be either one singular or many investors per Education Fund. In the latter case, it is not necessary that all investors of a fund come from the same group. However, investors from different groups tend to follow different motivations. This sometimes makes it difficult to bundle investors from different groups for one Education Fund.

The fund structure allows to combine the financial strength of different investors. Thus, the financing is usually done not only by a single entity, as in the case of regular student loans, but by a variety of investors, i.e. a consortium. This spreads the investment risk among all investors. An investment in an Education Fund as a new asset class can optimize the investor’s own investment portfolio, as a new investment is added which – in most cases – correlates only little with the capital and stock markets.

Figure 9.9: *Portfolio optimization through Education Fund investments*



Source: Markowitz, 1952.

The liquidity can be brought into the fund either in a lump sum or in different tranches. The lump sum has the advantage that there is complete safety about the timing of the investment: the investor knows when the money has to be available. If the fund is structured for various and variable capital calls, the investment is made when the fund needs further liquidity. Either way, the investment made by the investors can be leveraged by external credit capital, which will be served before the equity invested, increasing the chances of a high internal rate of return.

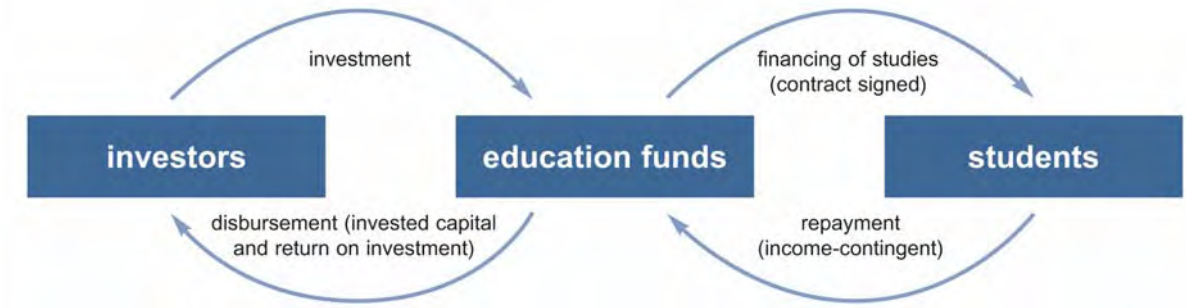
Next, the Education Fund finances the studies of selected students. The financing bandwidth encompasses the financing of living expenses, study material, the costs of a study stay abroad, the costs of an – unpaid – internship, the costs of a Ph.D.- or MBA-program as well as the tuition costs of any higher education program. Parallel to the investment of the fund, the payout can take place in a lump sum or in regular payouts, depending on the financial needs of the students. For example, the financing of living expenses will most likely occur in regular, monthly payments whereas the financing of the travel costs for a semester abroad is usually required as a one-time payment.

The payback then starts after successful job entry with transparent parameters: as the payback is income-contingent, the (former) student pays back a certain, pre-defined percentage of his future gross income - according to his financial abilities.

The exact percentage of the payback (relative to the future income) and the corresponding duration are calculated according to the granted financing amount.

Lastly, the students' payback can be distributed to the investors, such that the forecasted rate of return is matched, or it can be handed on to new students, such that a revolving system is originated. Through the possibility of earning a return on the invested capital, an important requirement is met for private capital to flow into Education Funds.

Figure 9.10: *Mode of operation of Education Funds*

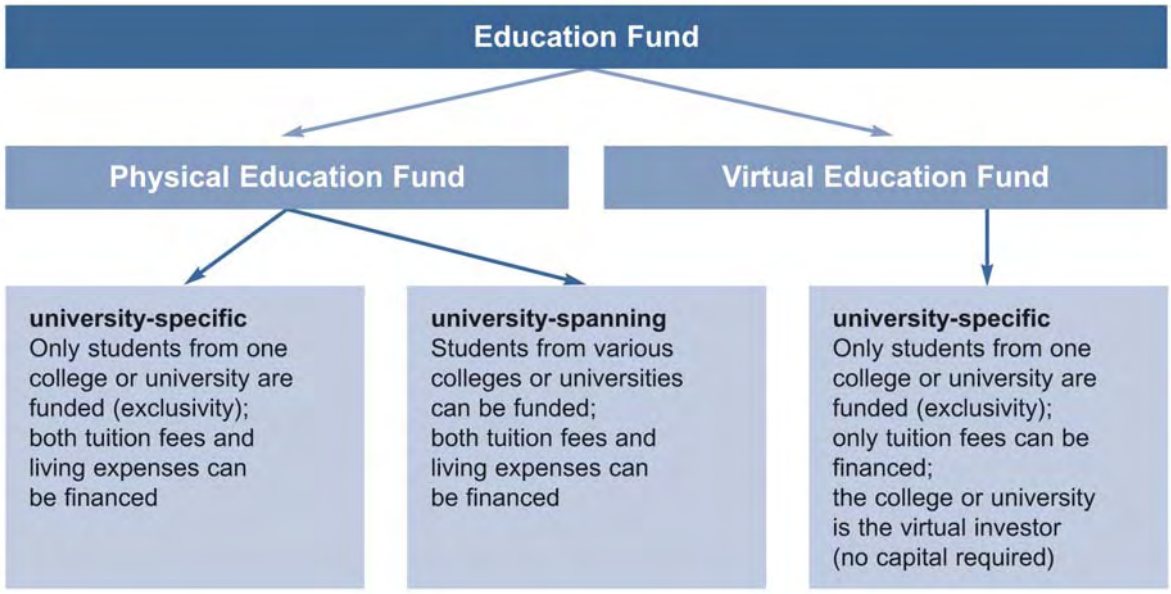


An Education Fund is usually constructed as an independent legal entity. In the case for Germany, the construct of a private limited partnership is optimal ("Kommanditgesellschaft" or "KG"). However, due to German law, at least one partner must be chosen with unlimited liability. It may also be helpful to construct another legal entity, for example a limited liability capital company ("Gesellschaft mit beschränkter Haftung, GmbH" or "Aktiengesellschaft, AG"), which then takes in the role of the partner with unlimited liability. Thus, none of the parties involved will be exposed to the risk of unlimited personal liability. The limited liability company will then be responsible for the management and the administration of the business. In most cases, the limited liability capital company will have no voting rights and hold no shares in the company. Their role is then called "Komplementär". Only the investors with limited liability ("Kommanditisten") have shares in the fund company. The entire construct is then, depending on the form of the entity with unlimited liability, either called "GmbH & Co. KG" or "AG & Co. KG".

9.5 Different types of Education Funds

There are different ways of setting up Education Funds, differentiating themselves primarily in the group of financed students and the type of investors. There exists no official classification of Education Funds. Other than the types explained below, there are many different types of Education Funds imaginable. However, the author will limit himself to describing and analyzing the Education Funds that have already been realized in practice.

Figure 9.11: *Classification of Education Funds*



9.5.1 General Education Funds

A general, or “physical”, Education Fund is the type explained earlier: a group of investors will finance a group of students, creating a portfolio of Human Capital Contracts. This type is referred to as physical, as physical capital is actually transferred from one party (i.e. the fund in the form of a legal entity) to another party (i.e. the student). General Education Funds can have different focuses, as the following two chapters will point out. Therefore, “university-specific Education Funds”

and “university-spanning Education Funds” can be understood as a subgroup of general, or physical, Education Funds.

9.5.2 University-specific Education Funds

In the case of a university-specific Education Fund only students from a specific college, university or higher education institution are financed (Krieg and Schmutzler 2006). University-specific Education Funds have been existing considerably longer than university-spanning funds (Verbraucherzentrale 2006, p.104). A university-specific Education Fund can be named after the university whose students the fund finances (for example: “Harvard Education Fund”). The fund can be set up financing only the tuition fees. It can also be constructed as a fund financing the living expenses in the city the university or college is located. The latter specifically makes sense in the case of large and expensive cities.

The advantages of a university-specific Education Fund for universities are obvious: the institutions hope for an increase in demand as the problem of financing the education at this specific school is solved, leading to a higher academic quality of students, which will increase the competitiveness of the university. Thus, a positive circle is initiated, helping the school to improve its overall image. Examples for university-specific Education Funds in the German market are the funds at the Leipzig Graduate School for Management, the Technical University of Munich, the University of Applied Sciences Munich or the Business School of Finance & Management Frankfurt.

In most cases, the university administration will be in favour of a university-specific Education Fund, as it must be regarded only as an offer to the students rather than a service that must be accepted. Therefore, it remains the sole decision of the student to accept or deny the offer. The university, on the other hand, can always proclaim the innovative financing option and therefore obtain a USP. The university will also have no legal rights to avoid a university-specific fund. It may, of course, abstain from actively marketing the service on its website etc., but it cannot forbid a group of investors to finance students in that very institution. The only right the university

might have in that case is to prohibit the use of its name, meaning that the Education Fund will not be able to be named after the university and must find a different name. This, on the other hand, will hardly be reason enough for the investors to desist from implementing the fund.

An altered form for a university-specific Education Fund can also be a fund financing students from only a group of specific higher education institutions or from universities of a specific region. Also, an Education Fund could finance students only from colleges that are members of some form of union or alliance. One can also limit the bandwidth of financed students to the group of students studying at one specific college or university at only one specific course of studies. Also, one might find it useful to finance only students with a certain status (e.g. those students with a pre-diploma or in their last year of study). All these specifications can of course be cross-combined, creating an unlimited number of different Education Fund types possible. However, the two kinds of Education Funds presented in this and the next chapter are the most common types of general Education Funds. It is left to the imagination of the reader to recognize the diversity of possible combinations.

9.5.3 University-spanning Education Funds

This type of Education Fund is a public fund with mostly private investors. Here, the financing is not limited to a certain school, region or field of study. Instead, the most qualified students, independent of their status, are selected and financed.

So far, university-spanning Education Funds have been realized together with banks which offer the service of selling the funds to their clients. As banks usually have a rather large basis of different private customers, it is most likely for the banks to sell university-spanning Education Funds, as university specific funds would either have a volume too small to be sold to a large basis of possible investors or would limit the focus of the investment to only one school, thus taking away interest from a potential investor who has nothing to do with that specific school.

In the case of Germany, the first university-spanning Education Fund was established in 2005, now financing students from north (University of Hamburg) to south (University of Munich) and west (University of Cologne) to east (University of Berlin). The fund (“Bildungsfonds Exklusiv I” or “Education Fund Exclusive I”) was constructed by CareerConcept and sold mostly by Sparkassen, a form of a mutual savings bank consortium.

Additionally, these funds can also be constructed as international funds financing student even from abroad. In the case of the “Bildungsfonds Exklusiv I”, also students form the German-speaking regions from Austria and Switzerland can be financed. However, one must firmly pay attention to the law of the specific country: some legislations might forbid the form of the Study Grant Contract used by the Education Fund Exclusive I.

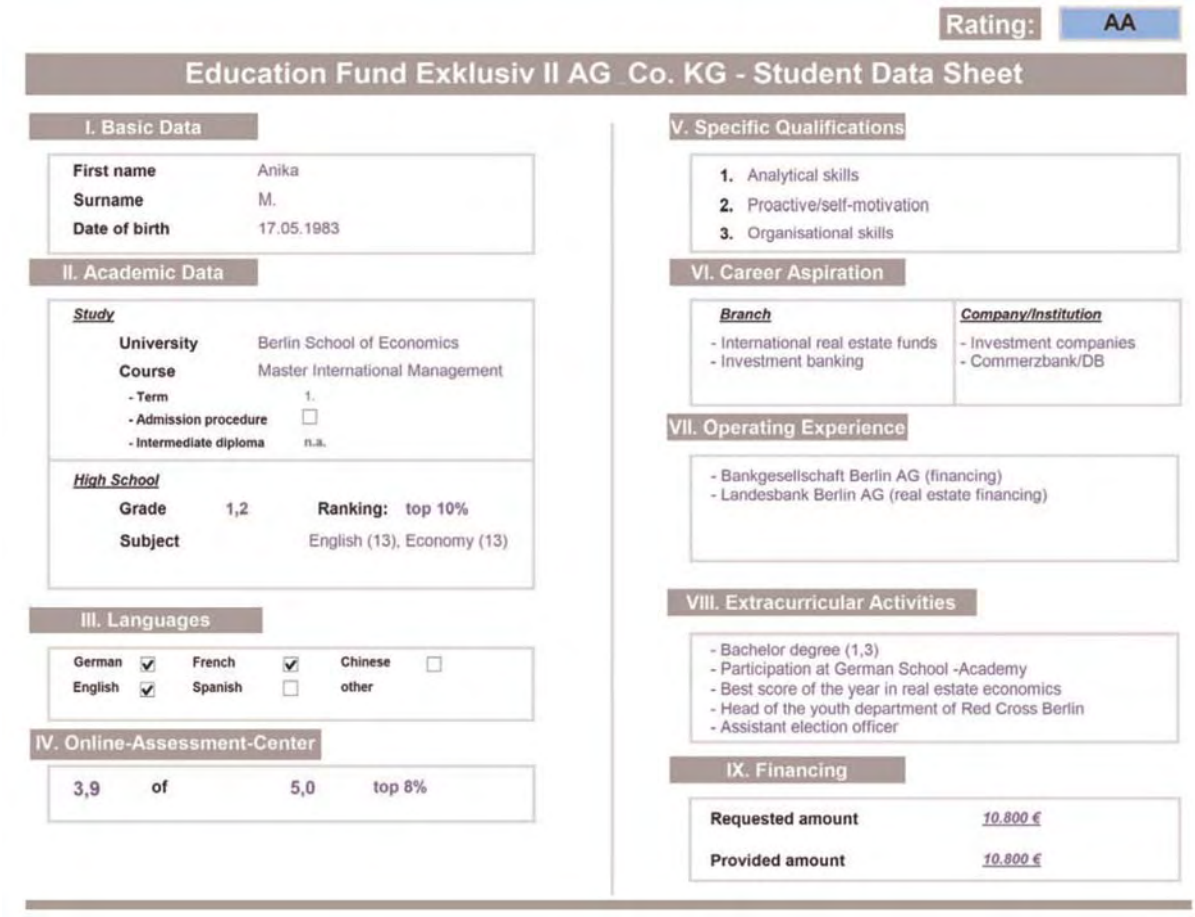
9.5.4 Investor-specific Education Funds

Investor-specific Education Funds are, analogously to the university-specific funds explained above, constructed only for one specific investor or a homogenous group of investors. The obvious advantage in comparison to an Education Fund with a consortium of numerous investors is the flexibility of the fund: the concept will be adjusted specifically to the preferences of the one investor, which are the size of the fund, its expected rate of return, its form of cash calls, its application and selection process, its targeted profile of potential students as well as its anticipated duration.

The conception of company-specific Education Funds is the fasted growing subgroup. Large international companies as well as midsized firms in need of well-qualified personnel have understood the importance and advantages of company-specific Education Funds. Usually, these funds concentrate less on the financial return of the investment, but focus on specific groups of students: mostly, company-specific Education Funds finance students of a certain field of study (for example engineering majors) and of certain universities. In some cases, the companies also choose to limit the region, having in mind an image effect that usually occurs.

Used as an instrument of personnel management and student marketing, company-specific Education Funds (as the largest subgroup of investor specific Education Funds) and creates solid contacts between the financed students and the investing firm. The investor now may be informed about the progress of each student. This is usually done by a regular update of the students' fact sheets:

Figure 9.12: *Example of student fact sheet*



Also, the aggregate information about the students might be of interest to the investor. Details about the financed student's age, sex, course of study, origin, university etc. can be helpful to the anticipated human resources development in the phase of payout. In the following phase of payback, the investor might find it interesting to be informed about the industry the student works for and the salary and bonuses he earns. Especially in the case the student chooses to work at a direct competitor of the investor, information about the remuneration can be helpful.

This periodic feedback gives the investor a chance to get to know the students during the period of study, which is usually four to five years. The investor might also invite certain students to a company presentation, hire them for an internship or advertise for diploma works. Therefore, the dominant goal is to get the best students to learn about the investing firm and get him to begin his work at this very institution. If this does not work out as planned, the investor will at least profit from the future career of the invested student, even if it takes place at a competitor. The investor will always have a stake in the future career of the financed students.

One instrument to even further strengthen the link between the financed student and the investor is the release of the debt or parts of it: in the case the student actually joins the investor's company, the company could abandon its demands towards the student, thus giving him even more argument to commence his career at the investor. The moral obligation for the student regarding his investor can vary greatly. It is found that some students feel very thankful for having been given the opportunity to take on their studies through the financing amount. If this attachment will then be reason enough for the student to base his decision on remains however unanswered. The total return of investing in a company-specific Education Fund is made up from different parts:

Figure 9.13: *Advantages to corporations investing in Education Funds*

Thus, investor-specific Education Funds lay less focus on the internal rate of return. Usually, an IRR of 1-2% p.a., understood as a compensation for inflation, is expected. This in consequence reduces the price of the financing for the students, if compared to a general Education Fund, where the main interest for the investors lays in achieving an adequate financial rate of return.

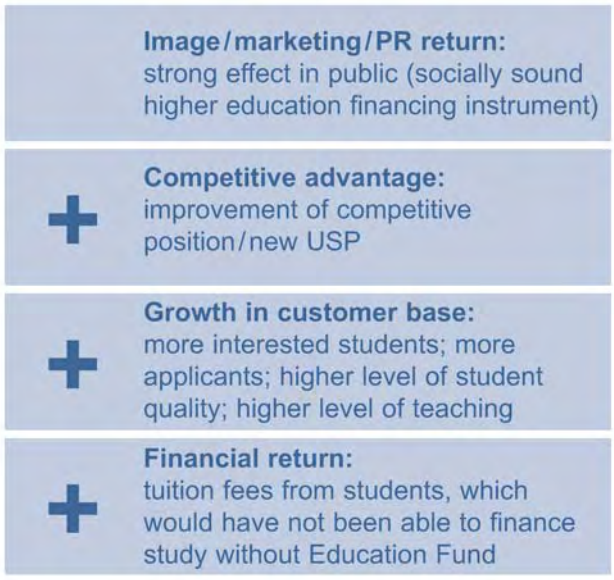
Besides the financial and human resources return explained above, a company can also profit from an image return. As investment in knowledge is a very up-to-date and fashionable topic, it can be marketed very well. By informing the local (or, depending on the size of the investment and the target markets of the investing corporation, by informing the supra-regional) press, the company's customers, the employees and the broad public, the investor positions himself as a company completely aware of its social responsibility.

9.5.5 Virtual Education Funds

The concept of virtual Education Funds differs somewhat from that of physical Education Funds. The word “virtual” already implies that there is no legal entity founded as in the case of physical funds. Also, no “physical” capital is transmitted. A virtual Education Fund exchanges benefits instead of physical capital for (physical) payback (Schmutzler and Zipf 2006). Also, the Human Capital Contracts of a physical Education Fund can per definition only be established between a higher education institution and its students: different to the concept explained before, a virtual Education Fund does not simply hand over money to the students in order to finance their studies. Instead of doing so, the HCC of a virtual fund will grant the student the right to study at the school free of charge – for the moment. This can be understood as a suspension of tuition fees. In return, the student pays a percentage of his future income to the college or university.

Instead of paying at the time of study, the student would pay after the completion of his studies – income-contingently. The benefit is obvious: the student does not have to worry about having to pay tuition fees during his studies and pays in times of an existing and continuous income. In addition, the university can manifest its trust in the education of its students, as an amount depending on the development on the student is paid of a fixed sum. The development of course is in most cases directly linked to the quality of the education. The marketing possibilities should therefore not to be underestimated.

Figure 9.14: *Advantages to universities investing in Education Funds*



The rate of return for the university by offering a virtual Education Fund consists of four parts. As already pointed out, the financial rate of return is secondary. The marketing rate of return can be very important to the school: when a university proofs that itself trusts in the education of its very own students, it can be only helpful. This in consequence created a competitive advantage. Lastly, through offering a virtual Education Fund for its students, a university enables prospective students without any means or financial resources to study. Therefore, the instrument of a virtual Education Fund allows a university to increase the number of its students, simultaneously starting a process of need-blind admission. The best of the applicants will be accepted, regardless of their possibility to finance the course of studies.

The management of virtual Education Funds will usually be exercised by third party service providers, as it is not the core competency of the universities themselves to manage such funds and contracts. Also, some countries might demand an authorization to hand out loans, which a university or college might not be able to provide.

Contrary to physical or general Education Funds, virtual Education Funds are only able to finance tuition expenses. Without physical capital transfers, it is impossible

for a virtual Education Fund to finance the living expenses of a student. Some universities offering virtual Education Funds also vary the percentage of the tuition fees being financed. If one hundred percent of the tuition fees are financed, the university will have to finance the internal cost of granting the student a place of study. Therefore, some institutions will ask for a certain percentage of the tuition fees to be paid while studying, just to cover this cost. If a university intends to increase its numbers of students with the instrument of a virtual Education Fund and has difficulties financing the cost of providing a place of study to an additional student, it could require the student to pay the percentage of tuition equalling the marginal cost of accepting one more student in the program, thereby refinancing its direct operating cost, and simultaneously maintaining the chance of being paid the outstanding balance (i.e. all profits) after the student has finished his studies.

9.6 Marketing of Education Funds

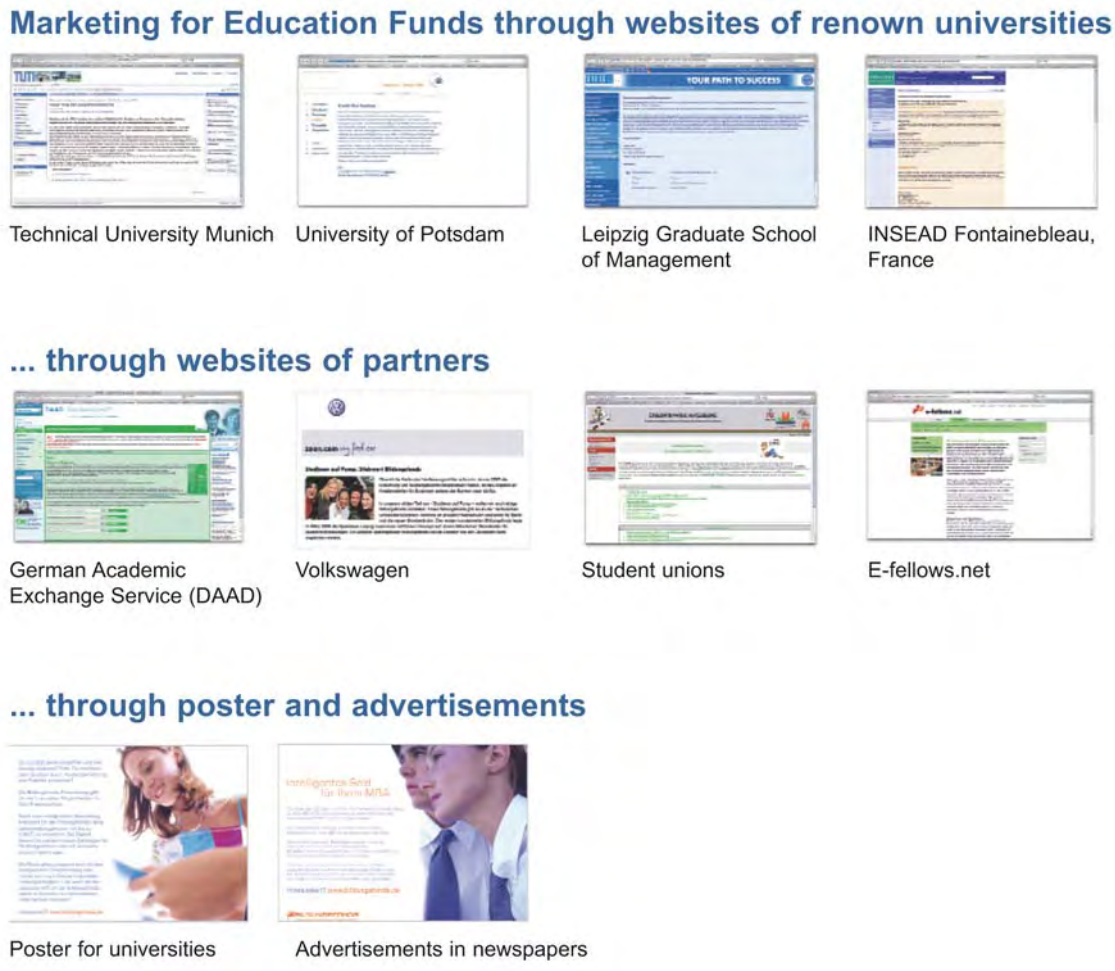
From the investor's point of view, it is crucial to market Education Funds to students. Stahlke agrees by stating "like any product, however, Educational investments require proper marketing strategies and tactics to appeal effectively to the target audience" (2004). The broader the basis of students knowing about the offer, the higher will be the number of applicants and the higher the opportunities of selecting only good students.

There are various ways to market Education Funds. Press articles, classical online and offline advertising and word-of-mouth can help. However, it can be concluded that the cooperation with universities and colleges is the most effective way of marketing Education Funds. If a higher education institution informs it students about the existence of an Education Fund and therefore about the possibility to finance one's studies, the credibility is much higher than in the case of classical promotion.

As long as an Education Fund is in the interest of a university, it will always help to market the fund. Instruments of marketing include printed flyers and posters, information sessions and letters and or e-mails from the staff of the university or college, including rectors, professors, assistant professors or lecturers.

However, it has been experienced that the best way to market an Education Fund to students is through the website of the university where the fund is offered. (Neutral) Information about the Education Fund can be published either on the university's web-pages or on the specific sections of the faculties. Also, cooperating with renown partners can help to increase the awareness of the product. In the case of company-specific Education Funds, this might also include the investing corporations themselves. Student unions and student communities might also be a useful multiplier.

Figure 9.15: *Marketing of Education Funds*



9.7 History and examples of Human Capital Contracts

As Human Capital Contracts are rather new instruments of higher education financing, there are only few examples of institutions offering HCCs. To the knowledge of the author, there are three companies worldwide so far with experience in offering HCCs: MRU Holdings, operating under the brand name “My Rich Uncle” from New York, Lumni Finance from Miami, operating in Chile and Columbia as well as CareerConcept from Munich, Germany.

A short look back into history reveals that there have been other earlier examples of HCCs, them financing tennis players, golf players or musicians (Schmutzler and Krieg 2004a). Small groups of investors gathered to finance extraordinarily talented young men and women. At the height of the tennis boom in Europe some years ago, people realized that many gifted players were unable to pay for their training costs, i.e. coaches, travel and shortfalls in earnings (Schmutzler and Krieg, 2004b). One example is the financing of German tennis player Thomas Haas. Of 15 investors each paid approximately 5,000 Euro p.a. over a period of five years totalling 375,000 Euro, in order to finance the training of Thomas and his sister Sabine. It was agreed that Thomas had to pay back 15% of his income during the following 10 years (Haas 2000, p.124).

Also, British rock star David Bowie issued the so-called “Bowie Bonds” with a 15-year maturity and a volume of 55 Mio. USD. Even though the payback was fixed with a 7.9% annual interest yield, this is an early example of human capital securitization (Davis and Meyer 2004, p.46).

To the knowledge of the author, the first company, My Rich Uncle, has quit offering HCCs. There is no data available about Lumni Finance. However, it is the perception of the author after talking to the founders of Lumni Finance, Miguel Palacios and Felipe Vergara, that not many HCCs have been signed so far. It can be assumed that CareerConcept has probably the broadest experience in dealing with HCCs. The first HCCs were signed in 2002. From the beginning of its operation in April 2002, CareerConcept followed the concept of Education Funds, however not by underwriting the HCCs itself, but by founding an Education Fund which would act as the underwriter. The first Education Fund financed only the tuition fees of six

students exclusively from the private school European Business School (ebs). Students were selected due to their academic and personal capabilities. This first worldwide Education Fund invested only in students during their last year of school, as CareerConcept wished to get payback results fast. It was clear to the CareerConcept team that future investors will ask about the performance of the fund, the demand from the students' side, the demand from the investors' side as well as the way HCCs do function between the fund and the students. After the closing of the fist fund, banks which have hitherto only been offering student loans to particular small private schools became interested. After the good performance and problem-free implementation of the first fund, a second fund was jointly founded with a mutual savings bank as the sole investor. Other than the first fund, with money coming from private investors, this second fund already attracted corporate investors. The fund size of the second fund was roughly ten times the size of the first fund. However, the focus was still entirely on financing the tuition fees of students at a private school.

In 2004 CareerConcept detected the immense size of the public market. With about 96% of all students in Germany studying at a public university rather than a private college, and many students not being able to proceed to those schools mainly located in expensive urban areas such as Munich, Frankfurt or Hamburg and others not being able to financing an increasingly important study stay abroad, the market potential finally became obvious.

Together with the Technical University of Munich, a school repeatedly ranked the best educational institute in Germany, CareerConcept created its first Education Fund financing students' living expenses and meeting their one-time financing demands. The overwhelming response from the students' encouraged CareerConcept to further expand the Education Fund concept: in 2005, the first university-spanning Education Fund was created. Here, every German student could apply for financing. This fund, named Education Fund Exclusive I, raised the money mainly from regular bank customers. In cooperation with mutual and savings banks, CareerConcept distributed shares of the fund. The banks, in return, were handed a brokerage fee. The average investment sum was, of course, much smaller than before. About 7,500 Euros were invested per party on average. On the students' side, the Exclusive I could already finance more than 2,000 students – a substantial

rise from the first fund's capacities. So far, CareerConcept has already issued an Education Fund Exclusive II and is in the process of implementing a third one.

The story of CareerConcept shows, that there is a developing market for Human Capital Contracts. And as CareerConcept is already operating in Austria and Switzerland as well, the argument that HCCs would only fit the German market can already be disproved.

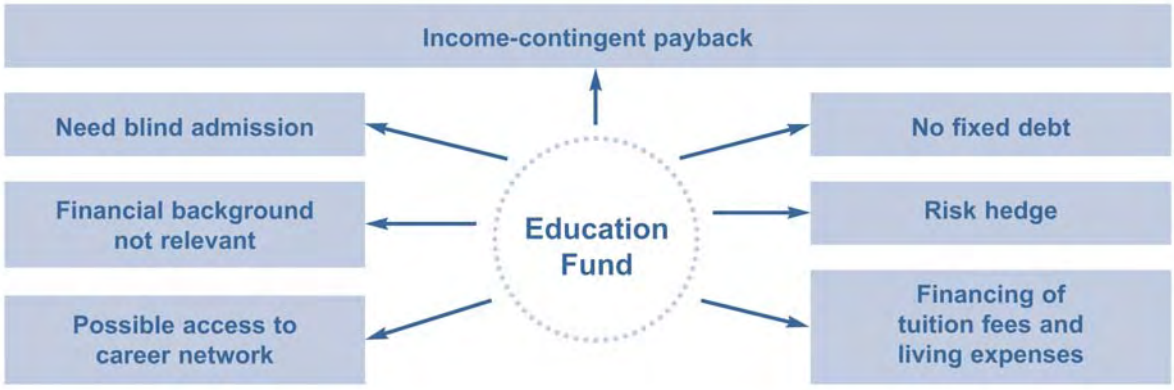
9.8 Evaluation of Human Capital Contracts

Although Human Capital Contracts and Education Funds already exist, Lanthaler and Zugmann state we are just at the verve of a new market (2000, p.39). The authors predict, that there will also be so-called "Career Angels", who will invest in talented young entrepreneurs, for an exchange of their future income. Davis (2000, p.80) predicts that there will be even initial public offerings of human capital and an exchange of Human Capital Contracts.

9.8.1 Advantages to students

Students financing their studies with Human Capital Contracts profit from numerous advantages:

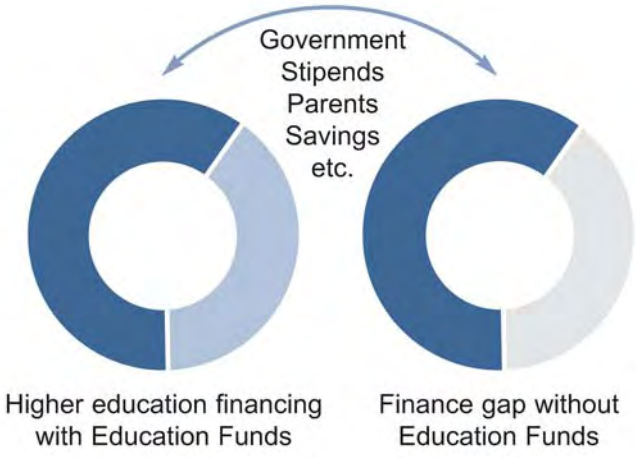
Figure 9.16: *Advantages of Education Funds to students*



Source: CareerConcept AG (2006c).

With a higher education financing through an Education Fund students can close the financial gap gasping between their financial resources and their finance demand, which is usually not entirely covered by the conventional financing methods:

Figure 9.17: *Education Funds close the gap*



Source: CareerConcept AG (2005a, p.14).

Also, the income-contingency acts as an insurance for the students, as “someone else besides the individual student makes part of the investment” in the student’s higher education (Palacios Lleras 2004b). The student will only have to pay back if he actually receives an income. Also, if he earns substantially below average, he will

have to pay back less than the amount he was granted. This way, the student always pays back according to his financial possibilities. Especially students are often among those seeking bankruptcy protection (Baker 2004). The income-contingency can be regarded as the primary reason why students decide in favour of an HCC or Education Fund.

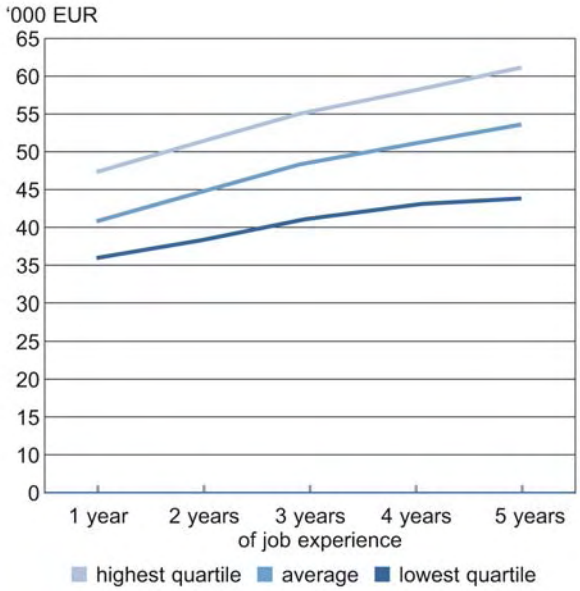
A third positive aspect is the flexibility of HCCs: they can adapt to almost any need the student might have, be it one-time payments, current living cost or tuition fee financings etc. Other than most state-granted financing instruments, HCCs do not necessarily have to look at the students' financial strength. The financial resources of the student or his parents may not play a role, thus allowing for a very fair and quality-based need-blind admission process.

9.8.2 Advantages to investors

Education Funds take away the risk of a fixed debt from students, enabling and motivating them to invest in their own career. In the case of a below-average income the students have to pay back less than the sum they were financed with. Why are Education funds (or HCCs) advantageous for investors?

Education Funds transfer the income risk of an individual to the fund level. The fund then diversifies the risk through the portfolio of many different students coming from different universities and studying different fields. It makes much more sense for one person (i.e. the investor) to invest in a portfolio of students than for one person (i.e. the student) to invest in his career. The latter will be much more risky. The fact that the fixing of the income percentage to be paid back can be calculated well due to the underlying statistical data, the cash flows can be calculated very reliable as well.

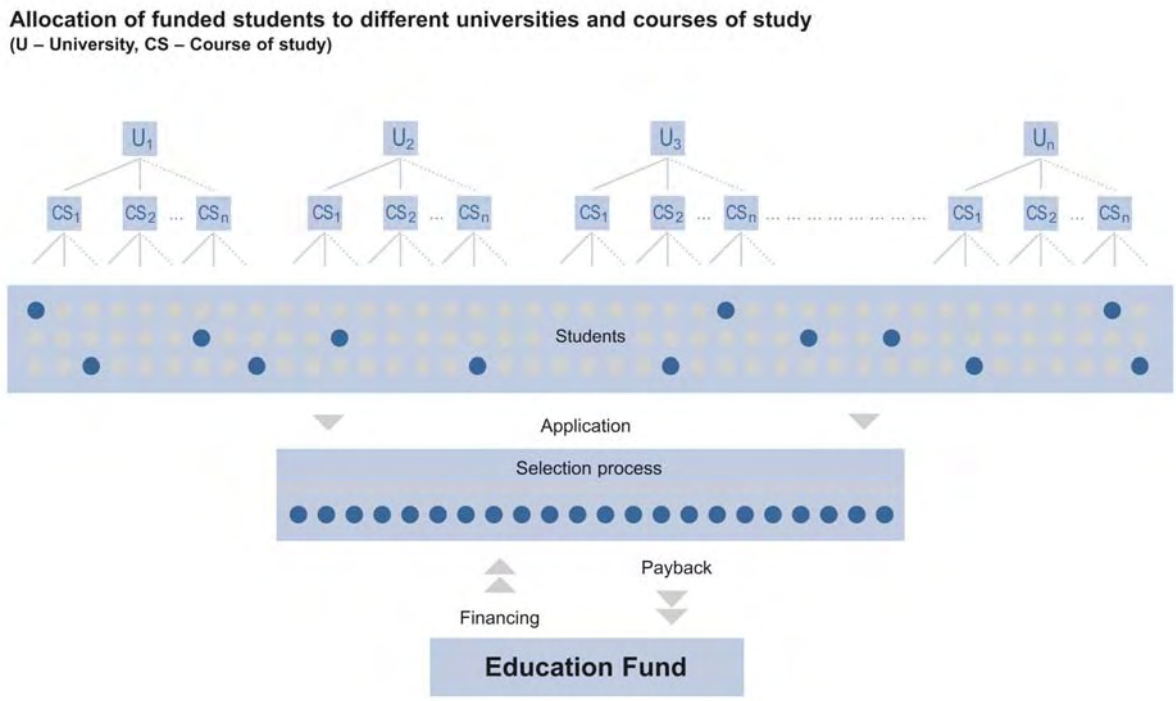
Figure 9.18: *Average income development for engineering majors*



Source: CareerConcept AG (2005a, p.17).

Consequently, the argument of a financial rate of return applies to all investor groups simultaneously. Every single investor can achieve a financial return with his actual invested capital being conserved. Additionally, Education Fund investments tend to have a very good risk-return-profile for two reasons: first, students from different universities, courses of study and age groups are financed.

Figure 9.19: *Diversification of Education Fund portfolio investments*



The second reason for an advantageous risk-return-profile is the small volatility of an Education Fund investment: if the students' payback is smaller or higher than expected, the return of the investment corresponds only slowly (CareerConcept AG 2005b, p.29).

Education Funds also offer additional advantages to prospective fund investors, depending on the specific nature of the investor. From a corporation's point of view, an investment in an Education Fund can also help to establish a close connection between the corporation itself and the funds' students through a network that is based on performance and return. The network allows for an early and close connection between both sides, for example through periodic meetings, internship and job offers, exclusive company presentations etc.). Corporations can also use HCC investments to ensure that they will be able to retain a value of the investment even from those individuals who decide to work for another firm (Khan 2004).

The students, on the other side, are given the opportunity to get to know companies already during their studies, thus getting an in-depth inside look at the economy and

its rules. In the long run, the network can be a valuable instrument for the students to find a potential employer.

A company can commit itself in unison with other investors, possibly other companies, but can also install a so-called company-specific Education Fund, by acting as a single investor of the fund. The latter has the advantage of a broader influence in a later selection process. When acting as one investor in a conglomerate of other investors, the company will have to accept the selection criteria decided for in the committee. However, if a company chooses to be the only investor in a company-specific fund, it can also decide on the selection criteria as well as on the entire arrangement of the selection process.

Education Funds help companies to finance and promote selected students of their targeted (human resources) group. This leads, in consequence, to saving costs in the personnel- and recruiting-departments. The promotion of education is usually connected to a certain acknowledgement by the public as well as by employees and customers (“image-effect”). In short, Education Funds can help to unite social with economical aims.

An argument for private investors may be to see their commitment as an emotional and idealistic investment (CareerConcept AG 2006b, p.05). As of today, many investment funds already exist, that are not only aiming at a high rate of return, but are also committed to ethical or social terms. For the state of Germany alone, ethical investments have achieved a fund volume in excess of 2.5 trillion EUR (Krieg and Schmutzler 2006, p.331).

A subgroup of private investors are alumni. Alumni, meaning former and graduated students of a specific college or university, can, with an investment, help their alma mater and its current students. The ties between alumni and alma mater are strengthened. Also, the establishment of an alumni-network can be initiated. Universities themselves can invest in their own Education Funds. Here, students are given a further financing method which in return brings a marketing effect to the university: if a school can offer its students a socially sound, mostly risk-free, inexpensive and fair higher education financing alternative, more students will be interested to study at that very institution. Offering HCCs or investing in a university-

specific Education Fund with the universities own assets could result in an enormous competitive advantage for the school.

Lastly, besides companies, private investors and universities foundations are an important investor group for Education Funds. Instead of investing the foundations capital entirely into shares or fixed income instruments, a portion of the capital can also be invested in Education Funds. This helps to achieve two aims at the same time: firstly, the foundation's capital is being invested wisely and helps education itself. Secondly, the gained return can be invested in the foundation's primary purpose. Not only the efficiency of the foundation's working capital, but also the effectiveness is increased.

9.8.3 Advantages to higher education institutions

Colleges and universities offering HCCs will, in an unsaturated market, have an advantage against competitors. As higher education financing plays an important role in almost every students' decision making process, universities offering a or an additional higher education financing instrument will be more attractive for students. And as in most countries a competition among higher education institutions has finally developed, most of them are in constant search of factors differentiating them from their competitors.

One will have to distinguish between (a) schools offering a fund themselves, where they are either the direct investor of an Education Fund via the school's asset management capabilities or (b) a pseudo-investor in a virtual Education Fund through deferring the tuition fees, and (c) an investor investing in a university-specific fund. In the first case (e.g. university as investor), the marketing effect is much larger, as the university emphasizes its trust in the students' future development and career.

In practice, a competition among universities offering HCCs can already be observed. In Germany there are only a couple of highly established private schools for economics. When the first Education Fund was offered at European Business

School (ebs) through CareerConcept, others followed immediately. As of today, there are Education Funds either implemented or at least planned for all of the country's top private colleges. The reason for this was the great demand by the students, which no university could withstand. And as most mentioned universities are offering a very similar curriculum with small differentiation potential, all schools had to catch up to the first one offering HCCs to its students.

9.8.4 Adverse Selection

When financing human capital through HCCs, asymmetric information plays an important role. This fact bases on the large difference in information between sellers and buyers. While the financed students have a clear idea about their future plans and are much more aware of their own capabilities than the financier, an asymmetric distribution of information can be assumed. In microeconomic theory, asymmetric information almost always leads to adverse selection. In respect to HCCs, asymmetric information might lead to an uneven distribution of the students financed: students may feel that information held by the financier about their past careers and future potential reflects the student's image more positively than it actually is (or the student feels it is). Thus, adverse selection can be a problem when students who expect to earn low incomes are more willing to sell a percentage of their future incomes to a potential investor, who in return anticipates a much higher return than the student. In theory, this group of students will be more likely to sign a HCC than students who feel more self-assured about the future career path. However, the problem of adverse selection is only a theoretical one. There are three reasons why adverse selection will not disturb the market of HCCs in practice:

1. Each individual has his own private level of risk aversion. As HCCs are an insurance instrument designed to take away risk from individuals, there might be students with informational advance. But, one the other hand, they are still willing to pay the price for the HCCs as they have a high risk aversion. Thus, risk aversion will alter the risk asymmetry curve.
2. Asymmetric information can be dualistic: while it is argued that students have a much clearer image about their own potential, the underwriter of HCCs, on

the other side, have better information about the average income development of students. Thus, the individual student might foresee his future income with a much greater variance than the underwriter.

3. If there is asymmetric information, it takes place at the time of contract signature. Empirical studies have stated that most students have a very different understanding of their future income at the beginning of their studies than at the point of graduation. Therefore, possible asymmetric information might be existent. Another question to be asked is if it has any effects in practice.

Theorists might argue that there is indeed a good chance of adverse selection when Human Capital Contract and a fixed income loan with the same (expected) rate of return are offered simultaneously, meaning, that for an average student, the ex post interest rate to be paid will be the same in the case of the loan and the HCC.

First, this is a very theoretical example. Usually the two instruments will not have the same expected rate of return (i.e. interest rate). Second, it must hold true that both higher education financing instruments are available at a given market, which is not always the case. Third, this concept of a rational person totally neglects human incapabilities and inefficiencies, as for example different levels of risk-aversion. If humans were perfectly rational, it would be unwise for all of us to insure ourselves against all possible unwished events. However, an immense market for insurance has developed. It is very similar with Human Capital Contracts. There is no pure theoretical eligibility of existence. But as soon as one adds the human factor of risk-aversion, one can very much understand the great advantage such an instrument offers compared to any form of loans. Also, the difference between two interest rates of for example 100 base points in a 10.000 Euro loan for a year is only a small absolute 100 Euro.

So far, adverse selection does not play a large role in the Human Capital Contracts market in practice, because the different perceptions of the individual's future development are not at all closely correlated to their actual progression. In contrast: is has been found by German HCC supplier CareerConcept that most of the - German – elite students in economics expecting a very fast career have performed

worse than those who were expecting a rather average career due to their lack of self-assurance.

Also, moral hazard might be seen as a risk when underwriting HCCs. Moral hazard happens when one contactor changes his behaviour with the clear aim of harming the other side. For example, a person buying a well-underwritten anti-theft insurance for his car just to have the care stolen is a good example of moral hazard, as the insurer will not know the plans of the insured before the signing of the insurance contract. Transferred to human capital investment, one could imagine a student who is financed through a Human Capital Contract. Later, at the time of payback, the student then chooses a lower-paying job than he would have done without the HCC signed. Another example would be the student emigrating to a foreign country, choosing never to come back to the country where he signed the Human Capital Contract in order to avoid payback.

For a rational person, it would never be opportune to choose a career not fitting his very own beliefs just because he wants to harm the other side. As the percentage of payback in Human Capital Contracts usually does not exceed 15%, the remaining 85% will make a direct impact on the student. It therefore would not be rational for the student to alter his income – and therefore also the 85% that remain his – just to do damage to the investor. A perfectly rational person would always try to get the best out of his career, even if the payback was 99%, with only 1% remaining.

Also, the altering of living circumstances as – for example – moving to another country for the sole reason of avoiding payback does not follow the concept of a rational person. In practice, as well, no student would ever accept the impossibility of coming back until the fraud has become time-barred, just because he wants to bypass the payment of a minor percentage of his income for a limited amount of time. Therefore, moral hazard – just as adverse selection – is negligible in the concept of Human Capital Contracts in practice.

The problem of adverse selection can be mitigated by adjusting the contract to reflect as accurately as possible the earning potential of the student. Thus, each category of potential earners would be priced differently (Werhane, 2004, p.41).

9.8.5 Summary

Summarizing the evaluation of Human Capital Contracts, the following marks are given: for “income contingency” the higher education financing instrument of Human Capital Contracts receive the grade excellent (1.0), as the income contingency is of “pure” nature. “Availability” is rated medium (3.0), as – depending on the investor – all “worthy” students are usually granted a financing. In order to mare reliable judgements, a scoring process helps and makes the accomplishment of the contract independent of the financial resources of the student and his family. As Human Capital Contracts are the most flexible higher education financing instrument, because each contract can be structured individually, contrary to loan programmes, whose conditions are defined for all participants identically, the criterion of “flexibility” is marked excellent (1.0). Next, “feasibility” is rated with a deduction to the grade for conventional and Income Contingent Loans, as HCCs are not yet as common and the costs of implementation as well as informational costs still remain high. Then result is medium (4.0). “Financibility” is given a very good (2.0), as investors, either of institutional or private nature, are constantly looking for new ways to invest. Lastly, “adjacent requirements” are ranked excellent (1.0), as Human Capital Contracts are by far the most “private” of all higher education financing instruments and do not receive any form of subsidization. Compared to the other instruments, Human Capital Contracts receive the best mark.

Figure 9.20: *Evaluation summary for Human Capital Contract*

Human Capital Contract	excellent (1.0)	very good (2.0)	good (3.0)	medium (4.0)	satisfac-tory (5.0)	unsatis-factory (6.0)	Weighting	Result
1st criterion: income contingency	X						0.2	0.2
2nd criterion: availability			X				0.2	0.6
3rd criterion: flexibility	X						0.1	0.1
4th criterion: feasibility				X			0.2	0.8
5th criterion: financibility		X					0.2	0.4
6th criterion: adjacent requirements	X						0.1	0.1
Final Result								2.2

Chapter 10

Human Capital Options as a possible solution?

10.1 Human Capital Options – how they work

This chapter wants to introduce an additional instrument for financing higher education: Human Capital Options (HCOs). Unlike conventional loans, Income Contingent Loans or Human Capital Contracts, Human Capital Options have not yet been realized in practice and therefore remain a theoretical instrument. Human Capital Options do not differ in their basic idea from options in the financial world. Therefore, the functionality of (financial) options is shortly explained first, before the know-how is exemplarily transferred to Human Capital Options.

Although the theoretical number of possible constellations for options is unlimited, the world of options is made up of four basic types: the long-call, the short-call, the long-put and the short-put. Both (long-)types of financial options do have one common feature: they securitize the right to buy (call) or sell (put) a certain amount of an underlying asset (for example one share in a specific company), that can be bought by paying a certain price, the option premium. The buyer of that right acquires the option from a so-called underwriter (Uszczapowski, p.44). The underwriter, or seller, of the option then has the obligation to fulfil the deal if the buyer exercises the option.

As the option represents only the right, but not the obligation to buy or sell, one may or may not exercise the option. The development in the price of the underlying price

will be the criterion that either makes it favourable or disadvantageous to exercise. If, however, the option is exercised, the underwriter is – in contrast to the buyer - obliged to carry out the transaction. Through the exercise of the option, the certified right expires. If the option is not carried out, the right also expires at the end of its duration. Options, which can be exercised anytime within the duration are called American options. Options, which can only be carried out at the end of their duration, are called European options. The geographical descriptions have no connection to the place of trading. In both continents the American and the European types are traded. If somebody buys an option, regardless of the type (call or put), some other party has to sell the option. Therefore, one differentiates between the buying of an option (long) or the sale of an option (short). However, the latter represents no right, but an obligation. In total, there are two general types of an option (call and put), including two sides for each type (long and short):

Option type 1 – long-call:
right to buy a certain amount of an underlying asset at a pre-defined strike price.

Option type 2 – short-call:
obligation to sell a certain amount of an underlying asset at a pre-defined strike price.

Option type 3 – long-put:
right to sell a certain amount of an underlying asset at a pre-defined strike price.

Option type 4 – short-put:
obligation to buy a certain amount of an underlying asset at a pre-defined strike price.

Let’s assume the following deal: the buyer of a long-call is given the right to buy a share of SallieMae Corporation, or SMC, at a strike price of USD 40 per share. The right can be exercised only at the end of the maturity, which, in our example, is October 10, 2008. Thus, the buyer holds a European option. The price for the option is USD 4. On October 10, 2008, the owner of the option is free to decide whether he wants to carry out his right to buy a share of SMC. To make his decision, the owner must know the price of the share at that date.

From here, two scenarios are possible: in the first case, the share price of SMC on October 10, 2008, is higher than the strike price of USD 40. Here it would be rational for the owner to exercise his right, as he would make a profit with the transaction: if the actual price was for example USD 45, he could, by carrying out the right, make a profit of USD 5 by buying the share at USD 40 from the underwriter and reselling it on the market for USD 45. However, one must bear in mind that the owner already had transaction costs of USD 4 for the price of the option. His net profit is USD 1.

Let's now consider the second scenario. If a share price of SMC on October 10, 2008, is an assumed USD 38, the owner would not exercise his right. It would be cheaper to buy one share on the stock market for USD 38, rather than pay USD 40 to the underwriter. In this example, the owner lets the option expire and makes a net loss in the size of the price of the option (i.e. USD 4). Ex post, the option was worthless to the owner.

How can the option theory now be transferred to the human capital theory? The underlying asset of an option must not necessarily be a share of a company. It can also be some other asset, like raw material, real estate or human capital, e.g. the value of the earnings of an individual over a specific, pre-defined period of time. The latter shall not be mixed up with the maturity date of the option, as both dates can differ.

An example: a student, Thomas, wants to have the opportunity to sell a percentage of his future income to an investor. Thomas just started his engineering studies. He received a loan from a bank in order to finance the cost of his studies, including tuition fees and the regular cost for living. As Thomas does not know whether he will be able to pay back the monthly rates to the bank, he buys a HCO-put. The loan payback is defined to be only over a one year period after job entry. The put insures him against a lower than expected income development. As the buyer of the HCO, Thomas will have to pay a price.

Thomas calculated that whenever we would earn less than EUR 30,000 per year after graduation, he would not have enough capital in order to serve the bank. Thus, in Thomas' view, the strike price should be 30,000 EUR. The HCO put functions as follows: after his studies, Thomas begins his first job, which pays him an

unexpectedly low salary of EUR 20.000. Thomas is now facing the problem he was afraid of: he is not able to pay back his debt owing to the bank out of the cash-stream resulting from his job. Luckily, he had bought the HCO earlier: as he can sell his income (i.e. EUR 20,000) for 30,000 EUR, he makes a profit of 10,000 EUR, which can be used for the loan payback. Had he not bought the HCO, Thomas might be facing the problem of personal illiquidity.

The example shows only one possible concept for a HCO. Depending on the intention of the parties involved, there are infinite possibilities for HCOs. The example above could have been structured with a share of only 10% of Thomas' income rather than 100%. Also, the period of income participation could be prolonged to more than one year. Another way of altering the HCO is changing the maturity date, which must not necessarily coincide with the settlement date: HCOs could emerge, where the buyer must state whether he wishes to exercise the option without the profit being certain, however more probable; for instance, let the buyer of a long call be given the right to acquire 10% of a student's income for the first ten years of his job. As the student has just began his studies and the strike price is rather high (e.g. EUR 50,000), the exertion of the option is rather unsure. Consequently, the option price must be very small. The maturity date of the option is now defined as the day of graduation and not the day at the end of the 10-year-job-period. Therefore, the buyer does not know whether the exercise of the option at time of graduation will be profitable. As the investor has specific information about the student's chances to earn more than an average of EUR 50,000 p.a. over the next ten years (grade of diploma, macroeconomic data about the labour market, average incomes of students' peers etc.), he can estimate the students' chances of success (i.e. the probability of the exercise of the option to be profitable) much better than at the beginning of the students' studies. The investor then decides to exercise the option. The settlement, however, does not take place until the ten years have passed and the income data is proven. Both sides will have to wait until they know whether they made a win or a loss out of the HCO deal.

10.2 Evaluation of Human Capital Options

Unlike Human Capital Contracts, Human Capital Options are mainly to be regarded as a means of income insurance: with a signed HCO, the individual can protect himself against a lower than expected future income. Contrary to HCCs, the buyer of a HCO is not obliged to deliver to the seller a certain percentage of his future income. Much more, and only in the case of a worse than expected future income development, he receives a certain amount from the seller as he exercises the option. If his income develops better than expected, he only loses the fee paid upfront (i.e. the option price) for the – unexercised - option.

The particularity about options is that they can be easily combined with other financial instruments. For example, a combination of a HCO and an ICL is similar to a HCC. However, unlike HCCs and ICLs, HCOs have not yet been tested in practice. This could be partially due to the relative early stage of the development of the market of higher education funding. The past has shown that in the development of any financial market, the underlying asset was first bought and sold physically[18] before other instruments were developed. This allowed both parties to bet on the positive or negative development of the underlying asset without having to buy or sell the asset itself. The development of HCOs will most likely follow path of HCCs and ICLs.

As for the evaluation of Human Capital Options, it must be kept in mind that HCOs are not a per-se instrument of financing one's studies: the source of financing for a student is very limited. As pure "income-contingency" is given, it is rated excellent (1.0). A stated above, Human Capital Options have yet to be realized in practice and are – until today – only a theoretical construct, but may very soon be found in practice as well. Therefore, "availability" is marked satisfactory (5.0). HCOs can be designed due to the preferences or the parties involved – there are no restrictive limitations: "flexibility" is ranked excellent (1.0). Next, "feasibility" considers the aptitude of HCOs to be efficiently conversed into practice. As the feasibility of HCOs is margined, it is rated medium (4.0). Next, the "financibility" is marked unsatisfactory (6.0), because HCOs will never be – as a sole instrument – a method to finance the higher education of students and will only be used auxiliary. Finally, adjacent

[18] As for example company shares at any stock exchange

requirements are also rated unsatisfactory (6.0). In sum, HCOs receive a rating of 3.9. Again, this rating must be considered carefully when comparing the instrument to others, as HCOs have a different character.

Figure 10.1: *Evaluation summary for Human Capital Option*

Human Capital Option	excellent (1.0)	very good (2.0)	good (3.0)	medium (4.0)	satisfac-tory (5.0)	unsatis-factory (6.0)	Weighting	Result
1st criterion: income contingency	X						0.2	0.2
2nd criterion: availability					X		0.2	1.0
3rd criterion: flexibility	X						0.1	0.1
4th criterion: feasibility				X			0.2	0.8
5th criterion: financibility						X	0.2	1.2
6th criterion: adjacent requirements						X	0.1	0.6
Final Result								**3.9**

Chapter 11

Conclusion and outlook

The main objective of the dissertation was to evaluate and compare higher education financing instruments in regard to their practical advantageousness. None of the publications covering higher education financing so far have dealt with the question of practicability and market acceptance of the different higher education financing instruments currently being offered. The author intended to close this gap, providing a practical analysis of the mode of operation as well as a thorough comparison of private higher education financing instruments in respect to their applicability.

Due to the findings of the author, Human Capital Contracts have the prerequisites to surpass all other higher education financing models presented like conventional study loans, Income Contingent Loans and Human Capital Options. The results, however, must be restricted to two main conditions:

First, Human Capital Contracts may not be the best choice for every region in the world. In some parts, Human Capital Contracts may not be universally implementable, due to either limiting social factors or political and juridical obstacles. One must look at the different political, social and economical conditions in order to foresee the chances for Human Capital Contracts in any given specific region.

Consequently, no general outlook can be given for all world regions. Therefore, the author limits his findings to Europe and North America as regions for which predictions can be proposed. However, the fast development of private higher education funding instruments as Income Contingent Loans and Human Capital

Contracts will foster more complex structures of new higher education financing instruments, which are still to be examined and compared. As the US have been leading in the development of new financial instruments, it will most likely be the country in which we will see the creation of a broad market for (new) higher education financing instruments. The implementation of Human Capital Options in practice is probably the next step in this direction.

The limitation to Europe and North America does not mean that a broad application of Human Capital Contracts in other parts of the world, as for example South America, a continent with comparably low levels of income and consequently little (private) resources for (higher) education funding, but a high level of (academic) talent, will not lead to even better results than in the continents named above. It may be that Human Capital Contracts could have a disproportionate good effect specifically in these parts of the world.

Second, the findings of the dissertation are to be understood as practical rather than theoretical. In theory, Human Capital Contracts might sometimes be, depending on their design and conditions, even disadvantageous compared to Income Contingent Loans. But on general terms, Human Capital Contracts are superior to the other instruments analysed in both dimensions, theory and practice, in regards to all six criteria examined.

With his results the author has shown the three hypotheses posed at the beginning of the dissertations to be true: first, the author found an equity based higher education financing solution to be better than a debenture based solution, as equity based solutions per definition contain the element of pure income contingency. Second, Human Capital Contracts win the direct comparison against other higher education financing instruments and are therefore regarded as the best solution for higher education financing. And third, Human Capital Contracts are a socially sound solution, as they offer every qualified student higher education financing, thereby – on an individual basis - closing the gap between his financial needs and resources and – on a macroeconomic level – offering an answer to the problem of market failure of higher education financing.

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