SHARES IN PEOPLE

Students could finance their studies through selling equity in their future income, argues **Joseph Clark**

One of the big advantages of a modern society is the ability to borrow money. For a price, and provided certain securities are in place, people can borrow large sums of money to pay for houses, businesses, education, and so forth. This is a good thing for two reasons: first, it allows people to smooth their income over their life span—having a little more when their income is low and a little less when it is high; second, it allows the cost of big-ticket items —such as houses—to be spread over many years rather than paid all at once. Borrowing money in this way is much like issuing a bond. Interest is paid at regular intervals and the principal is paid back by (or on) an agreed date. The question posed here is this: if an individual can issue a bond to raise money, why not also shares?

Let us first be clear on what this would mean. Someone issuing a share would sell some fraction of his future income to the market. This share would assure its owner a portion of the income received by the individual (by way of a dividend), and the right to resell that share to the market. Consider a simple example: I sell 1% of my pre-tax income to the market for the next 20 years. Under reasonable assumptions (real income growth of 3%, discount rate of 5%, inflation rate of 2%, starting income of $60,000), this would be worth around $13,000. Each year I pay a dividend of 1% of my gross income to my shareholder.[1] If I do well, and make my millions, my shareholder shares in my success. If I do poorly, so does my shareholder.

But why would anybody want to issue (or buy) equity in another person's income? Why not simply lend the money to an individual and be sure of repayment? The answer is risk sharing. Most large loans made by banks are very low risk from a bank's

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perspective. By guaranteeing a level of repayment, the person who takes out the loan takes the risk of their own income being lower than expected. If they do default on their payments, the bank has a strong legal claim to their assets, including future income. For this reason the returns on debt are never much higher than the prevailing interest rate[2] and people are typically conservative about taking on debt. If, instead of guaranteeing a certain rate of repayment, repayments are linked to the fortunes of the debtor (by linking payments to income, for instance), borrowing money becomes a much more attractive option. The financer takes on some of the risk of hard times, but is rewarded with a higher expected rate of return and with the possibility of high returns in good times.

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This type of financing, where a person issues shares in their own future income, will here be called a *personal equity issuance*. One of the most likely uses of personal equity issuance is to finance education. The idea is simple: a student entering university pays for his education by selling some portion of his future income to the market. Exactly how much he receives for this share depends on the student, the training undertaken, and the market's willingness to pay.

A generic contract

A generic personal equity contract might look like this:

I agree to pay *a%* of my annual gross, pre-tax income on 1 July of each year between date *b* and *c* in consideration of a sum of *$d* paid on date *e*.

For instance,

I agree to pay 4% of my gross, pre-tax income on 1 July of each year between 2006 and 2015 in consideration of a sum of $10,000 paid on 1 January 2006.

The value of the share depends on the income stream of the individual and the appropriate discount rate. To calculate the value of the equity, the buyer adds together the expected value of the discounted payments and adds a risk premium; the greater the uncertainty over the value of the equity, the greater the risk premium. A separate paper contains some technical details.[3]

An example: financing tertiary education with personal equity

The current HECS-HELP/FEE-HELP system allows students partially to finance their education by taking on income-contingent debt. Repayment rates are linked to the income of the student so those with low incomes are not burdened by large debt repayments. This system goes some way to solving the affordability problem, but it is unsatisfactory in at least three respects. First, the size of the debt incurred is capped by the government. The cap reflects neither the cost of provision nor the demand for courses, resulting in predictable mismatches of demand and supply. Second, no distinction is made between income prospects in determining the conditions of the debt. Logic would dictate that students entering courses with high future earning prospects could be lent money on different terms than those with lower earning prospects. The lack of such a distinction results in serious credit rationing against many longer or higher cost degrees with higher income prospects. Third, the loans system does not allow students to borrow for books or materials or income support. The real cost of education for students is far more than deferred payment of HECS contributions.

The example below considers the possibility of replacing the current government-administered debt system with privately funded equity. This would maintain affordability (via income contingency), allow more flexible pricing and terms, and accommodate financing of materials and income support.

Say a student wants to study a Bachelor of Laws at a good university. He expects to make $35,000 in his first year out, and average 5 percent wage growth for the next 20 years. He offers 3% of his income for the first 20 years of his working life. If he finishes his degree in four years, this would be worth around $20,000 in today's dollars.[4] This is worth almost twice the value of a current $20,000 HECS debt.[5]

The most obvious advantage of this type of financing is that it would allow more students to go to university. If money can be made available up-front, universities will quickly make more places available.

More importantly, the prices given to income shares of graduates would give the market a chance to price degrees effectively. In a free economy, prices are signals which direct resources to their most valued use. If coffee fetches a high price, it signals that coffee is highly valued. The market will respond by reallocating resources to coffee production. The coffee producers—the growers, grinders, packers, importers, etc —do not have to theorise about the demand for coffee or receive advice from government. They simply observe the high price and produce more. The same principle holds in education. If a professional qualification (say, an economics degree) is highly valued in the market, graduates can expect a higher level of income once they finish their degrees. Knowing this, the market will pay more for a share of that future income. Seeing this higher price, universities will be able to devote more resources to producing more highly valued graduates.

These prices would also go some way to resolving the uncertainty facing potential students. At present, many students have only the advice of their parents, the choices of their friends, and the sales pitches of university departments to guide their choice of degree. If they could observe the prices of different equity contracts, they would quickly infer what they can expect to make in each profession. If an equity contract for a nursing degree pays more than for a business degree, students will know that the market thinks nurses will be higher paid than business majors in the long run. Just as a high price of coffee works as a signal to produce more coffee, a high equity price for botany degrees would work as a signal to produce more botanists.

If the market for these contracts grew large enough, these income shares could be floated on an exchange. Instead of buying BHP and Telstra, investors could buy the future income of doctors, lawyers, engineers, and anthropologists. Bloated superannuation funds could finance the retirement of their members by financing the education of a whole new generation of members. Cashed up retirees could dump their shares in Gold Coast property trusts and invest in half a dozen speech therapists. I would buy dentists, actuaries, and mechanical engineers.

A developed equity market for tertiary education would not necessarily mean that the market would be purely private. Government could purchase equity in students (possibly linked to a particular degree) on the open market. This would have the obvious advantage of allowing the government complete flexibility in the payment and conditionality. There is no obvious reason why the government could not conduct all its education financing in this way.

Objections

There are three major problems associated with personal equity (as with all equity): adverse selection (people with poor income prospects will want to sell more of their income on the market[6]), moral hazard (once a person has issued shares, he has a reduced incentive to work hard and earn money), and uncertainty (the market might consider the equity too risky and demand an unreasonable risk premium or simply not buy it). These are all serious difficulties, but there is no reason why they could not be overcome, or at least substantially reduced.

The adverse selection problem can be greatly reduced if there is a good way to identify different income prospects. As a starting point, financial institutions already have a substantial apparatus for determining repayment prospects for debt. This would apply equally well to determining income prospects for equity. School/university grades, university course, aptitude tests, current employment, demographics, and the like could also be used as predictors.

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The moral hazard problem for personal equity can be greatly overstated. Provided the individuals have sold relatively small portions of their future income, their interests are strongly aligned with those of their shareholders—if I sell 5% of my future income, I still have a financial interest in the remaining 95%. To the extent that moral hazard is a problem, its effects can be greatly reduced by the

introduction of further clauses into the contract. A contract might limit the amount of equity that an individual can sell in future, or (in the case of equity to finance education) link the rate of repayment to performance in the degree.

Uncertainty can be reduced by intelligent diversification of risk. It may be that nobody would be willing to buy a portion of the income of a single software engineer on the grounds that there is too much uncertainty associated with the fate of that one individual. But there might be a market for a share of the *average* income of a group of one hundred software engineers. A prudent investor might hold a diversified portfolio of engineers (low risk), lawyers (medium risk), and IT students (high risk). Some might wish to tailor their risk by purchasing a share in the top 10% of income earners in the group, or the bottom 20%, or whatever. Others might buy or issue options or swaps. The possibilities are limited only by the imagination of the financial community.

A future for personal equity

The basic idea of personal equity is that an individual can sell a share of his or her future income to the market. This share obtains a price according to the market's beliefs, and can be resold, split, tranched, and used as an underlying asset for derivatives. If the market is large enough, the incomes of individuals can be bought and sold on a centralised exchange just as the incomes of large companies are bought and sold on stock exchanges today.

In the market for personal finance, as with corporate finance, equity contracts have two main advantages over debt. The first advantage is the ability to share the risk between two parties. Whereas a debt contract only requires the lender to take on the risk of default, an equity contract requires the lender to take on the risk of the performance of an asset. This sharing of risk benefits the borrower, who no longer faces the risk of losing his assets if his income cannot support his debt repayments, and the lender, who can demand a premium for taking on the extra risk. The second advantage is that equity serves as an information revelation mechanism. The price of equity in an asset represents the market's consensus on the value of that asset in the future. This price gives individuals some measure of which activities are deemed more or less valuable by the market, and induces individuals to move to more valuable activities.

The idea of personal equity is not new. An employment contract is equity, so are many insurance contracts (particularly income insurance), so is marriage. But these contracts typically lack the flexibility of the corporate equity market; they often do not have a readily observable price, cannot be resold on an open market, and are not divisible into smaller contracts. It is this flexibility that gives the corporate equity market its strength. By imitating the structure of this more developed equity market, the market for personal equity has a good chance of achieving success.

Endnotes

1. To verify income, the contract could specify that the share issuer supply documents from the ATO verifying personal income.
2. Notable exceptions are credit-card debt and so called low-documentation debt, but these are indeed high risk.
3. For details on a simple pricing methodology, see "Pricing Personal Equity in Continuous Time" http://www.uq.edu.au/~uqjclar1/equitycont.pdf
4. This includes a discount rate of 5.5% and a 3% risk premium.
5. A $20,000 HECS debt would be worth somewhere between $10,000 and $15,000 for the student described.
6. And individuals with high income prospects will want to sell less.