Explanation of Compartamos Interest Rates

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Version 2: 19 May 2008

For a full year, I have seen consistent confusion over what interest rate Compartamos charges its clients. They generally claim to charge approximately 82%, a figure they claim to base on their portfolio yield. This 82% figure is *not* the interest rate paid by the clients. Even by Compartamos' own website, clients pay an annual interest rate of 105%, including the 15% government tax. I'll explain here how interest rate calculations work, why there is so much confusion over what the interest rates really are, and how, from the perspective of the clients, the interest rate is actually 129%.

Loan pricing can be extremely confusing

Recent discussion and debate about interest rates and profits has fallen mostly into two camps. One group says that excessively high profits earned off excessively high interest rates are inappropriate and unfair. The opposing group says that – in line with standard market theory – when two parties enter into an agreement to sell-and-buy, that both parties are benefiting and it is a fair transaction. The interest rate may be high, but the client knows that and determines that the benefit of the loan exceeds the cost.

The significant limitation of the "free market" argument is, in my opinion, that 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 loans that we are offered are simple cases. Let's look at the example of Compartamos. Compartamos advertises loans at an interest rate of 4% per month. Moneylenders are known to charge at least 10% per month. Compartamos looks better. Let's look at some actual numbers: Which of these 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. The total cost of that loan is 547 Pesos, as your repayment schedule shows total payments of 3,547 Pesos. You can then get 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

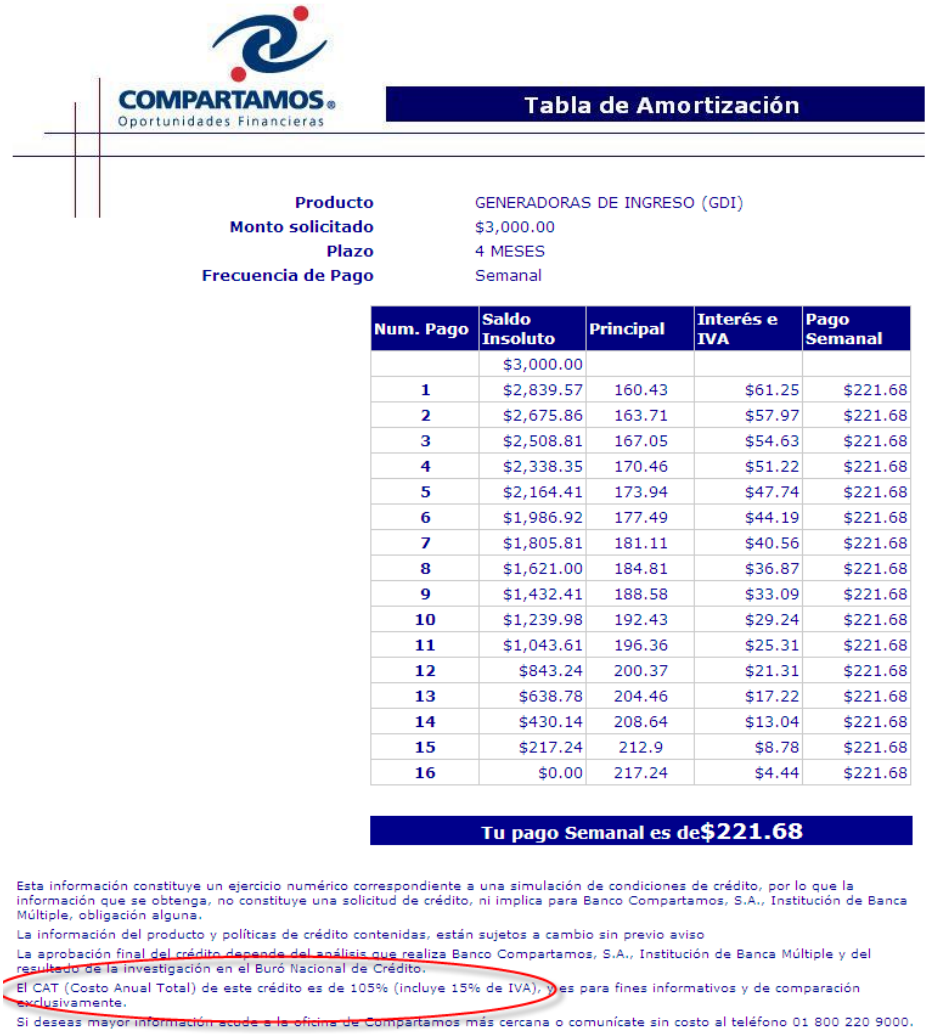
Which looks like the lower cost alternative to you? To most people, Option A seems like a bigger loan for a lower cost. Option B looks like you're paying much more in interest in one year than the actual amount of the loan (and, in fact, you are).

Interestingly, these two loans are exactly the same loan when looked at from a financial perspective. Option A is the standard Compartamos loan. Option B looks 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.

Both loans – Option A and Option B – have an equivalent annual interest rate. This article will explain why this is the case. It will explain Annual Percentage Rate (APR) calculations and will also propose the use of a new "breakeven point" figure to help clients understand the true cost of loans.

What do Compartamos clients actually pay?

Compartamos tells their 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. Compartamos also (I expect) tells them what their weekly payment would be. The Compartamos website also has repayment schedules posted. The following figure is a clip from the Compartamos website of 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. 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. In fact, that 547 Pesos also includes a 15% value-added tax in addition to the interest and principal. That seems not-so-bad 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	$2,508.81	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 sujetos 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 Buró 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 exclusivamente.

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 calculation is done by the US "APR" formula (APR will be explained further below). And note that this CAT calculation is not done with the legal CAT formula required in Mexico.[1] Compartamos has since changed their CAT calculation on their website to match the Mexican legal definition.

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

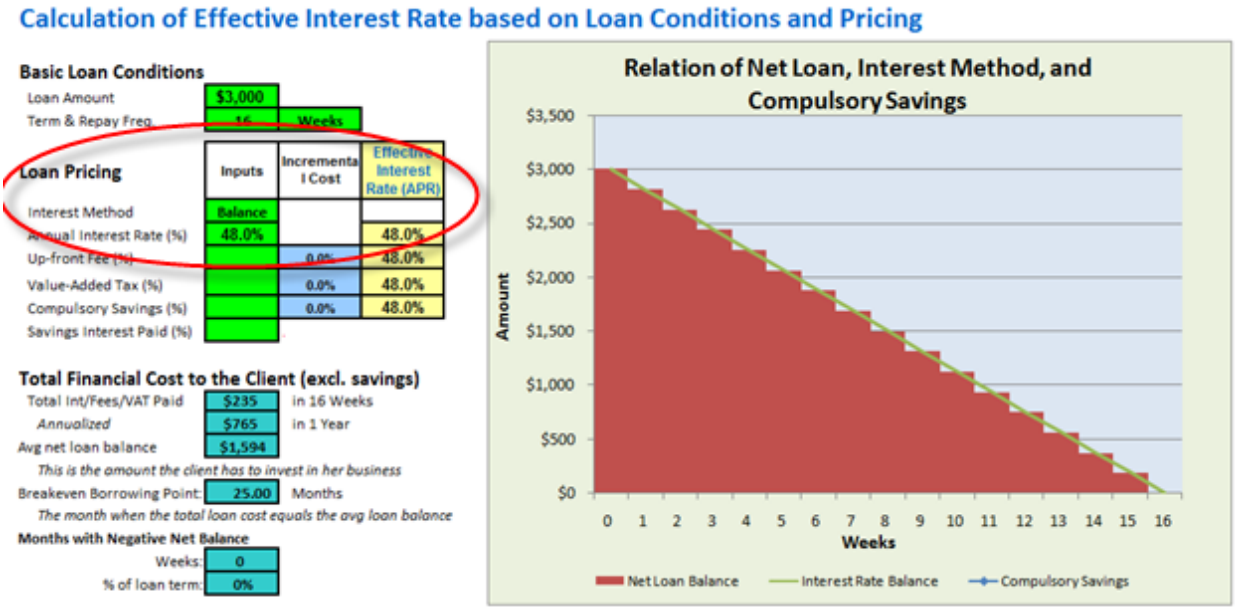
Now, one curiosity that people ask me about constantly is: How does a stated 4%-per-month interest rate become a 105% interest rate? Few people understand, let alone the clients. I have had to explain this to industry practitioners, journalists, industry leaders, and the donor community. What I will do in the following explanation is to walk you through this logic, in fact demonstrating that Compartamos' 4%-

[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.

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 use a variety of techniques to mask the actual cost of the loan. In response, governments have passed consumer protection laws, such as the US "truth-in-lending" act, which distill the mixture interest and fee calculation methods down to a basic, consistent measure called the "Annual Percentage Rate," or APR. In the microfinance industry, this is often called the "effective interest rate". Both terms will be used throughout this explanation, but they are considered synonyms here, even though economists consider "effective interest rate" to be a different calculation.

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 on a "declining balance". The graph on the right shows the "net loan balance" (in red) and the "interest rate balance" (in green). 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 is charged on $188. This is both logical and intuitive, matching the textbook definition of interest.



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% annual interest rate / 52 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 what the break-even return is for

such an “investment”, and it does give what we expect – 48% -- since we were calculating 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.

	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	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)	-	-	-	-	(205)
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 and cannot be debated: 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		
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	

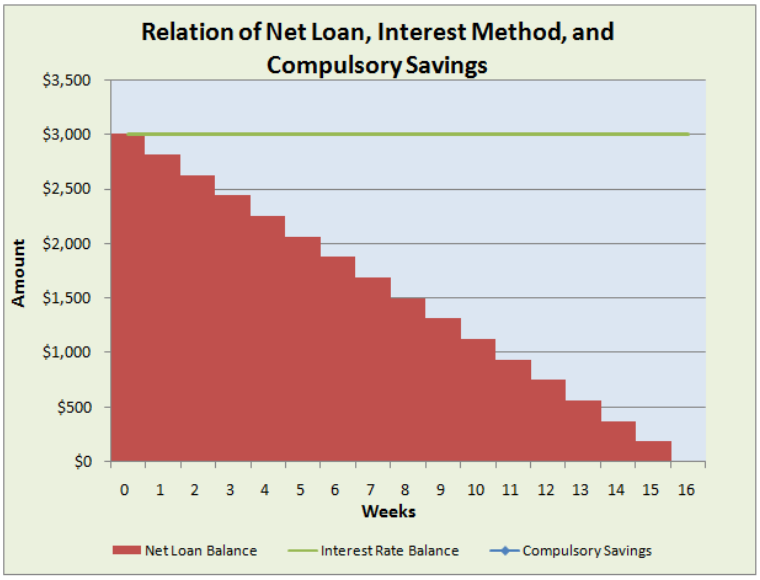
This is the amount the client has to invest in her business

Breakeven Borrowing Point: 13.28 Months

The month when the total loan cost equals the avg loan balance

Months with Negative Net Balance

Weeks:	0
% of loan term:	0%



A general rule known by financial managers is that when flat interest is used, the APR is almost twice as much as the quoted interest rate. In 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.

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	

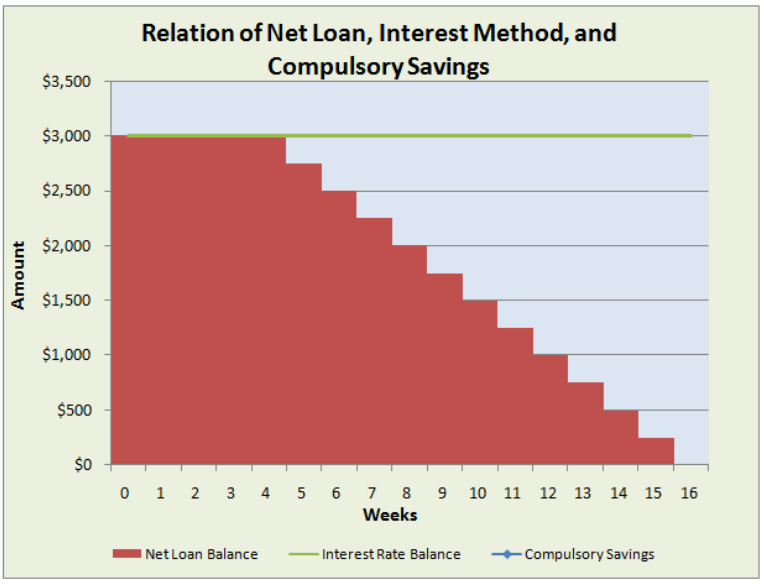
This is the amount the client has to invest in her business

Breakeven Borrowing Point: 16.41 Months

The month when the total loan cost equals the avg loan balance

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 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 they assign to their clients, and we are short of the 105% interest rate that Compartamos notes on that repayment schedule. There are more issues we haven't yet touched on. First, Compartamos does not charge 4% flat interest per *month*. They charge 4% flat interest every *four weeks*, and four weeks does not a month make. A month is 4.3 weeks, and if one uses the "convenience" of saying that a month is 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 from what they tell their clients. The figure below shows that with 52% annual flat interest, the APR increases to 93.7%.

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	

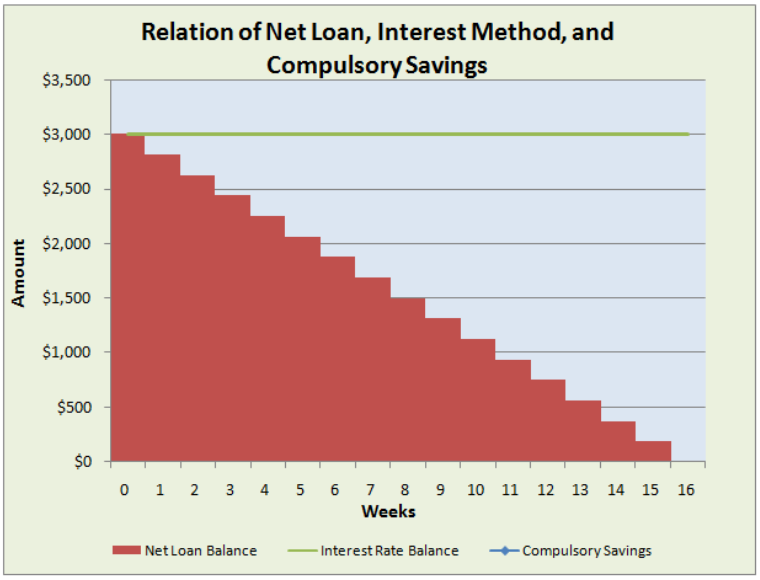
This is the amount the client has to invest in her business

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. To my knowledge, Compartamos does 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%.

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%	13.4%	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	

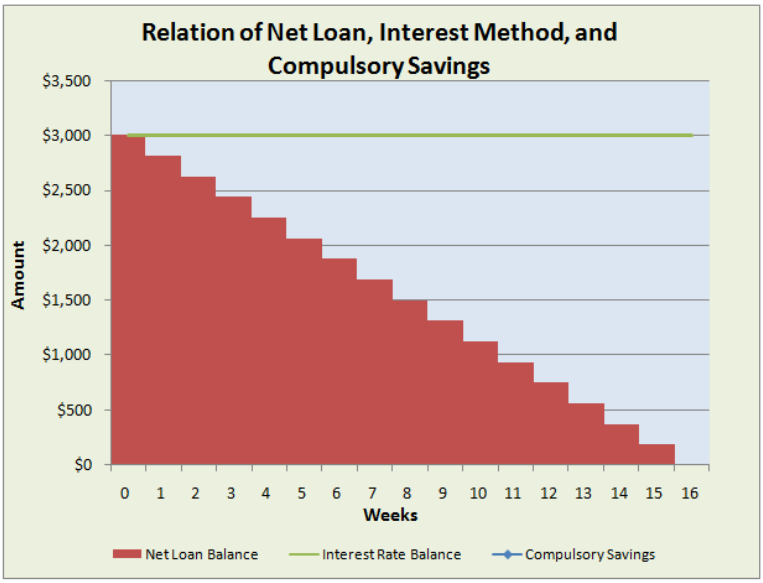
This is the amount the client has to invest in her business

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%

We are now very close to the stated rate of 105% given by Compartamos. Why the slight difference? I attribute this partly to some rounding errors. But the more likely reason is that Compartamos does not actually calculate flat interest in their repayment schedule. They actually are 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. I have never seen this done in other MFIs. In my experience, an MFI claiming to charge a flat interest rate calculates interest using the flat interest rate method.

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, which was passed in response to deceptive pricing tactics by parts of the financial industry in the US.

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 requires all clients to "save" 10% of their loan amount. The use of the term "savings" is really rather indefensible. The client cannot access those "savings" until she has repaid the loan. In fact, 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. Again, Compartamos is not alone in this, as many MFIs require compulsory savings.

This compulsory savings requirement results in a significant additional cost to the client. 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" is now lower. In Week 0, the client has $2,700, while interest is charged on $3,000. The red area is now a smaller percentage of the green, rectangular area. 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. There is no honest way to justify this method of charging clients as truly being "interest." The table on the left shows how this compulsory savings requirement adds 21.8% to the APR, raising it to 129%.

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%	13.4%	107.1%
Compulsory Savings (%)	10.0%	21.8%	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	

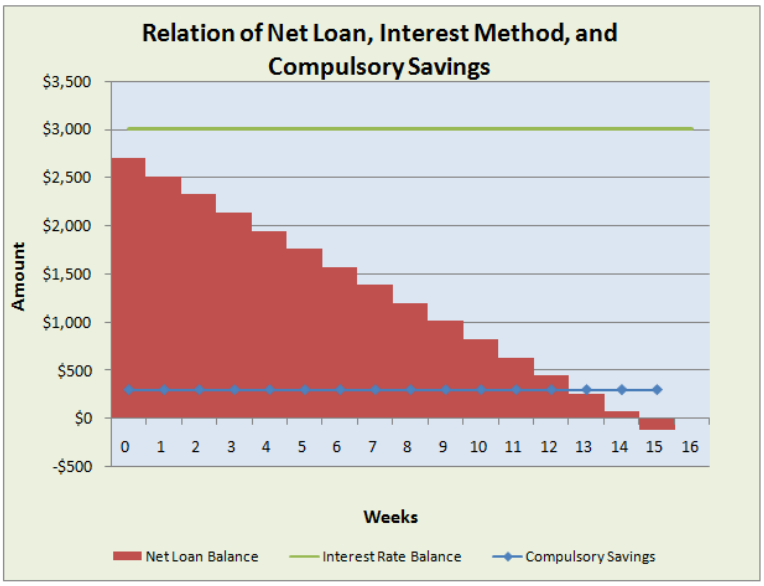
This is the amount the client has to invest in her business

Breakeven Borrowing Point: 8.65 Months

The month when the total loan cost equals the avg loan balance

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.

	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**	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? 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 much less than a year. It is only 16 weeks. If the client turns around again borrows $3,000 and goes through another cycle, and continues for a year, she will have paid a total of $1,794 in interest and VAT over those 52 weeks.

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	
This is the amount the client has to invest in her business		
Breakeven Borrowing Point:	8.65	Months
The month when the total loan cost equals the avg loan balance		
Months with Negative Net Balance		
Weeks:	2	
% of loan term:	13%	

And 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. 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 a bit more than $1,294, and some weeks a bit 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 $1,294 for an entire year and then charges the client $1,794 for that privilege.

The Breakeven Borrowing Point: Deciding when it makes sense to borrow

In fact, as the table shows, the client's "Breakeven Borrowing Point" is 8.65 months. At 8.7 months into the year, the client is already behind, paying more in charges than the actual loan amount. She continues her debt cycle month-after-month. If she could, instead, mobilize $1,294 of her own money and be satisfied with that amount, she could be freed from borrowing from Compartamos. She would have $1,794 of additional income each year to spend on her family. To me, that is profound. It demonstrates clearly that when interest rates are extremely high, it is far better to save to finance your needs rather than to borrow.

For comparison purposes, we can put this into perspective with an example from the formal finance world. The figure below shows an example of an automobile loan in the US, a loan for 60 months at 10% annual, declining balance interest. The breakeven borrowing point is 120 months – 10 years. Rather than save for ten years in order to buy a new car, it does make sense to borrow the money. But would you borrow the money for that car if the interest rate was 129% and the breakeven point was 8 months? No, you would instead save now and buy later.

Calculation of Effective Interest Rate based on Loan Conditions and Pricing

Basic Loan Conditions

Loan Amount	$30,000	
Term & Repay Freq.	60	Months

Loan Pricing

	Inputs	Incremental Cost	Effective Interest Rate (APR)
Interest Method	Balance		
Annual Interest Rate (%)	10.0%		10.0%
Up-front Fee (%)		0.0%	10.0%
Value-Added Tax (%)		0.0%	10.0%
Compulsory Savings (%)		0.0%	10.0%
Savings Interest Paid (%)			

Total Financial Cost to the Client (excl. savings)

Total Int/Fees/VAT Paid	$7,625	in 60 Months
Annualized	$1,525	in 1 Year
Avg net loan balance	$15,250	

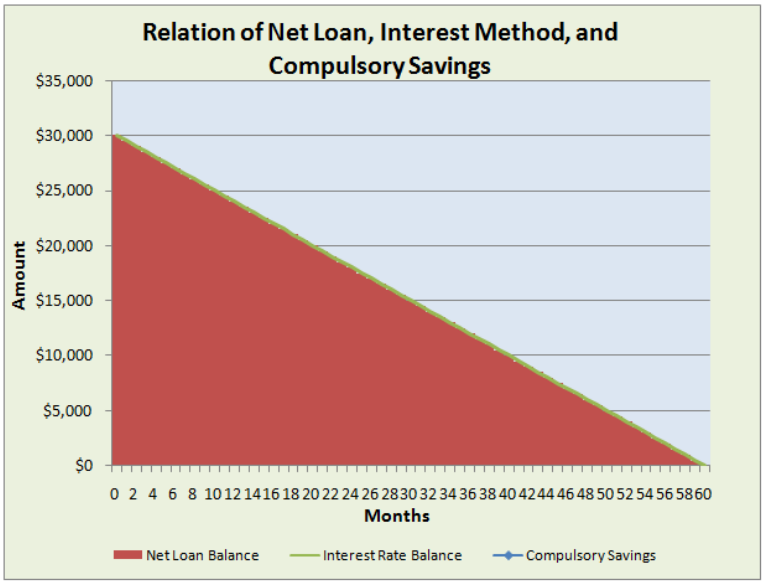
This is the amount the client has to invest in her business

Breakeven Borrowing Point: 120.00 Months

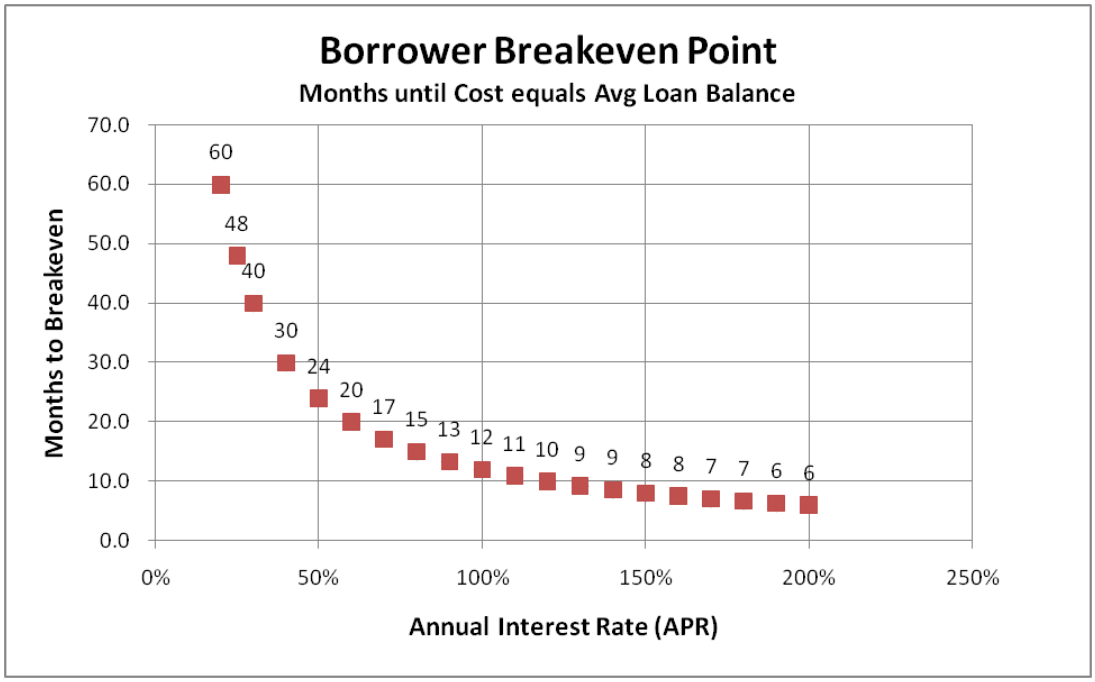
The month when the total loan cost equals the avg loan balance

Months with Negative Net Balance

Months:	0
% of loan term:	0%



This final graph displays the borrower breakeven point for a range of annual interest rates from 10% to 200%. Intuitively, you can see that for a 100% annual interest rate, the breakeven point is at exactly 12 months. For lower interest rates, like 20%, the breakeven point is much longer (60 months, or 5 years) making the loan look more attractive as a means of financing through debt. For higher interest rates, like 200%, the breakeven point is shortened to only 6 months.



Unless you are in desperate financial condition, you should not borrow money at very high interest rates unless for a very brief time, such as a week or a month at most, and you would want to keep the amount of the loan very low. But such clarity on loan prices, the true cost of borrowing, and on the breakeven

point of saving rather than borrowing are not well-known. As a result, it can be argued that the poor, even when making free-market decisions, are not making the wisest decisions, even when they repay a loan and borrow again, because understanding the actual cost of that loan was not easily understood. In addition, it can be strongly argued that when a client has a choice of who to borrow from, that the lack of transparency on pricing makes her decision very, very difficult. She may very well choose a product advertised with an attractive, low cost, but end up paying a substantially higher real cost.

Such situations have led to the establishment of truth-in-lending legislation in many countries, but in most of the countries where microfinance is practiced, such laws are often absent. Hopefully, such legislation will become more commonplace, but it will take some years before that happens. I believe that in the meantime, we in the microfinance industry must start actively working at pricing transparency and work at education of the public about the true cost of borrowing. Not doing so leaves open the possibility of finance institutions expanding their lending to the poor at deceptively advertised interest rates and generating large profits off of the very poor while hiding behind the good image created by the microfinance industry over the past 30 years.