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David Roodman's Microfinance Open Book Blog

Does Compartamos Charge 195% Interest?

January 31, 2011

By David Roodman Tags: Compartamos, interest rates, Tom Heinemann

[Update: To compare Compartamos to its Mexican peers on price, read **this** next.]

I have **told** how a question last fall from filmmaker Tom Heinemann prompted me to **measure the Grameen Bank's interest rate** as sharply as I could. At the time, he asked me not to mention his role in inspiring that post, so as not to step on his toes as he rolled out the documentary. (In the event, he used a figure higher than the one I calculated.)

Now it can be revealed: Tom asked me the same question about Mexico's Compartamos Banco, and I responded with another spreadsheet. I was interested for my own work, but since it was his idea, I held off blogging that result until today for basically the reason just given. The English premiere of his documentary was scheduled for today, and it unlike the Norwegian version apparently covers Mexico and India in addition to Bangladesh. The release event planned for today at the Overseas Development Institute has been postponed indefinitely…but that's enough waiting for my bit of analysis.

As you probably know, Compartamos's IPO in April 2007 touched off a controversy akin to the current Indian one, which also began with an IPO and then exploded with the Andhra Pradesh crackdown. In both IPOs, a few people made millions of dollars, inviting attacks of usury. There is one big difference this time around: while the government of Andhra Pradesh expressed outrage at microcreditors for charging more than 30%, Compartamos **charged 85%**—*98%* after value-added tax (VAT; "sales tax" for Americans). Makes you wonder what all the ruckus in India is about. Or, more carefully: makes you wonder whether the role of *interest rates* in India's troubles have been exaggerated. You can get into debt trouble at 0%.

Now, the price of credit from Compartamos has **glided down** since the IPO. And I learned from the Grameen Bank that pinning down the price of credit often requires analytical effort: it's not something you can generally look up on a website, unless **MF*Transparency*** has been on the job. In fact, MF*Transparency* has not measured Mexican microcredit rates yet because it needs the cooperation of the microcreditors and funding to proceed. This is ironic since it was Compartamos's high interest (along with a prod from Muhammad Yunus) that made Chuck Waterfield start MF*Transparency*.

So I had reasons to poke into the matter. Here, I am going to describe how I calculated the rate, show you some pretty huge numbers, then philosophize.

I analyzed what I believe is the main Compartamos loan product, **Crédito Mujer (Women Credit)** which is delivered through groups of 12–50 women in **village banks** in amounts of 1,500–27,000 pesos

(US$125–2,225) per person. This loan is repaid in 16 installments over 16 weeks (not quite the four months advertised on the web site, as Chuck Waterfield has **pointed out**, which matters for the effective interest rate). Roughly, the interest is a "flat rate" of 0.84%/week of the starting balance, or 16 × 0.84% = 13.4% over the full term. (This is before VAT: see below.) So right there, we're looking at 52 × 0.84% = 43.7%/year, easily on the high end of the **Indian range**.

And we're just getting started. As you should have learned in **Microfinance 101**, such a "flat rate," expressed relative to the opening balance, understates the true interest rate roughly twofold. People might think they are paying 13.4% interest over 16 weeks, but with weekly payments steadily reducing the principal to 0, the average balance over the term is about half the starting balance. If a woman borrows 1,000 pesos, her total interest of 16 × 0.84% × 1,000 = 134 pesos works out to 26.8% of an average balance of 500 pesos. In fact, the g-forces are so high at these interest rates that they bend the math; a precise calculation translates the flat rate of 13.4% into a more accurate "declining rate" of not 26.8% but 24.3%. (If you really want to know why: Crédito Mujer, like a fixed-rate mortgage, has constant payments. In the early payments, more pesos are interest, so the principal falls slowly at first. Halfway through the repayment period, the loan is less than half repaid, so the average balance over the term is more than half the starting balance and the declining rate is less than half the flat rate.)

24.3% per 16 weeks multiplies up to 79.1% per year. That exceeds the 71% that a Compartamos representative quoted to Tom Heinemann in e-mail but lines up very well with the Annualized Percentage Rate (APR) of 79.99% **posted on Compartamos's web site**.

Three more considerations increase the computed rate substantially (see my **spreadsheet**):

1. Compounding. Suppose the borrower paid all 134 pesos of interest in one installment at the end of the term rather than 16 installments during; suppose further that the schedule of principal repayments remained the same as before this change. Deferring the interest payments does not affect the interest rate as computed above: total interest and average outstanding balance would stay the same. Yet deferring interest would reduce the financial burden because it would give the borrower more time to reinvest her earnings in her business and expand it. A proper "effective APR" calculation that factors in the time value of money—that reflects the additional burden of having to pay interest before the end of the loan term—turns that 79.1% into 119.3%. In other words, the borrower's business would have to generate a weekly rate of return equivalent to 119.3%/year in order to break even on the loan. This calculation is the credit analog for the way that reinvesting interest in a savings account increases (compounds) the rate of return. My 119.3% lines up well with the "CAT" (Costo Anual Total) of 116.9% **that Compartamos reports, I believe by law**. Why the match is inexact, I don't know.

   At any rate (ha ha), it's important to keep in mind that while the interest fully compounds from borrower's point of view (in theory, every peso of early interest payment reduces the capital in her business, thus its growth, thus her future capacity to service the loan) Compartamos's revenue does not fully compound. That is, if it is charging 70%/year before compounding, and its operating costs (wages, rent, equipment) are 60%, then it can only reinvest the 10% margin in order to increase future profits. Compartamos is not *earning* 120.2%/year.

2. Value-added tax. Including a standard 16% VAT on the sales price of credit—the interest—raises the uncompounded rate to 91.8% and the compounded rate to 148.4%. Here too, it's important to distinguish the borrower's and the lender's points of view. The borrower does pay 91.8% or 148.4% but the lender does not earn that much since VAT goes to the government. (Apparently VAT is **11% near the U.S. border**.)

3. Forced savings. Compartamos requires borrowers to have savings equal to 10% of the starting loan balance, as a kind of collateral or emergency fund for weeks in which repayment is hard. The savings can be at any bank. According to the Compartamos representative Tom contacted, savers can expect to earn 4–8%/year. I use 8% to be conservative, i.e., bias the net cost of borrowing from Compartamos downward. (You can change this in the spreadsheet.) This requirement effectively reduces a 1,000 peso loan to 900 without reducing the interest charged. That raises the uncompounded rate to 87.0%, or 101.1% after VAT, and the compounded rate to 154.4%, or *195.3%* after VAT.

Arguably then, Compartamos credit costs nearly 200%/year, much more than you would guess from the 0.84%/week flat rate and much more than the 71–80% APR the bank tends to quote. Here's a table of the rate computed different ways:

Excluding VAT		Including VAT	
Weekly (no forced savings)	1.52%	Weekly (no forced savings)	1.76%
Monthly		Monthly	
Uncompounded	6.59%	Uncompounded	7.65%
Including forced savings	7.25%	Including forced savings	8.42%
Compounded	6.76%	Compounded	7.88%
Including forced savings	8.09%	Including forced savings	9.44%
16 weeks		16 weeks	
Uncompounded	24.26%	Uncompounded	28.15%
Including forced savings	26.69%	Including forced savings	31.00%
Compounded	27.23%	Compounded	32.18%
Including forced savings	33.16%	Including forced savings	39.38%
Annual		Annual	
Uncompounded	79.13%	Uncompounded	91.79%
Including forced savings	87.03%	Including forced savings	101.10%
Compounded	119.32%	Compounded	148.41%
Including forced savings	154.42%	Including forced savings	195.29%

So should we be outraged that what is pitched as 0.84%/week (or 1%/week with VAT) really costs 195.3%/year? Maybe. But I have three doubts.

First, it is not clear to me that we have cause to castigate Compartamos for opacity. On its website is a **credit simulator** that asks you for the parameters of a loan—amount borrowed, frequency of payments—then displays an **exact repayment schedule**, including VAT. The schedule could not be simpler: 16 equal payments, no other fees. Lord knows, probably most of Compartamos's 1.5 million clients cannot access this tool. But its presence may indicate a wider corporate practice. Clients may get the same schedules in hard copy when they borrow. Last October at the **Financial Access Initiative conference in New York** I asked Compartamos executive vice president and co-founder Carlos Danel if this is the case. He said it is.

Now, one can argue that disclosing a loan repayment schedule is morally inferior to disclosing an interest rate. No campesina is going to look at a 10% savings requirement and a series of 16 72.25-pesos payments on a 1,000-peso loan and infer 195.3%. Ergo, the argument goes, she is deceived about the *true* price she is paying. To be fair, if you squint at the bottom of the **loan schedule**, you'll find a link to the **interest rate disclosure** I have already cited (hat tip to Chuck Waterfield). Perhaps in dealing with borrowers, Compartamos similarly discloses interest rates in fine print.

But I am not sure that Compartamos is wrong to emphasize the repayment schedule over the effective

interest rate. Which is easier for you to understand, 16 payments of 72.25 pesos or 195.3%? Which is easier for a poor Mexican woman to understand? More to the point, which will better help her judge whether she can handle the credit? As I blogged, in my **Reflections on Transparency** this debate goes back at least 80 years, to when American economists criticized the Morris Plan of Industrial Banking in the same way. The defense was that Morris Plan banks were crystal clear about the deal they offered, even though —indeed, precisely because—their price wasn't in the economists' "correct" language of effective interest rates. The proper test of disclosure is not whether it reifies a capitalistic metaphor but whether, given the foibles of the mind, it encourages good decision making.

Not that there isn't room under the sun for APRs. APRs have several virtues. They aggregate all the determinants of cost into a single number, bringing complex or hidden fees into the open. As a consistent and conceptually solid yardstick, they help consumers compare financial offers. Since everyone argues about interest rates, it is good for them to be measured systematically in the way that MF*Transparency* does. And APRs *can* support good decisionmaking on the part of sophisticated players, such as regulators.

Another source of doubt—or at least debate—about the 195.3% is whether it is proper to count the compulsion to save purely as a cost. Maybe Compartamos is doing clients a favor by disciplining them into not only repaying the loan but saving too—or at least by assuring that borrowers have a buffer to draw on in bad weeks. One strong message from *Portfolios of the Poor* and **behavioral economists**, is that people look to financial services for the *discipline* to set aside money for important purposes. Having a loan to pay off or a commitment savings account to pay into is a valuable excuse to say "no" when money is tight, when temptations to spend are all around, and when friends and relatives ask for cash.

The people at MF*Transparency* have thought a lot about this question. They are firm in **treating forced savings** as a cost:

> Most Truth-in-Lending legislation requires that all obligatory additional costs be incorporated into the transparent price, even if the costs are argued to be related to other services bundled with the loan. Otherwise, the interest rate can be used to hide the true cost of the loan. [A]ny financial requirement that reduces the amount of money available to the client, regardless of its purpose, is included in the calculation of the true price of the loan.

This position has some limitations (discussed below), but overall it is strong and coherent. If my mortgage lender required a deposit in exchange for a loan, I'd want that counted in my APR. Further strengthening the MF*Transparency* view is that a borrower could subvert the ascribed good intentions of Compartamos's savings requirement. Instead of scraping together that 10% before taking a loan, she could borrow it from a sibling or moneylender, put that in a bank, get the Compartamos loan, repay her informal creditor…and repeat for the next loan.

So on balance, I tend to feel it is truer to factor in the forced savings.
[Update: now I tend not to feel that. Below Carlos Danel **explains** that Compartamos cannot enforce the "forced savings" because it is done at other banks.]

My third doubt overlaps conceptually with the previous one: how meaningful is it to compound, especially when extrapolating from a 16-week term to an annual rate? As I **blogged before**:

> Consider also the example of the **vegetable sellers of Chennai**, who pay 10%/day for informal credit. Are their moneylenders remiss in not disclosing the effective APR of 128,330,558,031,335,170%/year? I'm reminded of the **Steven Wright joke**: "One time, the police stopped me for speeding, and they said, 'Don't you know the speed limit is 55 miles an hour?' I said, 'Yeah, I know, but I wasn't gonna be out that long.'"

Struggling with this example, and talking with Carlos Danel in New York, I began to wonder if a core confusion here is the ill fit of a particular capitalistic metaphor. What, really, does that 128 quadrillion %/year mean? *If the tea seller were to take a 100 rupee loan on day 1, start a business with it, repay the 100 rupees plus 10 rupees interest at the end of the day, borrow back the 110 rupees the next morning, expand her business, repay the 110 rupees plus 11 rupees interest that next evening, borrow back the 121 rupees the morning after that, etc., for a year*, she'd have a 128-quadrillion-rupee business by the end of the year. She would own the world.

But she would not do that. One reason is that after a week or so of expanding her stock of tea and putting more chairs in front of her stall, she would have to hire people. She would grow beyond the cost-free labor of her own two hands. Paying wages would **transform the economics of her business**. It would become much harder for her to clear (and grow) 10%/day. So while 128 quadrillion %/year is a mathematically sound way to represent the interest rate, it is predicated on the false hypothetical italicized above. It is frail in real-world meaning.

The unrealism in that case arises from viewing a daily loan as an annual one. The same principle applies to Compartamos's 16-week loans. Perhaps we confuse ourselves when we annualize interest charges on 16-week loan.

Another kind of unrealism comes from viewing a loan used for consumption as one used for investment. Suppose a woman borrows to buy a phone. She takes the loan in order to bind herself into setting aside money each week to retroactively pay for the phone. For her, the loan gives *discipline* more than *capital*. If she is indeed buying discipline then is it not misguided to model her loan as a one-time injection of capital that will generate returns over time? Shouldn't we instead view the loan as providing a *flow* of services over its term? To my mind, if she is paying weekly for a weekly service, then there is no compounding. I think that this is the essence of why Carlos Danel finds compounded rates (in Mexico, CATs) misleading.

So here's an idea: to the extent borrowers are buying capital, use the compounded rate—195.3%/year in this case, factoring in VAT and forced savings. To the extent they are buying discipline, use the uncompounded rate—here, a much lower 101.1%. Of course in practice the distinction is not clean, but in theory it legitimizes the use of uncompounded rates. To the extent that we are seeking intuition for the price of Compartamos credit, perhaps it is best to say it costs 101.1–195.3%/year. I know that's a wide range. Maybe "31.0–39.4%/16 weeks" characterizes better.

Can you tell I am groping here?…and hoping you'll think about this and give me feedback.

While you're at it, puzzle me this. ***Safe*Save**, the microfinance institution founded by Stuart Rutherford in the shadow of Bangladeshi giants, offers some innovative services that let people borrow and save at the same time. One is called **P9**. More straightforward is a savings account that lets you borrow back 80% of your own deposits. People seem to like this option as a way to draw down savings while disciplining themselves to rebuild. Now suppose, as Stuart wrote to me, *Safe*Save raised the borrowing limit from 80% to 100%. And suppose people hit the limit. Then they would be paying net interest (the difference between the interest they paid on the loan and any interest they earned on their gross savings) for exactly no capital. Clearly, they would be buying discipline, not capital. But here's the conundrum: the APR would be infinite. And my idea of pricing discipline without compounding doesn't help: it would still be infinite. From a standard economic point of view, clients' behavior is irrational: they are paying to borrow nothing. Behavioral economics can give us a more realistic model. But the question remains: Is there a coherent way to define the price of discipline in this case, thus in general? Or is it wrong to think that just because we can price capital in a neat, consistent way, through APRs, we can do the same for discipline?

Here also is where the idea of treating savings as a pure cost breaks down. People cannot partake of this

particular loan product without first saving, but it seems wrong to treat the savings requirement as a cost of the loan.

Sorry to end in a muddle. Here's a partial bottom line. Ultimately, as MF*Transparency* notes, there is no one right way to measure interest rates. How you measure should depend on why you measure. If you want to know whether Compartamos is profiteering, the 79.1%, which excludes the effects of compounding, VAT, and forced savings, is more relevant. If you want to know whether borrowers understand the obligations they are assuming, APRs may be a distraction. If you want to compare Compartamos to other microcreditors on price, the 195.3% may be best. If you want to know whether credit is helping people, you'll need to research that more directly.

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4 Comments on "Does Compartamos Charge 195% Interest?"

1. ***Chuck Waterfield*** Says:
   January 31st, 2011 at 11:58 pm

   David,

   You've done a lot of work, and this blog is packed with a ton of information. I, too, have spent many days scratching my head over the seemingly simple question of "how do we measure the price of a loan?"

   I won't give any long response to this post. I just want to draw out two areas that are provocative, and they both center around "is an APR a good measure"?

   First, you say "Which is easier for you to understand, 16 payments of 72.25 pesos or 195.3%? Which is easier for a poor Mexican woman to understand?"

We are all tempted to use what is called Total Cost of Credit as a more down-to-earth means of understanding pricing. But it is severely flawed and can be used to completely fool clients. We have a somewhat "fun" PPT on our website, full of test questions – which loan would you buy? – and we're confident that going thru this will demonstrate the deceptive aspects of focusing on weekly payment:

http://www.mftransparency.org/.....of-credit/

Your second question is: Should we really annualize the price of a short-term loan? That is rather legitimate if the client is truly going into short term debt. However, most microfinance clients go into continual debt. I expect 75% of Compartamos clients are carrying a loan most of the year. Thus, they really are paying >100% in cost in a year. In a year, they pay MORE in cost than their average balance during the year. You'll be familiar with our MFTransparency "price curve". The bottom axis is loan amount. But with a bit of thought, one will quickly realize that if the bottom axis were "loan term" there would also be a curve to the prices (when annualized). That means it makes sense (from both MFI delivery costs and client demand) for very short term loans to have higher prices. But if a client wants to be continually in debt, then give her a one-year loan, as in India, rather than a string of four-month loans as in Mexico. Why do all governments require annualization of price? Because it gives a common yardstick. Otherwise you'd have one MFI advertising a monthly rate, and the MFI across the street using a weekly rate because it sounds cheaper.

This is already longer than I intended, so I'll wrap up. But I do hope the readers of this blog find this topic as intriguing as you and I do.

Chuck Waterfield
CEO & President
MFTransparency

2. ***David Roodman*** Says:
February 1st, 2011 at 8:32 am

Thank you, Chuck. The presentation you linked to is great, and people should watch it. But a few quibbles.

First, "16 payments of 72.25 pesos" is not equivalent to "total cost of credit." The first is a loan schedule, the second is a single number, in this case 1,156. I deliberately wrote the first to emphasize that people would think about whether they could handle the *flow* of payments. So the presentation is arguably misleading in that the information it gives the viewer does not correspond to the information microcredit borrowers actually get. Borrowers are quoted payment schedules.

Second, the presentation relies exclusively on the product comparison framing (does one loan cost more than another?). That's an important frame, one where APRs are clearly strong, as I wrote, but not the only relevant one. Also important is the choice between taking a loan (maybe the one with the lowest APR on offer) and not taking the loan. Here, I think the payment schedule is very helpful.

Third, it is ultimately an empirical question (and a tough one) which way of describing the costs of a loan most helps clients make the best decisions (not that you can't describe it more than one way). I blogged an **interesting study by Marianne Bertrand and Adair Morse** of

payday lending in the U.S., which found that disclosing total cost had the biggest (downward) effect on borrowing, where disclosing the APR had little effect. If we assume that less borrowing at a rate of 15% per 2 weeks is good, then total cost helped and APR didn't.

3. *Srinivasan* Says:
   February 1st, 2011 at 10:04 am

   David,
   Disclosure need not be 'either' – 'or'; it should be both.
   We can have both installment schedule and APR disclosed and explain how these can be used by the customer. The repayment schedule tells the customer as to how much she pays back and compares with the loan to be received. At this stage she is not sure of the price – to- time value proposition. The APR provides that. Providing the APR increases the chances that the customer is able to come to a better decision – but does not guarantee it. Customer education on how to read the APR and come to a decision on whether the loan is appropriate for her- is needed. Literacy on pricing – both for the customer and the institution will improve comfort all around.
   Srinivasan

4. *Carlos Danel* Says:
   February 1st, 2011 at 5:08 pm

   David, excellent job of conveying the complexity behind interest rates. I now honestly feel a bit less frustrated about my own attempts to explain it.

   I think for most of us non economist, the concepts behind compounding or opportunity cost are sometimes hard to follow. What often happens when we talk about interest rates is that most of us (including our clients) think more in terms of cash flow than anything else. I find that if I ask most people, how much they would pay in interest for a 1,000 peso loan quoted at 195% interest rate, overwhelmingly their answer is 1,950 pesos. Most of them would be surprised when I tell them the right answer is 507 pesos (a 79% APR on declining balances as calculated with your well done spreadsheet). Quite a significant difference which only adds to most people's confusion.

   So is the distinction you make between cost to client and revenue for Compartamos. Of the 507 pesos the client pays, 437 actually goes into the P&L [profit and loss statment] of Compartamos, as the remaining 70 pesos are collected but transferred to the government as VAT (for a yield of 78% on the loan you use as an example, and a 72% yield on the whole Compartamos portfolio for the past 4 quarters where we have made information public). So it's also surprising for people that we don't actually earn 1.95 pesos, but rather 43 cents on each peso we lend.

   But we agree this is not to say that the 507 pesos that the client actually pays in cash encompasses all costs to clients. This is where things like compounding and the cost of forced savings come into play. I think it is useful to analyze, specially for comparison purposes, but with a great potential to mislead people's perception of how much cash they need to pay. It is also error prone, not only because its almost impossible to include other (very variable) costs like transaction cost or the value of discipline, but because in our case we can't even guarantee forced savings are kept throughout the loan, or by the fact that a loan that is repaid in 20 weeks instead of 16 has no late fees or additional interest (therefore lowering APR).

So it's definitively hard to understand why a loan quoted at 79% can be the same as one quoted at 195% with both answers right, but with different perspectives. I know that for most people 79% is high enough, and that is where as you point out, (the mexican) context matters. So does loan size. In fact, if Compartamos would aim to be 1/3 as profitable as it is (therefore under-average profitable, which is not our goal) our yield (or average revenue on portfolio) would still be 53.2% (down from 72%), and 45.5% if we would aim to be zero profitable. This is not because of inefficiencies (cost per client is 112 USD/yr vs 170 USD/yr on average in LA by MIX data in 2009), but rather because of loan size (384 USD vs 952 USD on average in LA [Latin America] by MIX data in 2009). This is even more dramatic when adjusted by GNI per capita where the average loan in Compartamos is only 4.78% vs 25.17% on average in LA). And this is mostly true for the whole Mexican MF industry as you can see from your graph, which explains in part why the perceived high interest rates.

Could write a lot more on this very complex subject, but I think your analysis has added a lot of value to the discussion…