

The Challenge of Understanding Pricing of Micro-loans

by Chuck Waterfield

For decades, the microfinance industry made a rather disciplined effort to ignore prices we were charging on our loan products. That changed with the Compartamos IPO of 2007, where the largest MFI in Latin America made hundreds of millions of dollars in profit while charging interest rates of over 100%. This provoked intense discussion as the industry tried to understand what true interest rates really are, and as we tried to determine what rate Compartamos was really charging its clients.

Thanks to Compartamos' transparency on its financial statements, we had access to ten years of financial reports; however, we still had no real idea of what price they were charging. Compartamos publicly claimed its interest rate was approximately 82%, yet even on its own website, the organization stated that its primary loan product had an annual interest rate of 105%, including the 15% government tax. Which of these is the price? Or is it something different? Or is there really no one figure that is the true price? This paper uses the Compartamos example to explain how interest rate calculations work and why there is so much confusion over what true prices really are. We will also see that most MFIs in Mexico use similar pricing systems – Compartamos is not an aberration, but rather more the norm of practice in Mexican microfinance.

Loan pricing can be extremely confusing

Following the IPO, discussion and debate about interest rates and profits fell mostly into two camps. One group said that excessively high profits earned off excessively high interest rates

charged to the poor are inappropriate and unfair. The opposing group said that – in line with standard market theory – when two parties enter into an agreement to sell-and-buy, both parties are benefiting and it is a fair transaction. Perhaps the interest rate (price) is high, but the client knows that and determines that the benefit of the loan exceeds the cost. A significant limitation of the “free market” argument is product pricing in microfinance is anything but transparent. Judging the price of a loan is extremely difficult except in the simplest of cases, and very few micro-loans have prices which are easy to understand. Let's look at the example of Compartamos. Compartamos advertised “loans at an interest rate of 4% per month.” Moneylenders are known to charge at least 10% per month. Therefore, Compartamos looks significantly better. Let's look at some actual numbers: Which of the following two loans would you believe to be a better price?

Loan Option A: Receive a loan of 3,000 Pesos, for 16 weeks, with payments of 221 Pesos per week. Your repayment schedule shows total payments of 3,547 Pesos, so the total cost of that loan is 547 Pesos. You are then offered to take another loan immediately.

Loan Option B: You are given a loan of 1,300 Pesos for 12 months. You make interest payments weekly, but you keep the entire principle for the entire year and then repay it all. During that year you are to pay 1,800 Pesos in interest payments. You repay a total of 3,100 for a loan of 1,300 for a year.

Loan Product	Initial Loan Amount	Total Cost	Length of time
Loan Option A	3,000 Pesos	547 Pesos	16 weeks
Loan Option B	1,300 Pesos	1,800 Pesos	12 months

Which looks like the lower cost alternative to you? To most people, Option A seems like a bigger loan for a lower cost. Option B looks like you're paying much more in interest in one year than the actual amount of the loan (and, in fact, you are).

Interestingly, these two loans are exactly the same price when calculated from a financial perspective. Option A is the standard Compartamos loan. Option B seems like it may be a moneylender loan at 10% interest a month. However, it is the financial equivalent of what a client would have if she continued to borrow from Compartamos for a full year.

Financial prices are bewilderingly confusing, for reasons which we'll see in this paper. Nothing we do in microfinance pricing was invented in microfinance. These are techniques that have been used by other lenders in order to make products look cheaper than they are. Regulators often step in with Truth-in-Lending legislation to correct the misleading pricing, and when they do the consumer has a right to receive a standardized price figure, sometimes known as the Annual Percentage Rate (APR) and more often known as the Effective Interest Rate (EIR). These are two different formulas, and they result in two different figures. The APR has been more frequently discussed in microfinance, and although less accurate than the EIR, it is somewhat easier to understand.

Therefore, in this article we will explain the APR, leaving a discussion of the EIR for a future article.

What do Compartamos clients actually pay?

Compartamos told its clients that loans are charged an interest rate of 4% per month. This has been reported to a number of journalists who have interviewed clients. It is likely Compartamos also told them what their weekly payment would be. The Compartamos website has repayment schedules posted, and the following figure is a screen clip for a loan of 3,000 Pesos, or approximately US\$300. (Note that in the figures throughout this document all amounts are really values in Mexican Pesos and the exchange rate is approximately 10 Pesos to 1 US\$). All Compartamos group loans are for 16 weeks, with weekly payments. As in Option 1 in the earlier example, the repayment schedule shows that the client makes an even payment of 221.68 Pesos per week. Doing the math, one sees that makes a total payment of 3,547 Pesos, or 547 Pesos more than the loan principal. That 547 Pesos also includes a 15% value-added tax (marked IVA in the column heading) in addition to the interest and principal. Even with the tax, that price doesn't seem especially high for a 3,000 Peso loan. But we'll learn considerably more as we dig deeper.



COMPARTAMOS
Oportunidades Financieras

Tabla de Amortización

Producto: GENERADORAS DE INGRESO (GDI)
 Monto solicitado: \$3,000.00
 Plazo: 4 MESES
 Frecuencia de Pago: Semanal

Num. Pago	Saldo Insoluto	Principal	Interés e IVA	Pago Semanal
	\$3,000.00			
1	\$2,839.57	160.43	\$61.25	\$221.68
2	\$2,675.86	163.71	\$57.97	\$221.68
3	\$2,508.61	167.05	\$54.63	\$221.68
4	\$2,338.35	170.46	\$51.22	\$221.68
5	\$2,164.41	173.94	\$47.74	\$221.68
6	\$1,986.92	177.49	\$44.19	\$221.68
7	\$1,805.81	181.11	\$40.56	\$221.68
8	\$1,621.00	184.81	\$36.87	\$221.68
9	\$1,432.41	188.58	\$33.09	\$221.68
10	\$1,239.98	192.43	\$29.24	\$221.68
11	\$1,043.61	196.36	\$25.31	\$221.68
12	\$843.24	200.37	\$21.31	\$221.68
13	\$638.78	204.46	\$17.22	\$221.68
14	\$430.14	208.64	\$13.04	\$221.68
15	\$217.24	212.9	\$8.78	\$221.68
16	\$0.00	217.24	\$4.44	\$221.68

Tu pago Semanal es de \$221.68

Esta información constituye un ejercicio numérico correspondiente a una simulación de condiciones de crédito, por lo que la información que se obtenga, no constituye una solicitud de crédito, ni implica para Banco Compartamos, S.A., Institución de Banca Múltiple, obligación alguna.
 La información del producto y políticas de crédito contenidas, están sujetas a cambio sin previo aviso.
 La aprobación final del crédito depende del análisis que realiza Banco Compartamos, S.A., Institución de Banca Múltiple y del resultado de la investigación en el Buro Nacional de Crédito.
 El CAT (Costo Anual Total) de este crédito es de 105% (incluye 15% de IVA) y es para fines informativos y de comparación únicamente.
 Si deseas mayor información, acude a la oficina de Compartamos más cercana o comunícate sin costo al teléfono 01 800 220 9000.

Look at the fine print circled above and you'll see that Compartamos states a CAT (Spanish for "Total Annual Cost") of 105%, including the value-added tax. Compartamos does this CAT calculation by using the US "APR" formula, which will be explained further below. The Mexican government had passed a law requiring a CAT calculation using the Effective Interest Rate (EIR) formula, and the resultant figure would be much higher, over 150%.¹ Already, we see the confusion that can take place when asking "What is the true price of your loan product?" Compartamos has since changed its CAT calculation on its website to match the Mexican legal definition.

How does 4% per month become 105% per year?

Now, one curiosity that people constantly ask MFTransparency about is: How does a stated 4%-per-month interest rate become a 105% interest rate? Few people in the industry understand, let alone the clients. We have had to explain this to industry practitioners, journalists, industry leaders, and the funder community. What we'll do in the following explanation is walk you through this logic. In fact, you'll see that Compartamos' 4%-per-month rate is actually even higher than the 105% figure we have been using. It is actually 129% from the perspective of the client.

To begin, let's do a bit of background on what interest rates mean. The textbook definition of interest is "the charge for the use of money over time." This is a reasonable and intuitive approach to the calculation of interest. However, many finance institutions (and not just microfinance institutions) use a variety of techniques to mask the actual cost of the loan. In response, governments have passed consumer protection laws, starting with the US Truth in Lending Act of 1968, which distill the mixture of

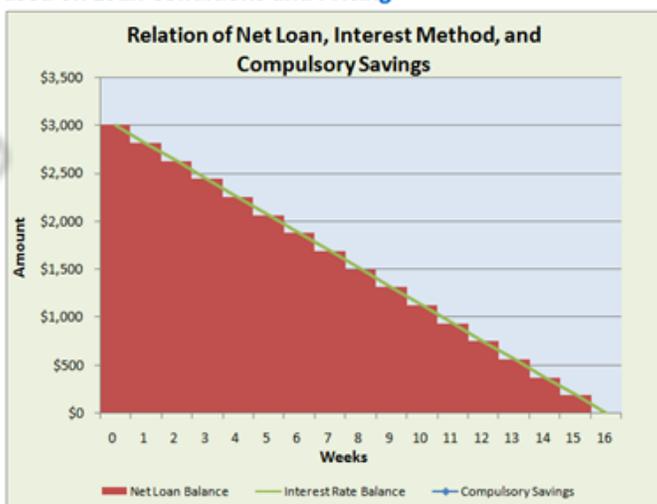
¹ The Mexican CAT law follows the European Union definition of APR calculations and includes compounding effects. Interest paid in the first week is more valuable than interest paid in the sixteenth week, because you could have been using that money for another fifteen weeks.

interest and fee calculation methods down to a basic, consistent measure called the “Annual Percentage Rate,” or APR.

Let’s study this 3,000 Peso loan. In the figure below, you will see that in the table to the left, we have a 3,000 Peso loan for 16 weeks, with 48% annual interest charged (4% per month, times 12) on a “declining balance”. The graph on the right shows the “net loan balance” (the area in red) and the “interest rate balance” (the thin green line). As you can see, each week, interest is calculated on the amount actually held by the client in the previous month. Interest in the first week is charged on 3,000. Interest in the second week is charged on 2,813. Interest in Week 16, the last week, is charged on 188. This is both logical and intuitive, matching the textbook definition of interest.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions		
Loan Amount	\$3,000	
Term & Repay Freq	16 Weeks	
Loan Pricing		
Interest Method	Balance	Effective Interest Rate (APR)
Annual Interest Rate (%)	48.0%	48.0%
Up-front Fee (%)	0.0%	48.0%
Value-Added Tax (%)	0.0%	48.0%
Compulsory Savings (%)	0.0%	48.0%
Savings Interest Paid (%)		
Total Financial Cost to the Client (excl. savings)		
Total Int/Fees/VAT Paid	\$235	in 16 Weeks
Annualized	\$765	in 1 Year
Avg net loan balance	\$1,594	
This is the amount the client has to invest in her business		
Break-even Borrowing Point:	25.00	Months
The month when the total loan cost equals the avg loan balance		
Months with Negative Net Balance		
Weeks:	0	
% of loan term:	0%	



The next figure shows an expected repayment table for such a loan. The circled column displays the “cash flow” from the perspective of the client. She receives 3,000. She pays 215.19 the first week, of which 27.69 is interest. The interest amount is calculated as:

$$48\% \text{ annual interest rate} / 52 \text{ weeks} * 3,000 = 27.69$$

The total payment is 213.46 the second week, and continues until the loan is repaid. The bottom line shows that 48% is the APR for this loan. It is calculated using an “Internal Rate of Return” (IRR) formula - a well-known approach in finance to determine the break-even return for such an “investment” and it does give what we expect, 48%, since we were charging a 48% annual interest rate charge consistently in every week.

Repayment Schedule													
The following table shows the repayment schedule and cashflow for the loan given the conditions indicated on the Cost to Client sheet.													
Month #	Loan Cost and Cashflow					Cashflow			Compulsory Savings				
	Balance	Principal	Interest	Commission	VAT	Interest	Comm	VAT	Savings	Interest	Withdrawal	Savings Balance	Cashflow
0	3,000					3,000.00	3,000.00	3,000.00					3,000
1	2,813	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
2	2,625	187.50	25.96	-	-	(213.46)	(213.46)	(213.46)					(213)
3	2,438	187.50	24.23	-	-	(211.73)	(211.73)	(211.73)					(212)
4	2,250	187.50	22.50	-	-	(210.00)	(210.00)	(210.00)					(210)
5	2,063	187.50	20.77	-	-	(208.27)	(208.27)	(208.27)					(208)
6	1,875	187.50	19.04	-	-	(206.54)	(206.54)	(206.54)					(207)
7	1,688	187.50	17.31	-	-	(204.81)	(204.81)	(204.81)					(206)
8	1,500	187.50	15.58	-	-	(203.08)	(203.08)	(203.08)					(203)
9	1,313	187.50	13.85	-	-	(201.35)	(201.35)	(201.35)					(201)
10	1,125	187.50	12.12	-	-	(199.62)	(199.62)	(199.62)					(200)
11	938	187.50	10.38	-	-	(197.88)	(197.88)	(197.88)					(198)
12	750	187.50	8.65	-	-	(196.15)	(196.15)	(196.15)					(196)
13	563	187.50	6.92	-	-	(194.42)	(194.42)	(194.42)					(194)
14	375	187.50	5.19	-	-	(192.69)	(192.69)	(192.69)					(193)
15	188	187.50	3.46	-	-	(190.96)	(190.96)	(190.96)					(191)
16	-	187.50	1.73	-	-	(189.23)	(189.23)	(189.23)					(189)
		3,000	235	0	0	48.0%	48.0%	48.0%	0	0	0		48%

Understanding the “flat interest” method

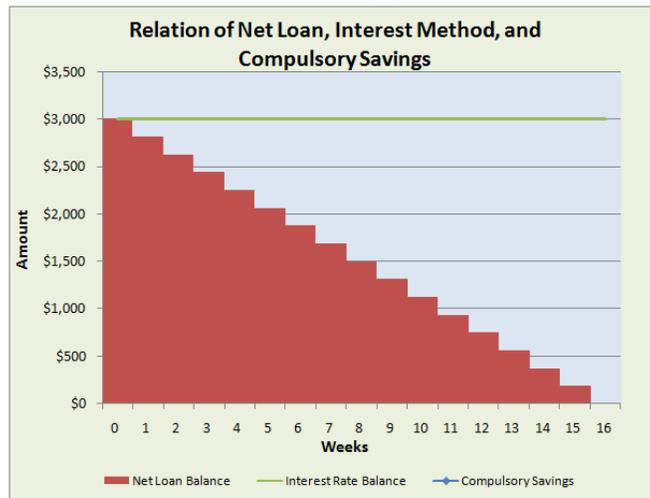
Unfortunately, what we show above is *not* what Compartamos does. Like many MFIs, they do not calculate interest rate charges based on the actual amount owed by the client. They instead use a method generally called “flat interest,” a method not invented by the microfinance industry but one that has been very commonly utilized by the microfinance industry. In this approach, the quoted interest rate is charged on the *original* loan balance, even though the client does not have (and often *never* had, as we will see) that much money at her disposal.

The next figure shows the green “Interest Rate Balance” line as a flat line. In Week 1, interest is charged on 3,000 and the client has 3,000.

Each week, the client pays back part of the loan, but interest is still charged on the original loan amount. In Week 16, the client has only 188 to invest in her business, but she is still charged interest on 3,000. Clearly, there is no textbook definition that can rationalize why interest should ever be charged this way in a fair system. Why did such a system appear in lending? The answer is obvious: it allows the institution to charge nearly twice as much interest for the same nominal quoted interest rate as with the declining balance method. It is in the interests of the institution to advertise a low nominal interest rate and charge a much higher APR. As shown in the table to the left, 48% flat interest results in an APR of 86.8%. In other words, charging 86.8% using the declining balance method would generate an equivalent cost of the loan.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions			
Loan Amount	\$3,000		
Term & Repay Freq.	16	Weeks	
Loan Pricing			
	Inputs	Incremental Cost	Effective Interest Rate (APR)
Interest Method	Flat		86.8%
Annual Interest Rate (%)	48.0%		86.8%
Up-front Fee (%)	0.0%		86.8%
Value-Added Tax (%)	0.0%		86.8%
Compulsory Savings (%)	0.0%		86.8%
Savings Interest Paid (%)			
Total Financial Cost to the Client (excl. savings)			
Total Int/Fees/VAT Paid	\$443	in 16 Weeks	
Annualized	\$1,440	in 1 Year	
Avg net loan balance	\$1,594		
<i>This is the amount the client has to invest in her business</i>			
Breakeven Borrowing Point:	13.28	Months	
<i>The month when the total loan cost equals the avg loan balance</i>			
Months with Negative Net Balance			
Weeks:	0		
% of loan term:	0%		

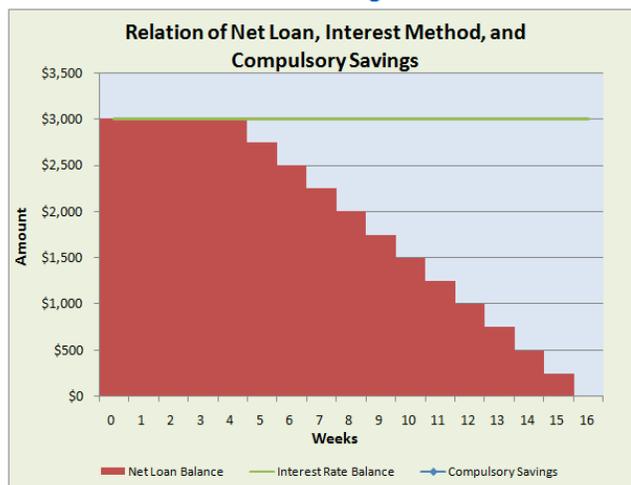


A general rule known by financial managers is when flat interest is used, the APR is almost twice as much as the quoted interest rate. Looking at the above graph, you can see why. APR interest is the charge for the use of money over time, or the diagonal red area – the area shaded red shows the length of time that the client has different amounts of money. With the green, flat interest line you can visualize a rectangular box. If you visualize the red area as a diagonal straight line, then you can see that the line divides the green rectangular box in half. Thus, interest is being charged on twice the amount actually held by the client. However, because of the stair-step approach of the red area, the area of the red area is slightly more than half the area of the green, rectangular box. Thus, the APR is slightly less than double the nominal rate.

One way to test this is to see what would happen if the client were given a “grace period” of four weeks, and then have payments distributed over the final twelve weeks. As shown in the figure below, the red area is significantly larger as a proportion of the green rectangular area. The APR drops from 86.8% without a grace period to 71.1% with the grace period. As might be expected, grace periods are rare in microfinance when flat interest methods are employed, because the MFI earns less interest by allowing the client the use of more money for more time. When declining balance interest is charged, the APR of this loan would be 48% with no grace period and remain 48% with a grace period of any length, thus demonstrating how much more appropriate it is to use declining balance interest.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions		
Loan Amount	\$3,000	
Term & Repay Freq.	16	Weeks
Loan Pricing		
Inputs	Incremental Cost	Effective Interest Rate (APR)
Interest Method	Flat	
Annual Interest Rate (%)	48.0%	71.1%
Up-front Fee (%)	0.0%	71.1%
Value-Added Tax (%)	0.0%	71.1%
Compulsory Savings (%)	0.0%	71.1%
Savings Interest Paid (%)		
Total Financial Cost to the Client (excl. savings)		
Total Int/Fees/VAT Paid	\$443	in 16 Weeks
Annualized	\$1,440	in 1 Year
Avg net loan balance	\$1,969	
<i>This is the amount the client has to invest in her business</i>		
Breakeven Borrowing Point:	16.41	Months
<i>The month when the total loan cost equals the avg loan balance</i>		
Months with Negative Net Balance		
Weeks:	0	
% of loan term:	0%	



Below is a repayment schedule for the 48% flat-interest loan with no grace period. It shows how principal and interest amounts are constant at 215.19 throughout the sixteen weeks.

Repayment Schedule													
The following table shows the repayment schedule and cashflow for the loan given the conditions indicated on the Cost to Client sheet.													
Loan Cost and Cashflow									Compulsory Savings				
Month #	Balance	Principal	Interest	Commission	VAT	Cashflow just Interest	Cashflow incl. Comm	Cashflow Incl. VAT	Savings	Interest	Withdrawal	Savings Balance	Cashflow
0	3,000					3,000.00	3,000.00	3,000.00					3,000
1	2,813	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
2	2,625	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
3	2,438	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
4	2,250	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
5	2,063	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
6	1,875	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
7	1,688	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
8	1,500	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
9	1,313	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
10	1,125	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
11	938	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
12	750	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
13	563	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
14	375	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
15	188	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
16	-	187.50	27.69	-	-	(215.19)	(215.19)	(215.19)					(215)
		3,000	443	0	0	86.8%	86.8%	86.8%	0	0	0		87%

How many weeks in a month?

Now, with Compartamos' stated 4% monthly interest rate – even shifting the calculation to “flat interest” – we still fall short of what we see in the actual repayment schedule on the Compartamos website for this loan, and we are short of the 105% interest rate that Compartamos notes on their website. There are more issues we haven't touched on yet. First, Compartamos does not charge 4% flat interest per month. They charge 4% flat interest every four weeks, and four weeks does not make a full month. A month is 4.3 weeks, and if one uses the “convenience” of saying that a month is just four weeks, there are actually thirteen months in a year: 13 “months” x 4 weeks/month = 52 weeks. Thus, Compartamos is charging an additional month of interest more than what they tell their clients. The figure below shows that with 52% annual flat interest, the APR increases to 93.7%. Thus, we are getting closer to the 105% APR quoted by Compartamos, but there are still more price issues to consider.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions		
Loan Amount	\$3,000	
Term & Repay Freq.	16	Weeks

Loan Pricing		
Inputs	Incremental Cost	Effective Interest Rate (APR)
Interest Method	Flat	
Annual Interest Rate (%)	52.0%	93.7%
Up-front Fee (%)	0.0%	93.7%
Value-Added Tax (%)	0.0%	93.7%
Compulsory Savings (%)	0.0%	93.7%
Savings Interest Paid (%)		

Total Financial Cost to the Client (excl. savings)

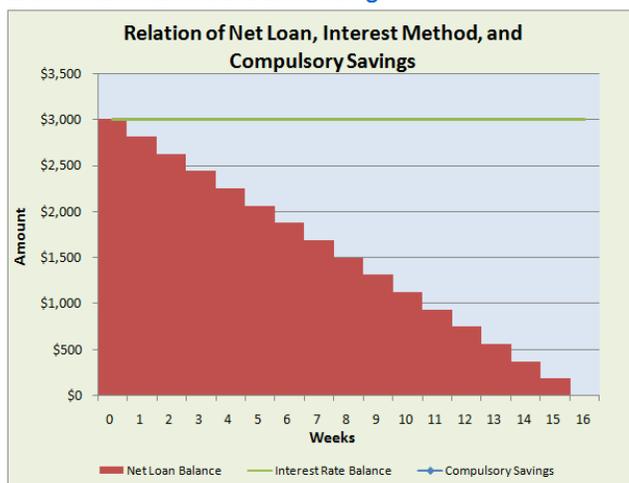
Total Int/Fees/VAT Paid	\$480	in 16 Weeks
Annualized	\$1,560	in 1 Year
Avg net loan balance	\$1,594	

This is the amount the client has to invest in her business

Breakeven Borrowing Point: 12.26 Months
The month when the total loan cost equals the avg loan balance

Months with Negative Net Balance

Weeks:	0
% of loan term:	0%



Commission fees and taxes

Fees and commissions are very common in microfinance, and they often have a significant impact on the total cost of the loan. Compartamos appears to not charge any fees. (They may, but the fees do not appear on the repayment schedules they show on their website.) However, they do charge a value-added tax. This is required by Mexican law and is calculated as 15% of income. Thus, it is charged on the interest income, and the client must pay this in addition to the interest payments. The figure below shows that this VAT adds an incremental 13.4% to the APR, now raising it to 107.1%.

A question often asked is: should these taxes be included in the price calculation? Yes, the Mexican government and other governments with transparency laws say. The purpose of an APR calculation is to tell the client the total price of the loan. The tax does not go to Compartamos, but it still comes out of the customer's pocket when buying this product. It may be helpful to compare this to an income tax. An MFI charges an interest rate, makes profit, and pays some of that profit to the government in the form of taxes. You wouldn't expect this portion of the client's payment to be excluded from the transparent pricing formula, and a value-added tax is included for much the same reasons.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions		
Loan Amount	\$3,000	
Term & Repay Freq.	16	Weeks

Loan Pricing		
Inputs	Incremental Cost	Effective Interest Rate (APR)
Interest Method	Flat	
Annual Interest Rate (%)	52.0%	93.7%
Up-front Fee (%)	0.0%	93.7%
Value-Added Tax (%)	15.0%	107.1%
Compulsory Savings (%)	0.0%	107.1%
Savings Interest Paid (%)		

Total Financial Cost to the Client (excl. savings)

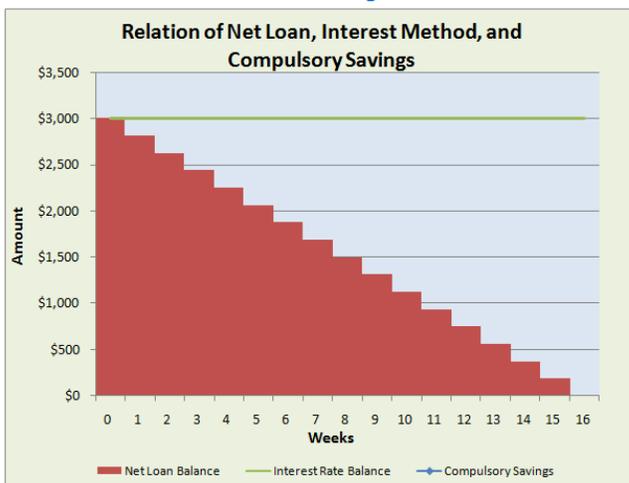
Total Int/Fees/VAT Paid	\$552	in 16 Weeks
Annualized	\$1,794	in 1 Year
Avg net loan balance	\$1,594	

This is the amount the client has to invest in her business

Breakeven Borrowing Point: 10.66 Months
The month when the total loan cost equals the avg loan balance

Months with Negative Net Balance

Weeks:	0
% of loan term:	0%



Summarizing how we got to an APR of 105%

At 107.1%, we are now very close to the stated rate of 105% given by Compartamos. Why the slight difference? This could be due to some rounding errors, but in researching these APR formulas more, one finds that there are small differences between the way they are constructed and applied by different analysts. However, the case here is different -- Compartamos does not actually calculate flat interest in their repayment schedule.² They are actually calculating interest based on a declining balance calculation, as you can see if you go back and analyze the first figure showing the repayment schedule Compartamos uses. Interest charges decline each week. In other words, Compartamos advertises a low “flat interest” rate to the client, and advertises it as a “monthly” rate. It then applies a completely different interest rate internally, when generating the repayment schedules that the clients must legally follow. It internally applies an annual declining balance interest rate. This is extremely rare in microfinance; nearly always, an MFI advertising a flat rate calculates a flat rate using that stated rate.

This brings us to a deeper understanding of how an advertised 4% monthly interest rate would actually officially be a 105% interest rate if the institution followed laws such as the US Truth-in-Lending Act.

The impact of compulsory savings on APR

Now we will move on to an analysis of how that 105% APR actually becomes a 129% APR. Rarely do the discussions of Compartamos mention that Compartamos also actually

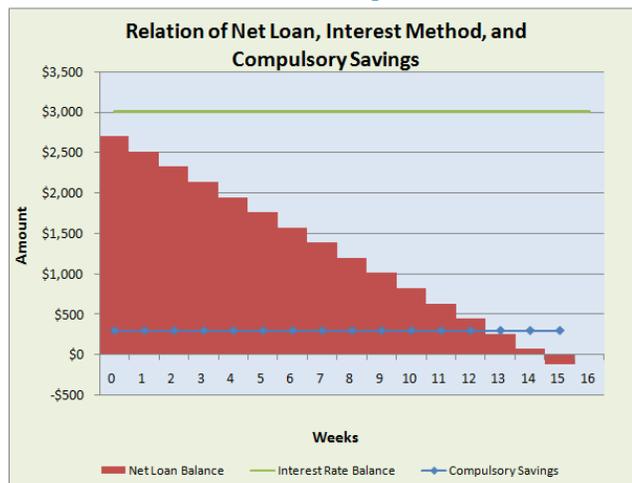
² It is uncertain why they do this. It may possibly be that as a commercial bank they are required to calculate interest on a declining balance. Regardless of the reason, Compartamos uses a textbook manner to calculate interest, but advertises that interest to clients as a lower, flat rate.

requires all clients to “save” 10% of their loan amount. The use of the term “savings” as commonly used in microfinance can hardly be considered savings at all. The client cannot access those “savings” until she has repaid the loan. And in this case, Compartamos does not even pay any interest to the client. The client comes to Compartamos to get a loan – say 3,000. In order to get the loan, she must let Compartamos have 300 in an off-limits “savings account.” If the client fails to pay, Compartamos seizes the savings. In other words, this is not savings, but rather it is partial loan collateral.

This compulsory savings requirement results in a significant additional cost to the client. This often raises the question: *How can savings be an additional cost?* Let’s review. She wants to borrow 3,000 for her business. She gets only 2,700 to invest in her business, but she is charged interest on 3,000. The next figure helps to visualize this. There is now a blue line indicating the “Compulsory Savings” balance. Note also that the red “Net Loan Balance” area is now lower. In Week 0, the client has 2,700, while interest is charged on 3,000. She pays down the loan balance each week. In comparison with the earlier graphs, the red area is now a smaller percentage of the rectangular area marked by the green line. In fact, in the last two weeks, the client actually has a *negative* net loan balance. She has *more* of her money (“savings”) held by Compartamos than she has invested in her business. And even with a *negative* loan balance, she is being charged interest on the *original* loan balance of 3,000. Frankly, there is no way to justify this method of charging clients as truly being “interest.” It is a price charged, but it in no way reflects any definition of interest. The end result of this collateral deposit is to increase the APR by an additional 21.8%, to a total of 129%, as shown in the table on the left. (Note that the impact of savings on the true price depends on the amount of the loan held in savings and the magnitude of the APR charged on the loan.)

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions		
Loan Amount	\$3,000	
Term & Repay Freq.	16	Weeks
Loan Pricing		
Interest Method	Flat	
Annual Interest Rate (%)	52.0%	93.7%
Up-front Fee (%)	0.0%	93.7%
Value-Added Tax (%)	15.0%	107.1%
Compulsory Savings (%)	10.0%	129.0%
Savings Interest Paid (%)	0.0%	
Total Financial Cost to the Client (excl. savings)		
Total Int/Fees/VAT Paid	\$552	in 16 Weeks
Annualized	\$1,794	in 1 Year
Avg net loan balance	\$1,294	
<i>This is the amount the client has to invest in her business</i>		
Breakeven Borrowing Point:	8.65	Months
<i>The month when the total loan cost equals the avg loan balance</i>		
Months with Negative Net Balance		
Weeks:	2	
% of loan term:	13%	



The next figure now shows the repayment schedule for this loan, including flat interest, the value-added tax, and the compulsory savings requirement. The cash flow stream in the column on the far-right, which shows the savings being returned to the client in Week 16, generates an APR of 129%.

Repayment Schedule													
The following table shows the repayment schedule and cashflow for the loan given the conditions indicated on the Cost to Client sheet.													
Month #	Loan Cost and Cashflow					Cashflow			Compulsory Savings				
	Balance	Principal	Interest	Commission	VAT	just Interest	incl. Comm	incl. VAT	Savings	Interest	Withdrawal	Savings Balance	Cashflow
0	3,000					3,000.00	3,000.00	3,000.00	300			300	2,700
1	2,813	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
2	2,625	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
3	2,438	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
4	2,250	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
5	2,063	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
6	1,875	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
7	1,688	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
8	1,500	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
9	1,313	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
10	1,125	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
11	938	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
12	750	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
13	563	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
14	375	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
15	188	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	-	300	(222)
16	-	187.50	30.00	-	4.50	(217.50)	(217.50)	(222.00)	-	-	300	-	78
		3,000	480	0	72	93.7%	93.7%	107.1%	300	0	300		129%

How does the APR translate into what the client actually pays?

Finally, let's look at what this 129% APR really means for the client. The clients do indeed borrow from Compartamos and pay their loans back. But how much do they pay? And as 129% is such an expensive price, why do the clients not realize it is such an expensive price?

The next table highlights the lower-left section that we've seen in other figures throughout this explanation. As we stated in the first paragraphs of this explanation, the client borrows 3,000 and pays 552 in interest and VAT over the 16-week life of the loan. That seems much lower than a 129% interest rate. But it is also a loan for only 16 weeks, which is much less than a year. If the client borrows 3,000, goes through another cycle, and continues a third time in order to have loans for a full year, she will have paid a total of 1,794 in interest and VAT over those 52 weeks. This is a significant psychological factor in loan pricing – a longer-term loan will look more expensive because the total interest paid over

the life of the loan is much more, but the actual price (APR) can be exactly the same. You will often find microfinance products being very short-term loans, such as the 16-week Compartamos loan. One result of this is the cost of that loan seems much lower.

Total Financial Cost to the Client (excl. savings)		
Total Int/Fees/VAT Paid	\$552	in 16 Weeks
Annualized	\$1,794	in 1 Year
Avg net loan balance	\$1,294	
<i>This is the amount the client has to invest in her business</i>		
Breakeven Borrowing Point:	8.65	Months
<i>The month when the total loan cost equals the avg loan balance</i>		
Months with Negative Net Balance		
Weeks:	2	
% of loan term:	13%	

A second very important factor is that the client has much *less* than 3,000. Looking back at the graphs, you can see that what is a 3,000 loan is only a 3,000 for one week – in fact, with the compulsory savings, it is never a 3,000, but rather a 2,700 loan for one week. Then the client starts paying back the loan and the loan balance drops.

A useful way to better understand a loan product is to see that the client is *renting* money over time, and the amount of money she rents varies each week. A better way of comprehending the loan is to calculate the average amount of money being rented over that time period.

And what is the average loan balance over those 16 weeks? Just 1,294. So to have an average of 1,294 for a year (some weeks she has more than 1,294, and some weeks she has less), the client is paying 1,794 a year to Compartamos. This makes the impact of an APR of 129% more evident – it is the equivalent of if Compartamos simply allowed the client to keep a loan amount 1,294 for an entire year and then charges the client 1,794 for that privilege. An APR greater than 100% means the client is paying more in interest over that year than the loan balance she has during that year.

Other examples in Mexico

There has been much discussion in the industry about Compartamos’ pricing, but as indicated at the start of this paper, many other MFIs in Mexico follow practices very close to those of Compartamos and have prices in the same range. Just a few months after Compartamos did their IPO, another MFI, Financiera Independencia, followed with their own IPO.

Below is a repayment schedule from Financiera Independencia. On the left is the marketing material from their brochure, listing the *atractivos beneficios* (attractive benefits). The bottom of the brochure also indicates that they have been awarded as a Socially Responsible Business since 2003. The repayment schedule on the right gives information that results in an APR of 116%. The APR could be higher, if they also charge any fees which are not included on this repayment schedule, or if they require any compulsory savings. Even without these possible additional costs, the loan is extremely high priced.

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ESR EMPRESA SOCIALMENTE RESPONSABLE DESDE 2003

Línea Revolviente	
Monto del Crédito	\$ 2,000.00
Com. Disp 10%	\$ 200.00
IVA	\$ 30.00
Cuota Anual	\$ 250.00
IVA	\$ 37.50
Total a Financiar	\$ 2,230.00
Plazo	24
Tasa Mensual	5.93%
Pago	\$138.00

IVA	15	(15 - Centro, 10 - Frontera)
Com x disp.	10%	
Frecuencia	q	(Q - Quincenal, M - Mensual)

99. Quincenal. (44 pago)

periodo	Capital	pago	Interés	abono capital	diposicion	Total disp	saldo
0	\$ -	\$ -	\$ -	\$ -	\$ 2,000.00	\$ 2,230.00	\$ 2,230.00
1	\$ 2,230.00	\$138.00	\$ 78.04	\$ 61.96	\$ -	\$ -	\$ 2,168.04
2	\$ 2,168.04	\$138.00	\$ 73.92	\$ 64.08	\$ -	\$ -	\$ 2,103.96
3	\$ 2,103.96	\$138.00	\$ 71.74	\$ 66.26	\$ -	\$ -	\$ 2,037.70
4	\$ 2,037.70	\$138.00	\$ 69.48	\$ 68.52	\$ -	\$ -	\$ 1,969.18
5	\$ 1,969.18	\$138.00	\$ 67.14	\$ 70.86	\$ -	\$ -	\$ 1,898.33
6	\$ 1,898.33	\$138.00	\$ 64.73	\$ 73.27	\$ -	\$ -	\$ 1,825.05
7	\$ 1,825.05	\$138.00	\$ 62.23	\$ 75.77	\$ -	\$ -	\$ 1,749.28
8	\$ 1,749.28	\$138.00	\$ 59.65	\$ 78.35	\$ -	\$ -	\$ 1,670.93
9	\$ 1,670.93	\$138.00	\$ 56.97	\$ 81.03	\$ -	\$ -	\$ 1,589.91
10	\$ 1,589.91	\$138.00	\$ 54.21	\$ 83.79	\$ -	\$ -	\$ 1,506.12
11	\$ 1,506.12	\$138.00	\$ 51.35	\$ 86.65	\$ -	\$ -	\$ 1,419.47
12	\$ 1,419.47	\$138.00	\$ 48.40	\$ 89.60	\$ -	\$ -	\$ 1,329.87
13	\$ 1,329.87	\$138.00	\$ 45.35	\$ 92.65	\$ -	\$ -	\$ 1,237.22
14	\$ 1,237.22	\$138.00	\$ 42.19	\$ 95.81	\$ -	\$ -	\$ 1,141.40
15	\$ 1,141.40	\$138.00	\$ 38.92	\$ 99.08	\$ -	\$ -	\$ 1,042.32
16	\$ 1,042.32	\$138.00	\$ 35.54	\$ 102.46	\$ -	\$ -	\$ 939.86
17	\$ 939.86	\$138.00	\$ 32.05	\$ 105.95	\$ -	\$ -	\$ 833.91
18	\$ 833.91	\$138.00	\$ 28.43	\$ 109.57	\$ -	\$ -	\$ 724.34
19	\$ 724.34	\$138.00	\$ 24.70	\$ 113.30	\$ -	\$ -	\$ 611.04
20	\$ 611.04	\$138.00	\$ 20.84	\$ 117.16	\$ -	\$ -	\$ 493.88
21	\$ 493.88	\$138.00	\$ 16.84	\$ 121.16	\$ -	\$ -	\$ 372.72
22	\$ 372.72	\$138.00	\$ 12.71	\$ 125.29	\$ -	\$ -	\$ 247.43
23	\$ 247.43	\$138.00	\$ 8.44	\$ 129.56	\$ -	\$ -	\$ 117.86
24	\$ 117.86	\$121.88	\$ 4.02	\$ 117.86	\$ -	\$ -	\$ -

Conclusion

As shown, microfinance prices are exceedingly difficult to understand and can result in prices that are far higher than they appear. As a result, consumers make poor choices. In fact, all stakeholders involved in microfinance make worse choices than they would if they had accurate pricing information. Truth-In-Lending legislation helps to correct this problem, but in most of the countries where microfinance is practiced, such laws are absent. This is why we in the microfinance industry have decided to start actively working at pricing transparency and the education of the public about the true cost of borrowing. MFTransparency's work is based on this dual approach of educating stakeholders on issues of transparency as well as publishing the true costs of microfinance products in a clear, consistent fashion to create an enabling environment for transparency. If this critical issue is not addressed, clients are left vulnerable to finance institutions that expand their lending to the poor at deceptively advertised interest rates. In some cases, these institutions generate large profits off of the very poor while hiding behind the good image created by the microfinance industry over the past 30 years.