Providentia

Decentralized marketplace for student's financing

ConsenSys Labs Virtual Hackathon

Beyond Blockchain Relay

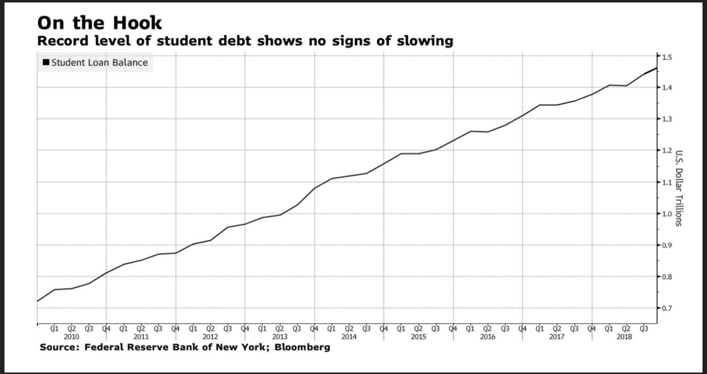
Current student loan market

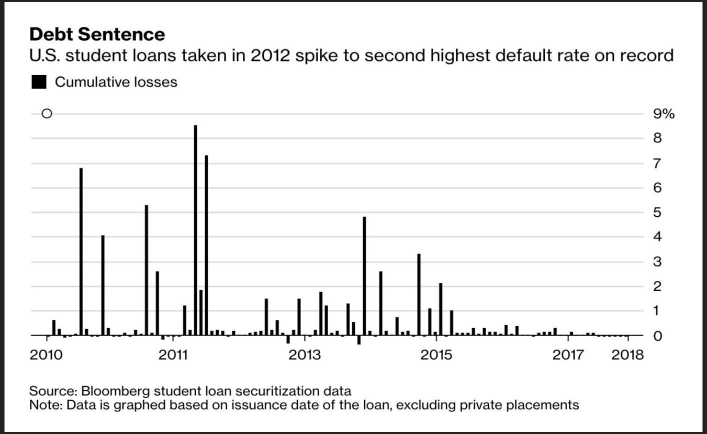
Loans issued about six years ago have the **highest cumulative loss percentage compared to any other year since the financial crisis ended**.

Students who took a loan in 2012 have had a much more difficult time making their monthly payments compared to students who received loans shortly before and after

Over 90% of student loans are guaranteed by the U.S. Department of Education, meaning that if a recession causes a rise in youth unemployment and triggers mass defaults, this contingent liability could prove burdensome for the U.S. government budget.

The **US student debt is $1.52 trillion and 44 million borrowers owe this debt**.





Problems with current student loan system

Students

- No flexibility with repayments (no job after school means low FICO and potential default)
- No grace period
- It's not a global market (foreign students struggle to get a student loan in a different country)

Schools

- Most schools are not able to provide the value to students that they are looking for (i.e. salary expectation after job, help find the ideal job instead of just a job)
- Skills are not always in line with the job market - no strong incentive to stay constantly updated

Investors

- Current student loan market offers low interest with high risk
- Most loans are backed by government causing the collapse of the whole market

Incentives among students, schools and investors are not aligned

Use Case

Use Case

Sara

She is a senior at high school (4.0 GPA)

She’s can apply for the best 20 colleges in the world

She’s looking to learn coding and become a developer

She needs financing to pay tuitions

Current alternatives for Sara

College/university
avg tuition: $8k-$40k/year

PURDUE UNIVERSITY

Georgia State University

Coding Bootcamp
Avg tuition: $9k - $30k

Lambda

GA GENERAL ASSEMBLY

Alternatives: College / University

Sara

- After 4 years of college: Ca. $40k debt (US average)
- At the end of college she is forced to find a job to repay the debt
- Sara has to repay no matter the salary is (even though the salary could be very low)

College

- Once Sara’s enroll in the school the college get their tuition
- There is no strong incentives on student performance (now schools are mostly based on reputation, not on effective market performance)

Investors

- Most lenders are huge institutions, such as international banks or the government.
- Other players have no incentive to fund students: low interest rate and high risk
- Banks are often incentivized to move loans off the books and sell them. Since almost all loans are fully guaranteed by the government, banks can sell them for a higher price, because default risk is not transferred with the asset.

Alternatives: Coding bootcamps with ISAs

Sara

- Apply for a coding bootcamp school (i.e. Lambda School) signing a ISA *(Income Share Agreement)*.
- Instead of paying tuition, Sara agrees to pay a % of its income (17% Lambda School) for the first two years that they're employed.
- There is a minimum income threshold ($50k Lambda School) and caps total payments ($30k Lambda School)

Bootcamp

- School is incentivized to find the best job opportunities for the students
- They deal with ISA and financing bureaucracy
- They have to find investors in the market to eventually fund the ISAs

Investors

- Most of the time schools act as investors
- Schools have to do the job of finding investors losing his focus (make students ready for the job market)
- There is not an open market for ISAs

Lambda

GENERAL ASSEMBLY

Solution: Align Incentives

Sara

- Use a marketplace with public stats to make better decision on which school enroll
- Apply for the financing in the marketplace
- Repay the financing only if they reach a certain salary
- Access to a global financing market
- Have full transparency on the best schools (employment rates, avg. salary, ...)

Schools

- Increase the number of students due to a better financing
- Provide a public track record of their effective performance (employment rate, avg. salary)
- Attract global external investors to finance the students
- Strong incentives to have great student performance being part of a marketplace

Investors

- Opportunity to invest in student financing with a new financial assets that has higher yield and low risk
- Have full transparency on the schools performance
- Opportunity to trade the investment in a secondary market
- Track schools and students performance real time

Providentia is an hybrid model between traditional financing and ISAs

Product-Market Fit

Go-to market strategy: early adopters / niche market

Students

Aspiriging Developers

Open to use new type of financing

Low risk on financing since the high demand in coding jobs

Schools

Coding bootcamps

Interested in find a new way of finance their programs.

Open to partner with platforms who help them acquire new students.

Open to show their performance

Goal is to increase enrollments and student satisfaction

Interested in focusing on their core business: make students job-ready

Investors

VC focused on new class assets

They are open to discuss new type of investments

They are risk takers: without track records is important to find investors who are more interested in the opportunity vs historical data

Test

Main Pain Point	SME

Hypothesis

Without investors the system will not work.

There will be no supply to fund the students.

What to validate?

Will investors be interested in using Providentia to invest in students

Ali Hamed

Partner at CoVenture VC

Why we choose Ali?

Coventure VC makes investments in “new asset” classes and they are exploring investments in new education models.

What to test with Ali?

Will Coventure evaluate an investment in students using a decentralized marketplace?

Result

Ali's Main Inputs	Where Providentia needs to focus
"In the current market there is limited data to tell how coding schools are going to do. The less data, the looser the confidence interval, the more I need to get paid for the debt"	Schools info and full transparency is crucial to attract investors
"Difficult to monitor mid-cycle — it is hard to tell how a loan is doing until fully repaid"	Add a credit score that includes predictive info to track how the investment is performing
"One of my primary concerns remains with the fact that I am taking unsecured consumer credit and getting too low of a yield. Do you envision this improving the yield I'd be getting?"	The focus has to be on increasing returns and reducing risks

Product

The solution

Providentia

A decentralized marketplace for student financing / ISAs

Providentia aligns incentives among students, schools and investors creating a new assets class (the token) based on students' and school performance.

The marketplace allows investors to invest in schools and students and track the investment with full transparency using the built-in credit score algorithm. The token is tradable creating a secondary market for the asset.

Schools have the incentive to focus on student's performance in order to attract external investors.

Students are provided with a platform to select the best schools based on their performance , apply for the immediate financing and focus on finding the best job.

How it works: Pre-investment

Student

1. Enroll in the school / Applies for a student financing

6. Receives the money (excluding tuition) from the school

Investor

2. Funds an investment offer (interest rate at minimum salary)

7. Gets the tokens from the contract

Providentia

4. Issues the tokens to investors

School

3. Accepts the investment offer

5. Receives the agreed tuition money

How it works: Post-investment

Student

Provides valuable data for his career (i.e. github / linkedin)

Repay monthly the financing once the salary reach a min of $50k /year

Investor

Has visibility on the token and its risk and make financial decision (i.e. sell now the token because the default risk is lover and can make a capital gain)

Providentia

Credit Score is updated with data about underlying student performance

School

Provides student data (grades, internship) or update insight market data (i.e. average salary of first job, employment rate, etc.)

Why Blockchain?

Benefits

- Build a decentralized track record
- Performance transparency (schools performance will be public and available to everyone)
- Global opportunities (for students to apply in international school, schools to attract international students, investors to invest globally)
- Smart contracts enforcement allow low fees
- The investment / token could be traded instantly anywhere on the world with infinite divisibility
- Transparent and immediate updated credit score on blockchain allow more accurate investment analysis
- Highest level of Security

Credit Score Algorithm

Once the loan is underwritten Providentia releases ERC1155 tokens to investors

The credit score of the token will be updated with the following info based on several predictive data / machine learning:

- Student performance: grades, projects, internship, etc…
- Alerts: check if user started a job
- School data: average salary, employment rate, time to employment
- Market data: industry average salary, unemployment rate

Providentia v1 (prototype on testnet)

Main features

Students can apply for the financing ($10k) using their school ID

Investors can choose to invest in single students ($10k) or a portfolio of students based on historical values. The investment are made using DAI

Schools accept the financing request. The DAI are sent to the school. The investors receive the tokens (ERC1155) representing the student/s

Students can repay the financing monthly. The monthly amount depends on the annual salary of the student

Url: https://providentia.network

Github Repo: https://github.com/ugolino/providentia

Project Wiki: https://github.com/ugolino/providentia/wiki

Full Contract wiki: https://github.com/ugolino/providentia/wiki/4.-How-does-the-contract-work-%3F

Goal of the prototype

Show potential investors and schools show the platform will work and the main benefits for them. Collect leads from schools.

Potential

Is the market ready?

Right Timing

The current loan market is collapsing. There is a need for new type of student financing

ISAs are growing in popularity and the Lambda School proved the model could work. Even some colleges are testing ISAs (Purdue University)

In 2019, Tony James, executive vice chairman of money manager Blackstone Group LP, formed the Education Finance Institute to help schools study and develop ISAs.

Opportunities

Providentia technology could be used for any type of school / university worldwide.

Companies could invest in employees (i.e. consulting companies paying MBA for the top consultants) or future employes (tech company pre-investing in talented devs before hire them)

Providentia model could be applied for any type of actors: i.e. high schools could incentivize professors by providing them students tokens. If the students succeed in the long-term professors will directly benefit.

The model could also be applied in other industries to incentivize the actors to better perform. (i.e. a basketball coach investing in players)

Who we are / Why we built Providenta

Daniele

Entrepreneur / Full-stack developer

Daniele has been in the education space for 4+ years as the co-founder of Lacerba.io, an italian online school focused on digital skills.

Prior to work on Lacerba, Daniele used to work on investment banking.

Providentia is the result of his finance background and knowledge of the education industry.

Rachid

Back-end and Blockchain developer

Rachid main focus has been to develop back-end applications and provide guidance to junior software developers into C#, Python, Rust and Java.

Rachid has been developing blockchain applications for more than a year and he is an active member of the Ethereum community.

Providentia is the solution to the current problem in the student loan market in order to prevent students to get drained for their education.

Attachments

Financing / Returns Example

Terms		
financing	$	10,000.00
total duration (months)		15
interest (% salary)		17%
max cap	$	20,000.00

yearly salary	$	-	$	50,000.00	$	80,000.00	$	100,000.00	$	150,000.00
monthly salary	$	-	$	4,166.67	$	6,666.67	$	8,333.33	$	12,500.00
total repayment	$	-	$	10,625.00	$	17,000.00	$	20,000.00	$	20,000.00
return for investors		-100%		6%		70%		100%		100%

Sources

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