TEXAS OFFICE OF CONSUMER CREDIT COMMISSIONER

Regulated Lender Advisory Bulletin: Single Equivalent Daily Rate

This bulletin explains how to calculate a single equivalent daily rate for regulated loans under Chapter 342 of the Texas Finance Code.

Chapter 342, Subchapter E of the Finance Code allows an authorized lender to charge a three-tiered interest rate. In 2019, the Texas Legislature enacted HB 3855 (effective September 1, 2019), which allows an authorized lender to charge this three-tiered rate by either: (1) applying an applicable daily rate to each bracket of the unpaid principal balance, or (2) applying a single equivalent daily rate to the entire principal balance.

To calculate the single equivalent daily rate, a lender must use the interest rates and loan brackets under Section 342.201(e), and must use the scheduled installment earnings method as if the loan were paid to maturity.

Section 342.201(e) of the Finance Code establishes a three-tiered interest rate. As of September 2019, an authorized lender may charge an annual interest rate of:

- 30% on the amount of the principal balance up to $3,550;
- 24% on the amount of the principal balance above $3,550, up to $7,455; and
- 18% on the amount of the principal balance above $7,455, up to $17,750.

The rate bracket dollar amounts in Section 342.201(e) are adjusted annually based on the Consumer Price Index, and are published on the OCCC's website: https://occc.texas.gov/publications/interest-rates.

The remainder of this bulletin will explain the method to convert the three-tiered rate structure into a single equivalent rate. This calculation must be done through a method, not a single formula. The single equivalent rate under Section 342.201(e-1) is affected by the principal balance of the loan; the repayment terms of the loan (the number, timing, and dollar amount of the payments); and the use of the 365/365 day calendar.

This bulletin presents the method for calculating the maximum single equivalent rate. A lender may use other methods as long as the amount of interest charged does not exceed the maximum legal amount.

Example #1 – Regular Transaction with the administrative fee spread evenly over the term of the loan (the administrative fee is not included in the principal balance upon which interest is computed).

Basic Terms

Principal Balance:	$10,000.00
Date of Loan:	11/01/19
First Payment Date:	12/01/19
Term of Loan:	5 months
Administrative Fee:	$100.00
Earnings Method:	Scheduled Installment Earnings Method
Rate Structure:	Section 342.201(e)
Applicable Bracket Amounts:	$3,550.00, $7,455.00, and $17,750.00

Step 1: The first step of the calculation is to determine the principal balance upon which an interest charge is computed. In this example, the administrative fee is not included into the principal balance; therefore, the unpaid principal balance upon which interest is computed is $10,000.00.

Step 2: The second step of the calculation is to allocate the unpaid principal balance among the three individual rate brackets for each unit period. In this example, the beginning principal balance is $10,000.00. The individual simple interest rates of 30%, 24%, and 18% found under Texas Finance Code, Section 342.201(e) are then applied to their respective portion of the unpaid principal balance for each installment.

For this example, the original principal balance of $10,000.00 is allocated among the three tiers as follows:

30% on $ 3,550.00
24% on $ 3,905.00 ($7,455 - $3,550)
18% on $ 2,545.00 ($10,000 - $7,455)

Step 3: The third step of the calculation is to amortize the loan through the maturity date as if each payment was received and paid as scheduled. The amount of interest earned for each individual scheduled payment can be derived using the following formula:

Unpaid Principal Balance x (Simple Annual Rate ÷ 365) x Number of Days Between Payments

Therefore, the interest charge in the first month is determined as follows:

$ 3,550.00 x (.30 ÷ 365) x 30 = $ 87.53
$ 3,905.00 x (.24 ÷ 365) x 30 = $ 77.03
$ 2,545.00 x (.18 ÷ 365) x 30 = $ 37.65

The total interest charge for the first month is $202.21 ($87.53 + $77.03 + $37.65). After determining the total interest charge for the first month, the interest charge and administrative fee (the administrative fee in this example is spread evenly over the installments using the straight-line method) is deducted from the payment. In this example, the principal reduction is calculated as follows: $2,154.57 – $20.00 - $202.21 = $1,932.36 (Payment – administrative fee – interest charge = principal reduction).

The new unpaid principal balance is $8,067.64 ($10,000 - $1,932.36). Scheduled interest through the second month is shown below:

$ 3,550.00 x (.30 ÷ 365) x 30 = $ 90.45
$ 3,905.00 x (.24 ÷ 365) x 30 = $ 79.60
$ 612.64 x (.18 ÷ 365) x 30 = $ 9.37

The total interest charge for the second month is $179.42 ($90.45 + $79.60 + $9.37). The principal reduction for the second month is $1,955.15 ($2,154.57 - $20.00 - $179.42). The remaining principal balance is $6,112.49 ($8,067.64 - $1,955.15). This process is repeated using the scheduled installment earnings method until the debt is repaid in full. A lender may use a spreadsheet program that uses a 365/365 day calendar to amortize the loan. A complete amortization of this loan is shown in Figure 1 below.

Figure 1

Scheduled Payment Date	Payment Amount	Admin Fee	30% Rate Bracket	24% Rate Bracket	18% Rate Bracket	Principal Reduction	Remaining Principal Balance
Beginning balance							$10,000.00
12/01/2019 11/01/2019 to 12/01/2019 (30 days)	$2,154.57	$20.00	$3,550.00 x .30 ÷ 365 x 30 = $87.53	$3,905.00 x .24 ÷ 365 x 30 = $77.03	$2,545.00 x .18 ÷ 365 x 30 = $37.65	$2,154.57 - $20.00 – $87.53 - $77.03 - $37.65 = $1,932.36	$10,000.00 - $1,932.36 = $8,067.64
1/01/2020 12/02/2019 to 01/01/2020 (31 days)	$2,154.57	$20.00	$3,550.00 x .30 ÷ 365 x 31 = $90.45	$3,905.00 x .24 ÷ 365 x 31 = $79.60	$612.64 x .18 ÷ 365 x 31 = $9.37	$2,154.57 - $20.00 - $90.45 - $79.60 - $9.37 = $1,955.15	$8,067.64 - $1,955.15 = $6,112.49
2/01/2020 01/02/2020 to 02/01/2020 (31 days)	$2,154.57	$20.00	$3,550.00 x .30 ÷ 365 x 31 = $90.45	$2,562.49 x .24 ÷ 365 x 31 = $52.23	None	$2,154.57- $20.00 - $90.45 - $52.23 = $1,991.89	$6,112.49 - $1,991.89 = $4,120.60
3/01/2020 02/02/2020 to 03/01/2020 (29 days)	$2,154.57	$20.00	$3,550.00 x .30 ÷ 365 x 29 = $84.62	$570.60 x .24 ÷ 365 x 29 = $10.88	None	$2,154.57 - $20.00 - $84.62 - $10.88 = $2,039.07	$4,120.60 - $2,039.07 = $2,081.53
4/01/2020 03/02/2020 to 04/01/2020 (31 days)	$2,154.57	$20.00	$2,081.53 x .30 ÷ 365 x 31 = $53.04	None	None	$2,154.57 - $20.00 - $53.04 = $2,081.53	$2,081.53 - $2,081.53 = $0.00

Step 4: Once the loan is amortized using the scheduled installment earnings method, the next step is to add up all the monthly interest for the five payments as if the loan were paid to maturity. In this example, the total interest for the loan is $672.85.

Step 5: The next step is to create a new amortization schedule that uses the same payment dates and payment amounts, with an unknown interest rate.

Step 6: The final step is to solve for a single equivalent rate. The single equivalent rate can be determined using the "Goal Seek" function in a spreadsheet program such as Microsoft Excel. Using the "Goal Seek" function, the lender will solve for the rate that reduces the principal balance to zero. The result of that calculation is 26.5421%. This rate is the maximum single equivalent rate for this loan with these terms. As proof that the single equivalent rate of 26.5421% is accurate, the amortization schedule should reflect that the remaining principal balance after the final scheduled payment is zero.

Figure 2 illustrates the proper amortization of the loan using the original terms of the loan (the principal balance and repayment terms) and reflects that the single equivalent rate is 26.5421%.

Figure 2

Payment Date Information	Payment Amount	Admin Fee	Interest Assessed at Single Equivalent Rate 26.5421%	Principal Reduction	Remaining Principal Balance
Beginning balance					$10,000.00
12/01/2019 11/01/2019 to 12/01/2019 (30 days)	$2,154.57	$20.00	$10,000.00 x .265421 ÷ 365 x 30 = $218.15	$2,154.57 – $20.00 - $218.15 = $1,916.42	$8,083.58
1/01/2020 12/02/2019 to 01/01/2020 (31 days)	$2,154.57	$20.00	$8,083.58 x .265421 ÷ 365 x 31 = $182.23	$2,154.57 – $20.00 - $182.23 = $1,952.34	$6,131.24
2/01/2020 01/02/2020 to 02/01/2020 (31 days)	$2,154.57	$20.00	$6,131.24 x .265421 ÷ 365 x 31 = $138.21	$2,154.57 – $20.00 - $138.21 = $1,996.36	$4,134.88
3/01/2020 02/02/2020 to 03/01/2020 (29 days)	$2,154.57	$20.00	$4,134.88 x .265421 ÷ 365 x 29 = $87.20	$2,154.57 – $20.00 - $87.20 = $2,047.37	$2,087.51
4/01/2020 03/02/2020 to 04/01/2020 (31 days)	$2,154.57	$20.00	$2,087.51 x .265421 ÷ 365 x 31 = $47.06	$2,154.57 – $20.00 - $47.06 = $2,087.51	$0.00

Example #2 – Regular Transaction with no administrative fee

Cash Advance:	$8,000.00
Date of the Loan:	09/01/2019
First Payment Due Date:	10/01/2019
Term of the Loan:	5 months
Administrative Fee:	$0.00
Earnings Method:	Scheduled Installment Earnings Method
Rate Structure:	Section 342.201(e)
Applicable Bracket Amounts:	$3,550.00, $7,455.00, and $17,750.00

Figure 3 is a complete amortization of this loan using the rate structures found under Texas Finance Code, Section 342.201(e) for the brackets shown above.

Figure 3

Scheduled Payment Date	Payment Amount	Admin Fee	30% Rate Bracket	24% Rate Bracket	18% Rate Bracket	Principal Reduction	Remaining Principal Balance
Beginning balance							$8,000.00
10/01/2019 09/01/2019 to 10/01/2019 (30 days)	$1,712.62	$0.00	$3,550.00 x .30 ÷ 365 x 30 = $87.53	$3,905.00 x .24 ÷ 365 x 30 = $77.03	$545.00 x .18 ÷ 365 x 30 = $8.06	$1,712.62 - $87.53 - $77.03 - $8.06 = $1,540.00	$6,460.00

Scheduled Payment Date	Payment Amount	Admin Fee	30% Rate Bracket	24% Rate Bracket	18% Rate Bracket	Principal Reduction	Remaining Principal Balance
11/01/2019 10/02/2019 to 11/01/2019 (31 days)	$1,712.62	$0.00	$3,550.00 x .30 ÷ 365 x 31 = $90.45	$2,910.00 x .24 ÷ 365 x 31 = $59.32	None	$1,712.62 - $90.45 - $59.32 = $1,562.85	$4,897.15
12/01/2019 11/02/2019 to 12/01/2019 (30 days)	$1,712.62	$0.00	$3,550.00 x .30 ÷ 365 x 30 = $87.53	$1,347.15 x .24 ÷ 365 x 30 = $26.57	None	$1,712.62 - $87.53 - $26.57 = $1,598.52	$3,298.63
01/01/2020 12/02/2019 to 01/01/2020 (31 days)	$1,712.62	$0.00	$3,298.63 x .30 ÷ 365 x 31 = $84.05	None	None	$1,712.62 - $84.05 = $1,628.57	$1,670.06
02/01/2020 01/02/2020 to 02/01/2020 (31 days)	$1,712.61	$0.00	$1.670.06 x .30 ÷ 365 x 31 = $42.55	None	None	$1,712.61 - $42.55 = $1,670.06	$0.00

Figure 4 illustrates the proper amortization of the loan to determine the appropriate single equivalent rate to reduce the principal balance to zero given the original terms of the loan (principal balance and repayment terms).

Figure 4

Payment Date Information	Payment Amount	Admin Fee	Interest Assessed at Single Equivalent Rate 27.69056%	Principal Reduction	Remaining Principal Balance
Beginning balance					$8,000.00
10/01/2019 09/01/2019 to 10/01/2019 (30 days)	$1,712.62	$0.00	$8,000.00 x .2769056 ÷ 365 x 30 = $182.07	$1,712.62 - $182.07 = $1,530.55	$6,469.45
11/01/2019 10/02/2019 to 11/01/2019 (31 days)	$1,712.62	$0.00	$6,469.45 x .2769056 ÷ 365 x 31 = $152.15	$1,712.62 - $152.15 = $1,560.47	$4,908.98
12/01/2019 11/02/2019 to 12/01/2019 (30 days)	$1,712.62	$0.00	$4,908.99 x .2769056 ÷ 365 x 30 = $111.73	$1,712.62 - $111.73 = $1,600.89	$3,308.09
01/01/2020 12/02/2019 to 01/01/2020 (31 days)	$1,712.62	$0.00	$3,308.10 x .2769056 ÷ 365 x 31 = $77.80	$1,712.62 - $77.80 = $1,634.82	$1,673.27
02/01/2020 01/02/2020 to 02/01/2020 (31 days)	$1,712.62	$0.00	$1,673.27 x .2769056 ÷ 365 x 31 = $39.35	$1,712.62 - $39.35 = $1,673.27	$0.00