

Impact outcome

Anticipated transaction impact

Improve livelihood of farmers in Ejutla de Crespo, Oaxaca through an equitable and

Impact score Pass (21/28)

Credit score Pass (22/28)

Loan Overview

Loan amount USD 150k

Tenor and structure 48-month term loan

Interest rate 8% p.a.

Financial Overview

2021 Revenue USD 1,457 k

2021 Net Income USD 300 k

2021 Net Assets USD 1,867 k

Company Information

Legal name

Incorporation date

Corporate address Ejutla de Crespo, Oaxaca

Nature of business Producer of castor oil and auxiliary products

Website <https://www.ricinomex.com.mx/>

Shareholders

Name	Share (%)
Jonathan Hernandez Diaz	15%
Carmela Diaz Martinez (mother)	40%
Jose Luis Hernandez Diaz (brother)	31%
Member farmers	7%
Others	7%

Company management

Name	Nationality	Position
Jonathan Hernandez	Mexican	CEO
Katherine Perez Hernandez	Mexican	Mezcal and Whisky leader
Carlos Alberto Garcia	Mexican	Agronomy leader

Recommendation

Approval of a USD 150,000 term loan to finance a castor cake expeller and tractor



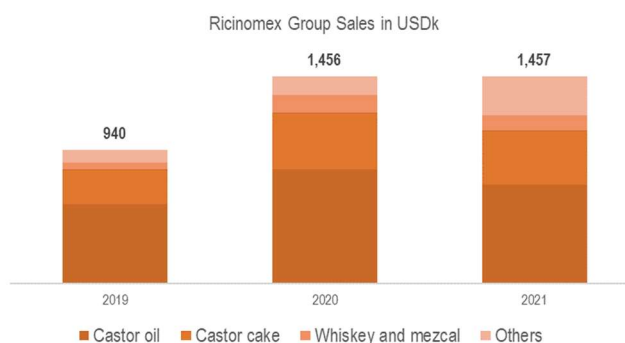
Ricinomex



Business overview

Ricinomex is a profitable Mexican producer of castor oil, operating in Oaxaca, Mexico, since 2015. It sells 100% of its production to domestic manufacturers of soaps, adhesives, and lubricants as a cheaper alternative to imported castor oil from India.

Ricinomex works with over 3,000 smallholder farmers from Oaxaca, the fourth poorest state in Mexico. Before partnering with Ricinomex, the farmers primarily engaged in mono-crop farming. Aside from crop diversity and additional income through the castor seeds, farmers also benefit from training programs on regenerative agriculture. Furthermore, the byproduct of castor oil production is sold back to the farmer as fertilizer for much better future yields and at a fraction of the cost of conventional commercial fertilizers.



During the off season months of April to October, farmers also sell their corn and agave to be turned into whiskey and mezcal.

Ricinomex is now seeking external funding to upgrade its castor cake production and to purchase a tractor for on-leasing to its partner farmers. Investing in these assets will deepen Ricinomex's impact while also improving its product quality.

Impact background

Ejutla de Crespo is a municipality in Oaxaca, 600 km southeast of Mexico City. Ejutla comes from the Nahuatl *exotl* and *tla*, meaning "place of abundant green beans." It is no surprise then that more than 30% of employment comes from agriculture and support services. Although the unemployment rate is lower than the national average, the average income generated from agricultural activities is not enough to meet basic needs, such that 66% of the residents of Ejutla de Crespo live in moderate to extreme poverty¹. Additionally, most farmers in the region face perennial challenges with climate change since few have irrigated fields.

Impact delivery

Jonathan Hernandez Diaz, founder and CEO of Ricinomex, started the company expressly to create opportunities for Mexico's smallholder farmers. Jonathan's grandfather was a farmer, and he saw firsthand the effort required to make a living from the land. Ricinomex delivers its impact by serving as a regular, direct, and premium market for farmer produce, providing technical assistance and organic farming training, and providing more affordable organic fertilizer and inputs.

Calling them farmers may be a misnomer, as a lot of Ricinomex's partners also have day jobs doing construction work. They were mainly cultivating the corn for their family's own consumption, and for their animal feeds. The castor seed provides a new income stream for the 3,180 partners who used to just plant corn on their fields. For every hectare, they extract about USD 430 of additional value from a seed that was otherwise considered a weed.

The farmers also sell their corn to Ricinomex at 60% higher than the market. Aside from the benefit of the price premium, farmers are less concerned with price uncertainty and market access since Ricinomex buys 100% of their produce at agreed-upon prices. In total, from previously earning USD 230 per hectare through the corn, they are now making up to 3x more or about USD 730 per hectare from the corn and castor.

Ricinomex is involved in the planting design, fertilization, and pest and disease management to help ensure crop success. Farmers are also regularly trained on more sustainable farming practices. Through these programs, farmers have improved their yields from 400 kg nuts per hectare to 900 kg nuts per hectare. Ricinomex provides these services through its network of 140 farmer leaders who manage 20-25 farmers each.

The extraordinary proof of their success is the growth of the Ricinomex program — from starting with just 40 farmers in the beginning to the 3,000+ active members today.

Industry overview

Castor bean (*Ricinus communis*) is an industrial crop that thrives in tropical regions. Originally from Africa, castor cultivation dates as early as 6,000 years ago². Egyptians used its oil for lamps which is still its most prominent use today.

Typically perceived as a weed in Mexico, the crop has many industrial uses. Manufacturers of soaps and waxes, lubricants and brake fluids, coatings, and paint use castor oil and its derivatives. Most castor oil produced globally comes from India, Netherlands, and France. India is the world leader, shipping out 86% of the global exported tonnage. The biggest importer of castor oil is China, importing 41%³. Mexico is a net importer of castor oil. In 2020, it imported \$7.3 million, vs.



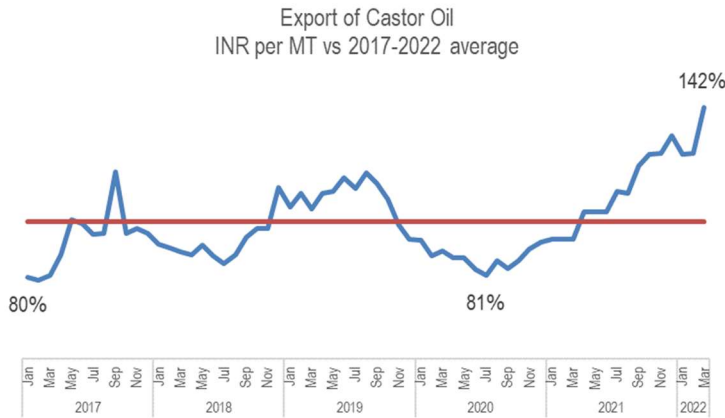
Figure 1 Castor pods and seeds

¹ [Heroica Ciudad de Ejutla de Crespo: Economy, employment, equity, quality of life, education, health and public safety | Data México \(datamexico.org\)](#)

² [Oxford University Plants 400: Ricinus communis](#)

³ [Castor oil or fractions not chemically modified \(HS: 151530\) Product Trade, Exporters and Importers | OEC](#)

the export value of only \$532,000. Like the rest of the world, Mexico counts on India for almost 70% of its castor oil requirements.⁴



From 2003 to 2012, the global demand for castor oil increased by 60%⁵ as more industrial users found that castor oil is a cheaper and more stable-priced, biodegradable, and renewable alternative to petroleum-based solutions. Market estimates are projecting the global castor oil and derivatives market to grow 4.7% annually until 2027.⁶ The price of castor oil from India has been steadily increasing since 2017. Q1 2022 export prices, according to the Solvent Extractors Association of India, are 30% higher than the average over 2017-2022.

Figure 2 2017-2022 Indian export castor oil prices, BR Analysis

Consultation with Michael Carboy

Beneficial Returns consulted with Michael Carboy, an operating and finance executive focusing on decarbonization and sustainability themes for large and small businesses. He had some experience with castor oil refinery projects. Michael highlighted that demand for the product would not be a significant concern because of the various industrial applications of castor oil. Furthermore, because it's not the main component in these applications, a price increase will not significantly affect the customer's cost of goods. He also confirmed Beneficial Returns' research that India dictates the global price of castor oil.

Company overview

Several entities operate under the Ricinomex group. It works exclusively in Mexico, out of the 15,000 sqm facility in Oaxaca. Through these three companies, the Ricinomex group extracts value out of the castor seed and the auxiliary crops cultivated by its partner farmers. The activities of these companies, as well as their ownership, are listed below. All the companies are partially owned by Jonathan Hernandez. Intercompany sales are transferred at cost.

	Primary purpose	Ownership
Ricinomex	Extraction and sale of castor oil and castor cake for feeds and fertilizer	95% Jonathan Hernandez and family 5% Pioneer farmers (41 individuals)
Dertek	Sale of whiskey, hand sanitizers, and denatured alcohol	100% Jonathan Hernandez and family
Agroindustria	Sale of castor oil, castor cake for feeds and fertilizer, mezcal	75% Jonathan Hernandez and family 25% pioneer farmers (17 individuals)

Figure 3 The Ricinomex group, its companies, and primary activities (Source: Ricinomex management interview)

In July 2015, the Ministry of Agriculture, Livestock, Rural Development and Fisheries (SAGARPA) awarded a grant of roughly USD 430k to Ricinomex to build its 15,000 sqm facility and start the castor seed planting program in 28 municipalities in Oaxaca. A USD 160k bank loan (since repaid in full) and USD 160k of friends and family money supplemented this support from the government to complete the \$750k project. While the initial intention for the

⁴ ibid

⁵ [Castor oil as a potential renewable resource for the production of functional materials \(springeropen.com\)](https://www.springeropen.com)

⁶ [Castor Oil Derivatives Market Size, Share, Growth | Report, 2020-2027 \(fortunebusinessinsights.com\)](https://www.fortunebusinessinsights.com)

factory was biofuel production, Ricinomex realized that castor oil is a more viable market to penetrate and thus shifted gears.

The Ricinomex group does not have an in-house formal board right now, but is part of the ENLACE+ program, where an advisory council board meets with him on a quarterly basis and mentors him on the aspects of agronomy, financial, legal, and human resources.

Supply chain



The castor seed supply chain is a circular one. At the beginning of the season (November), Ricinomex provides farmers with castor seeds at no cost. After about six months, the plants grow up to 3 meters tall and produce spiked pods. When ripe, these pods dry out and release the seeds. The farmers collect and sundry the pods for 4-5 days before delivering to the Ricinomex facility.

After further cleaning and cooking to remove moisture, factory workers press the nuts to extract castor oil. Other castor oil extraction refineries use chemicals for further extraction and refining. Ricinomex, however, only extracts its oil mechanically. While this limits the oil they get per kilogram of castor seed, it simplifies the required machinery, quality assurance, waste management, and supply chain of the factory.

The remaining byproduct after pressing is called a castor cake. In Ricinomex's experience, for every 2.5 kg nut harvested, about 1 kg crude oil can be extracted along with a 1.5 kg castor cake. The castor cake is sold back to the farmers as a nitrogen-rich fertilizer or further processed and sold as a cheaper, high-protein cattle feed alternative to soy.

In a 2011 Elsevier study, roughly a 50/50 mix of castor husks and meal for fertilizer resulted in improved stem diameter, number and sizes of leaves, and the dry root mass. Studies typically attribute this improvement to the high nitrogen content of the castor meal.



The castor oil extraction plant only runs 3-4 months during the year. To improve the economic opportunity for its partner farmers and to better optimize its under-utilized factory, Ricinomex expanded its product lines to include whiskey and mezcal that it sells B2B. In addition to castor seed, Ricinomex purchases corn and agave, the primary crops of its partner farmers. 100% of the castor oil and whiskey customers are Mexican companies.

Sales strategy

Aside from the financial support provided by SAGARPA in 2015, Ricinomex also received free promotional support, introducing Ricinomex as a Mexican-made alternative to castor oil imported from India. So far, Ricinomex has never had to look for customers actively; the customers find Ricinomex. In fact, the business has had to decline several potential customers due to a lack of products. There are currently thirteen castor oil customers, and company policy requires that no single customer exceeds 40% of production. Three of these customers provide forecast volumes for the year. Ricinomex does not enter into long-term contracts with its customers.

Ricinomex's recent certification (Q2 2022) for Fair Trade will further cement its reputation as a socially responsible supplier of castor oil.



Site visit

Ted has known Jonathan since May 2018. At that time, he approached Jonathan, but Jonathan had no need for financing. They communicated occasionally in the intervening years, until they met in person February 14, 2022.

Ted spent the majority of one day with Jonathan. They visited the Ricinomex factory and spent a few hours in La Pe, a community 10 km away where many farmers supply Ricinomex.

The factory is quite impressive inside and well-maintained. The factory was not in operation at the time, and five employees were working in the office with an additional two conducting maintenance and repairs on the equipment.

La Pe is a traditional Mexican village. There are about two thousand residents, nearly all of whom are farmers. We visited two castor nut fields - one that had been planted in castor for several years and one that was new. The fields are extremely dry and there is no irrigation. The farmer confirmed the figures that Jonathan had shared for crop yield and price.

Financial overview

We assess Ricinomex's credit standing to be moderately high, with a score of 23 out of 28 (See Appendix 2: Ricinomex Credit Assessment), given its high and consistent profitability and solid balance sheet. Furthermore, the management team's success in extracting value from the factory, its most significant asset, by expanding its revenue line to adjacent products, gives us confidence.

- Ricinomex has successfully diversified its revenue line to multiple castor-related products. As of 2021, castor oil sales contributed 55%, followed by castor cake for feed (17%) and castor cake for fertilizer (13%) sales. The inclusion of agave in the crops for its partner farmers unlocked whiskey sales, contributing 6%.
- Even in significant growth, particularly for 2020, Ricinomex managed its overhead costs prudently. Its stable operating expenses and healthy gross profit margins drive Ricinomex's strong Net Income figures. 2021 consolidated income is 6.8x the debt service payments for the BR loan.

PnL	2019	2020	2021
Revenue	940.3	1,456.0	1,457.0
Cost of Sales	-545.6	-783.8	-674.9
Gross Profit	394.7	672.2	782.1
Overhead costs	-237.7	-272.7	-481.7
Net Profit	157.0	399.5	300.4
EBITDA	336.2	574.1	470.1
Financial performance metrics			
Annual revenue growth rate		55%	0%
Gross profit margin	42%	46%	54%
NI margin	17%	27%	21%

Figure 4 Ricinomex Group Income Statement 2019-2021



- Ricinomex has a strong financial position, with most of its capital derived from paid-in capital and grants received from the government.
- We note that despite significant net income in 2020 and 2021, the group's cash balances remain low (USD 31k). Ricinomex used the returns from the last three years to pay down loans from the Financiera Nacional de Desarrollo Agropecuario (FND) program of the government. They took these loans in 2019 to invest in processing equipment and a farm tractor. The group has paid down these loans, and as of June 2022, it does not have any long-term liabilities.
- Less than half of its castor oil customers have access to credit, and Ricinomex provides a maximum of 30 days from delivery. The rest of the customers must pay a 50% downpayment before Ricinomex processes its order. Partner farmers who purchase castor cake for feeds and fertilizer get 90 days of credit.

In USDk	2019	2020	2021
Cash	56	39	31
Receivables	122	155	184
Inventory	238	182	187
Other current assets	273	170	345
Current assets	689	545	768
Current liabilities	763	421	293
Working Capital	(74)	125	476
Total assets	2,125	2,104	2,161
Total liabilities	958	537	273
Total equity	1,168	1,567	1,867
Financial position metrics			
Debt-to-Equity (D/E)	0.82x	0.34x	0.15x
Current Ratio	0.90x	1.30x	2.75x

Figure 5 Ricinomex Group Balance Sheet 2019 - 2021

Transaction Overview

Ricinomex is seeking a USD 150,000, 4-year term loan to invest in a tractor (USD 45k) and a continuous reactor and dryer for castor cake production (USD 105k).

The castor cake equipment will effectively increase the cake processing speed of Ricinomex from 0.41 tons per hour to 3 tons per hour and minimize losses due to inefficient oil pressing. This investment will also improve the quality of the castor cakes, allowing Ricinomex to sell not just to their partner farmers but to bigger corporate customers such as milk producers like [Alpura](#) and [Lala](#). Ricinomex expects this revenue line to grow by almost 20% for the next three years.

On the other hand, Ricinomex intends to send its two tractors with operators into the fields this year as an added service to its farmers. Ricinomex will till farmers' fields for \$60/hectare - a 60% discount from the prevailing rate.

Ricinomex S de RL de CV will be the primary borrower of the loan. Beneficial Returns will take first priority security lien over the new tractor (USD 45k) and an old one purchased in 2018 (USD 39k at cost). Total collateral will be at USD 84k, or a 178% loan to value ratio. In addition to the hard assets, we propose to require corporate guaranties from Dertek and Agroindustria and a personal guaranty from Jonathan Hernandez Diaz. Von Wobeser y Sierra S.C. will document the loan on a pro-bono basis.

Beneficial Returns will target to sell up to 80% of the transaction to participants. As of writing, Beneficial Returns has \$453,000 in Loan Loss Reserves.

Major risks and mitigating factors

Risk	Risk factor	Probability	Risk mitigating factor																											
Ricinomex safety and quality protocols fail	Reputational risk for ricin poisoning or castor allergy reaction anywhere in the supply chain	Moderate	<ul style="list-style-type: none"> Ricin poisoning for humans is only possible by direct ingestion of masticated beans. Approximately 5-8 beans are lethal to human adults. Aside from proper training, production workers Ricinomex has developed, together with a government research institute, an internal quality test to verify that its castor cakes are correctly detoxified. Assuming no growth and removing the castor cake for feed gross profit, Ricinomex group's net profit vs annual debt service is still at 4.78x. 																											
			<table border="0"> <tr> <td></td> <td colspan="2" style="text-align: right;">in USDk</td> </tr> <tr> <td>Annual debt service (BR)</td> <td style="text-align: right;">43.9</td> <td></td> </tr> <tr> <td>As of 2021</td> <td></td> <td style="text-align: right;">DSCR</td> </tr> <tr> <td>Ricinomex</td> <td style="text-align: right;">191.0</td> <td style="text-align: right;">4.35x</td> </tr> <tr> <td>Dertek</td> <td style="text-align: right;">48.8</td> <td style="text-align: right;">1.11x</td> </tr> <tr> <td>Agroindustria</td> <td style="text-align: right;">60.6</td> <td style="text-align: right;">1.38x</td> </tr> <tr> <td>Group Net Profit</td> <td style="text-align: right;">300.4</td> <td style="text-align: right;">6.84x</td> </tr> <tr> <td colspan="3">Sensitivity to castor cake gross profit</td> </tr> <tr> <td>Castor cake GP</td> <td style="text-align: right;">90.4</td> <td></td> </tr> <tr> <td>Net Profit w/o castor cake</td> <td style="text-align: right;">210.0</td> <td style="text-align: right;">4.78x</td> </tr> </table>		in USDk		Annual debt service (BR)	43.9		As of 2021		DSCR	Ricinomex	191.0	4.35x	Dertek	48.8	1.11x	Agroindustria	60.6	1.38x	Group Net Profit	300.4	6.84x	Sensitivity to castor cake gross profit			Castor cake GP	90.4	
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<p>Ricinomex is unable to sustain its positive earnings trend</p>	<p>Reduction of revenues from its current customers</p>	<p>Moderate</p>	<ul style="list-style-type: none"> While there are indications of container prices going down in Q2 2022, it is still 6.4x vs. Q1 2020 prices⁷. Aside from container availability uncertainties, these high importation costs make locally produced castor oil more attractive. Ricinomex shows flexibility and success in diversifying its revenue lines when needed, such as the shift to castor oil and the launch of the whiskey line.
<p>Ricinomex is unable to continue manufacturing operations</p>	<p>Loss of suppliers due to entrance of competing manufacturers</p>	<p>Moderate</p>	<ul style="list-style-type: none"> Ricinomex invested about \$1.8 million in the extraction and other auxiliary equipment. This investment puts a considerable barrier to entry for other competitors. Furthermore, the market to replace castor oil imported from Mexico is about 10x Ricinomex's current revenues and is growing, leaving ample room for several players.
	<p>Significant business disruptions in the supply chain</p>	<p>Low</p>	<ul style="list-style-type: none"> Ricinomex uses locally available inputs and sells 100% of its products to Mexican customers, reducing its vulnerability to longer and cross-country logistics.
<p>Ricinomex is unable to meet its payment obligations to BR</p>	<p>Inability to generate cash from its operations</p>	<p>Low</p>	<ul style="list-style-type: none"> Ricinomex gives a maximum of 30 days of credit to its customers.
	<p>Foreign exchange risk</p>	<p>Low</p>	<ul style="list-style-type: none"> The loan is USD denominated vs. 100% local customer base. In the first quarter of 2022, the Mexican peso vs. the dollar has been stable vs. the 2021 average. The same is the case with the Indian rupee. <div style="text-align: center;"> <p>FX vs USD 1.00 = 2021 Average</p> <p>— USD MXN — USD INR — Index</p> </div> <p>Figure 6 Foreign exchange vs. 2021 average, 2018 - 2022</p>

⁷ [Freight Rate Index / Freightos Baltic Container Index](#)

Keyman risk

Low

- Jonathan has developed a strong core team that has been around since inception. The company is proud of its employee commitment, with 0% employee turnover.

Conclusion

We recommend extending a loan of USD 150,000 to Ricinomex, given its strong impact score and credit score.

The group has demonstrated its dedication to expand the economic opportunities for its farmers when it had to pivot to other products when the initial commercial use did not work out. This commitment continues today, with the introduction of other revenue lines adjacent to the activities of its member farmers. Furthermore, we believe Ricinomex's participation across the farmers' supply chains and the inclusion of its member farmers as owners are change models that our fund must support.

The most significant risks to this transaction is Ricinomex's ability to maintain a safe, poison-free supply chain for the workers and customers. We believe the recent project with third party laboratories to tighten quality control with respect to toxicity sufficiently mitigates this risk. We should also note that the assets available for collateral do not sufficiently cover the transaction value. We believe the group's history of profitability and the considerable room for leverage in the company's financial position sufficiently mitigates this risk.

Appendix 1: Company Name Impact Assessment

Impact score: 21 out of 28

Prospective borrowers are rated with 1 point for Low, 2 points for Moderately Low, 3 points for Moderately, and 4 points for High. Minimum score of 20 for approval.

	Low	Moderately		High	Score
		Low	High		
1 SCALE Is the social enterprise addressing a major social or environmental problem and do they have the capacity to make a measurable, positive difference themselves or by influencing others?			✓		3
2 SYSTEMIC CHANGE Is the social enterprise focused on systemic change? In other words, would the impact continue even if the social enterprise went out of business?			✓		3
3 SUSTAINABILITY Does the social enterprise have a business model that is or has a strong likelihood of being sustainable? This may include a portion of philanthropic revenue provided that is sustainable.				✓	4
4 STAKEHOLDER ENGAGEMENT Does the social enterprise engage all stakeholders in their work? Is the social enterprise building local human resources? Does it actively share its insights with others? Are indigenous communities involved?			✓		3
5 RIGOR How does the social enterprise measure its own impact, and how well is it doing against these metrics?		✓			2
6 EFFICIENCY Are the social enterprise's impact outcomes cost-efficient vs. other interventions? If not, is it likely that they will become so as the social enterprise grows?		✓			2
7 INTENTION How committed to its social or environmental mission is the social enterprise?				✓	4
TOTAL					21

Appendix 2: Company Name Credit Assessment
Credit score: 22 out of 28

Prospective borrowers are rated with 1 point for Low, 2 points for Moderately Low, 3 points for Moderately High, and 4 points for High. Minimum score of 20 for approval.

	Low	Moderately		High	Score
		Low	High		
1 BELIEF IN MANAGEMENT Does the social enterprise have a strong management team (extensive industry experience, strong leadership and entrepreneurial background)? Is the governance structure adequate?			✓		3
2 ACCOMMODATIVE BUSINESS ENVIRONMENT Is the social enterprise operating in an industry with low level of competition? Does the social enterprise provide products or services that have low threat of substitution?			✓		3
3 QUALITY OF FINANCIAL INFORMATION Can the financial information provided be depended on? Has its financial statements been audited?		✓			2
4 ABILITY TO BE PROFITABLE Does the social enterprise have a positive earnings trend? Are the earnings sustainable?				✓	4
5 STRENGTH OF FINANCIAL POSITION Does the social enterprise maintain adequate financial ratios (DSCR, Debt-to-equity, Current ratio) to support a debt obligation?				✓	4
6 ABILITY TO SERVICE DEBT Does the social enterprise have the ability to establish a strong cash position to meet its debt obligations on time?				✓	4
7 COLLATERAL OR GUARANTEES Is there collateral for the loan with an adequate loan-to-value amount? Is there a guarantor for the loan?		✓			2
TOTAL					22