

My First 3D Printing

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FIRST PERIOD

Laura Ramírez is a young entrepreneur who works as a graphic designer. Her average monthly income is \$30,000 pesos (MXN) and her monthly expenses (rent, food, transportation, etc.) amount to \$22,000 pesos (MXN). Laura has been saving and she now wants to expand her business and purchase a high-quality 3D printer to offer additional services of prototyping and layout.

Laura has decided that she needs a 3D printer that costs \$250,000 pesos (MXN). She currently has \$50,000 pesos available in a savings account that is not generating any interest. If she uses her savings, she will only need funding for \$200,000 pesos (MXN) to purchase the printer.

Image. Freepik, 2024.



José Luis, Laura's boyfriend, studied Finance and is a consultant for small and medium-sized companies. When he realizes that Laura does not know where to begin checking the credit options available in the market, he offers his help to find reliable information about the different financing sources and answer the questions that trouble her so much.

How much does she have to pay per month for a \$200,000 pesos (MXN) credit?

Does she have the capacity to pay in all the financing options proposed by her boyfriend?

What will her depreciation tables look like?

Which is the TAC for each option?

Which option should be chosen?

SECOND PERIOD

Before purchasing the 3D printer, Laura makes projections and forecasts earnings and additional expenses that she will have by offering the proto-typing and layout services. She also believes that after five years that printer will have accomplished its mission, and she will have to sell it. She does not know whether there will be new technology by that time.

Today, she has a \$100,000 pesos (MXN) invest-ment, with a one-year term in CETES, and a rate of 11.37% (to July 23, 2024). Upon realizing that in-vesting on her printer implies greater risk, she de-cides that the amount she will take from her avail-able savings (\$50,000 MXN) must have a return, at least twice as much as CETES'. José Luis explains to her that the percentage she has established is known in finance as k_s .

Image. juicy_fish in Flaticon, 2024.



Annual income budgeted	\$ 120,000 MXN
Annual expenses budgeted	\$ 30,000 MXN
Printer's lifespan	5 years
Printer's selling price at the end of the fifth year	\$ 20,000 MXN

Footnote: Consider a 30% tax rate
Source: Own elaboration, 2024



Image. Freepik, 2024.

THE DECISION

Once again, she asks for her boyfriend's help to see if purchasing the 3D printer is a feasible project. With this in mind, José Luis gives her the following:

1. A table with annual net cash flows.
2. The financing cost (WACC) considering that she will ask for \$200,00 pesos (MXN) to the best financing source found, and she will use the \$50,000 pesos (MXN) she has saved.
3. Profitability indicators
 - a. Net present value
 - b. Internal rate of return
 - c. Payback

4. A recommendation regarding the decision whether to invest in the purchase of the 3D printer.
5. He proposes new WACC structures, describing the advantages and disadvantages of each if she considers any of these new alternatives.
 - a. Debt 100%
 - b. Withdraw her \$100,000 pesos (MXN) from CETES and add them to the \$50,000 pesos (MXN).
 - c. Invite a partner and together invest the 100%. He is assuming that the partner is also offering the same return she is (twice as much as CETES).