



University of Azuay

Faculty of Legal Science

International Studies Career

**Comparative analysis of hydraulic jack suppliers  
for the company Yunga Barros Martha Catalina**

Authors:

**Paulina Giselle Morocho Yunga**

**Andrés Sebastián Calle Ochoa**

Director:

**Ing. Antonio Fabián Torres Dávila**

**Cuenca – Ecuador**

**2024**

## **DEDICATION**

I dedicate the effort of this work to my family; to them, every achievement of my life will always be dedicated. Thank you, Mom, for everything you have lovingly given me in life; I hope I can give you back everything you have done for me; this has always been a team effort. Thank you, Dad, for your bravery; nothing in life came easy to you, and that is why you are my greatest example of determination and effort. Okay, this is also for you; I always admire and love you. To my Clarita, thank you for saving my life, my little Chucky. Finally, I also dedicate this work to the people who accompanied me in this process, my thesis colleague Andresito, and Angelina, my friend; thank you so much.

Paulina

## **DEDICATION**

I want to dedicate this work to my parents because I am the person I am today thanks to the love, values, and advice they have given me. I will not live long enough to thank you for all the sacrifices you have made for me, so all my achievements will be dedicated to you. Today, I can proudly say that I am about to finish my university degree, thanks to my parents. I also dedicate them to my brothers and sisters so that they understand that, with discipline and dedication, everything is possible no matter how difficult and eternal it may seem to achieve their goals. Not least, to the last member of my family, who was there to brighten my day with his ponytail and his ears. Finally, I dedicate it to my thesis colleague Pauli since this would not have been possible without her. Thanks for everything, my friend.

Andrés

## **ACKNOWLEDGMENT**

We would like to thank Mr. Antonio Torres Dávila for accompanying us throughout this process and generously transmitting his knowledge. We would also like to thank Arq. Ramón Valdivieso Vintimilla for sharing his experience with us and for his patience during the accompaniment in this degree project.

And a very special thank you to our parents for giving us the necessary support throughout our university careers.

Paulina y Andrés

## **ABSTRACT:**

This project aims to identify potential suppliers of hydraulic jacks for importation by the company Yunga Barros Martha Catalina "Motorbil." This is achieved through a qualitative and quantitative analysis, using matrices that quantify data collected from various national and international suppliers based on criteria such as supplier, products, logistics, taxes, and business profitability to identify the most attractive supplier to provide these products to the company. The study focuses on three main areas: first, a diagnosis of the company; then, it proceeds to gather information related to the suppliers and products; finally, it establishes a comparative analysis of all the factors involved until the products are in Motorbil's warehouses. This analysis determines the best supplier with the aim of providing a support study for decision-making and the development of Motorbil's project.

**Keywords:** Comparison, import, international, hydraulic jack, suppliers.

## **RESUMEN:**

Este proyecto está propuesto a determinar los potenciales proveedores de gatos hidráulicos para la importación de la empresa Yunga Barros Martha Catalina "Motorbil", esto se realiza con un análisis cuali – cuantitativo, mediante matrices que cuantifican los datos recolectados de distintos proveedores nacionales e internacionales, en función del proveedor, productos, logística e impuestos y rentabilidad del negocio, obteniendo el proveedor más atractivo para aprovisionar de estos productos a la empresa. El estudio trabaja en tres ejes, el primero es un diagnóstico de la empresa, después procede a recolectar información en relación con el proveedor y productos, finalmente establece un análisis comparativo con todos los factores que intervienen hasta que los productos se encuentren en las bodegas de Motorbil, este análisis determina el mejor proveedor con la finalidad de entregar un estudio de apoyo a la toma de decisiones y el desarrollo del proyecto de la empresa Motorbil.

**Palabras clave:** Comparación, gatos hidráulicos, importación, internacional, proveedores.

## INDEX

ABSTRACT:.....	iv
RESUMEN:.....	iv
CHAPTER 1 THE COMPANY.....	2
1. ANALYSIS AND DIAGNOSIS OF THE COMPANY.....	2
1.1 General characteristics of the company.....	2
1.2 Company Sales.....	4
1.3 Product to be imported: Hydraulic Jack.....	5
CHAPTER 2 THE MARKET.....	7
2. DEMAND ANALYSIS.....	7
2.1 Analysis of demand in the city of Cuenca.....	7
2.2 Location and Consumers.....	8
2.3 Tentative Sales Forecast.....	9
CHAPTER 3.....	12
3. COLLECTION OF SUPPLIER INFORMATION.....	12
3.1 Supplier China.....	12
3.2 Supplier Mexico.....	16
3.3 Supplier Germany.....	20
3.4 Supplier United States.....	23
3.5 National Supplier.....	27
CHAPTER 4.....	31
4. COMPARATIVE ANALYSIS OF SUPPLIERS AND FINANCIAL FEASIBILITY.....	31
4.1 Analysis Methodology.....	31
4.2 Supplier Rating.....	32
4.3 Product Rating.....	33
4.4 Logistics Valuation.....	34
4.5 Qualification Arrays.....	35
4.6 Country Comparison Matrix.....	38
4.7 VAN and TIR.....	39
4.8 Profitability of the business.....	41
4.9 Total Project Valuation Matrix.....	43
CONCLUSIONS.....	45
RECOMMENDATIONS.....	48
REFERENCES.....	49
APPENDIXES.....	51

## INDEX OF TABLES, FIGURES AND APPENDICES

### Index of Tables

Table 1 Motorbil's commercial, operational hierarchy	3
Table 2 The company's Monthly sales for "Yunga Barros Martha Catalina" years 2022 – 2023 in USD	4
Table 3 The number of companies related to the automotive area in Cuenca	8
Table 4 Evolution of vehicles registered in Azuay	9
Table 5 Import of hydraulic jacks under subheading 84.25.42.2000 years 2013-2023	10
Table 6 Sales projection of the market company Yunga Barros Martha Catalina	10
Table 7 Taxes and duties applicable to the product of Chinese origin	14
Table 8 Details of China Hydraulic Jack Per Unit	14
Table 9 Costs and Unit Value	15
Table 10 Retail Price of Chinese Hydraulic Jack	15
Table 11 Taxes and duties applicable to the product of Mexican origin	17
Table 12 Details of Mexico Hydraulic Jack Per Unit	18
Table 13 Costs and Unit Value	18
Table 14 Retail Price of Mexican Hydraulic Jack	19
Table 15 Taxes and duties applicable to the product of German origin	21
Table 16 Details of Germany Hydraulic Jack Per Unit	21
Table 17 Costs and Unit Value	22
Table 18 Retail Price of German Hydraulic Jack	22
Table 19 Taxes and duties applicable to products of North American origin	25
Table 20 U.S. Hydraulic Jack Details Per Unit	25
Table 21 Costs and Unit Value	26
Table 22 Retail Price of American Hydraulic Jack	26
Table 23 Domestic Hydraulic Jack Retail Price	29
Table 24 Collection of Supplier Information	30
Table 25 Likert Scale Scores for Providers	32
Table 26 Assessment of supplier-related factors	32
Table 27 Product Feature Rating	33
Table 28 Prioritization of factors concerning logistics	34
Table 29 China Valuation Matrix	35
Table 30 Mexico Valuation Matrix	36
Table 31 Valuation Matrix Germany	36
Table 32 U.S. Valuation Matrix	37
Table 33 Valuation Matrix Ecuador	37
Table 34 Comparative Country Valuation Matrix	38
Table 35 Calculation of NPV and IRR by country and year	40
Table 36 NPV and Project IRR by Supplier Country	41
Table 37 Final Valuation Matrix	43

## Index of Figures

Figure 1 Monthly sales peaks in 2022 – 2023 for the company Yunga Barros Martha Catalina	4
Figure 2 Image reference hydraulic jack 3 tons	5
Figure 3 <i>Analysis of Table 4, Annual Change in Units Imported from Subheading 84.25.42.2000</i>	10
Figure 4 Reference image of TX643 hydraulic floor jack	16
Figure 5 Reference image of Professional 3t Hydraulic Skid Jack, Fast Elev GAPRO-300	19
Figure 6 Reference image of the Rh-4912 hydraulic jack	23
Figure 7 Reference image of the 1504A hydraulic jack	27
Figure 8 Reference image of FGP-3T hydraulic jack	29

## Index of Appendixes

Appendix 1 Motorbil Cuenca Company	51
Appendix 2 Summary of fixed taxes under subheading 84254220	52
Appendix 3 Freight quote Hamburg	53
Appendix 4 Manzanillo Freight Quote	54
Appendix 5 Freight Quote Ningbo	55
Appendix 6 Calculation of Net Income and Return on Sales for Year 1	56
Appendix 7 Year 2 Net Income and Return on Sales Calculation	57
Appendix 8 Calculation of net income and return on sales for year 3	58
Appendix 9 Calculation of net income and return on sales for year 4	59
Appendix 10 Calculation of net income and return on sales for year 5	60
Appendix 11 Total calculation of IRRs and NPVs by supplier countries	61
Appendix 12 Survey model	62



## **Introduction**

This study aims to determine the potential suppliers of hydraulic jacks for the import of the company Yunga Barros Martha Catalina, called Motorbil; this company carries out its commercial activities in the Cuenca market. Its main activity is the commercialization of automotive spare parts that it acquires from national distributors; however, in search of the growth of the company, it intends to extend its offer in the market through the import of tools Automotive. In order to meet the general objective of this study, the following specific objectives will be carried out: first, to diagnose the Motorbil company and the product to be imported, followed by defining the characteristics of the international suppliers of hydraulic jacks, and finally to make a comparative study of the supply of automotive tools.

The company Motorbil has 16 years in the commercialization of automotive products and currently has the need to complement its business with the import of automotive tools; for the purposes of this study, it is considered that the main product to be imported is the hydraulic jacks type lizard with a maximum load capacity of 3 tons, for this reason, The study will develop qualification matrices that allow the company to have a clear idea of the different suppliers that will be analyzed, through the quantitative qualification it will be facilitated to understand the benefits that each supplier grants and with it the company's decision-making so that it can make its best choice.

It is highlighted that through this study, the company will be able to know all the details of the import of this product and even the price of each one already at its final destination and ready to be marketed. Each of the chapters will respond to the objectives set to deliver a study to support decision-making and the development of the Motorbil company's project.

# **Comparative analysis of hydraulic jack suppliers for the company Yunga Barros Martha Catalina**

## **CHAPTER 1 THE COMPANY**

### **1. ANALYSIS AND DIAGNOSIS OF THE COMPANY**

#### **1.1 General characteristics of the company**

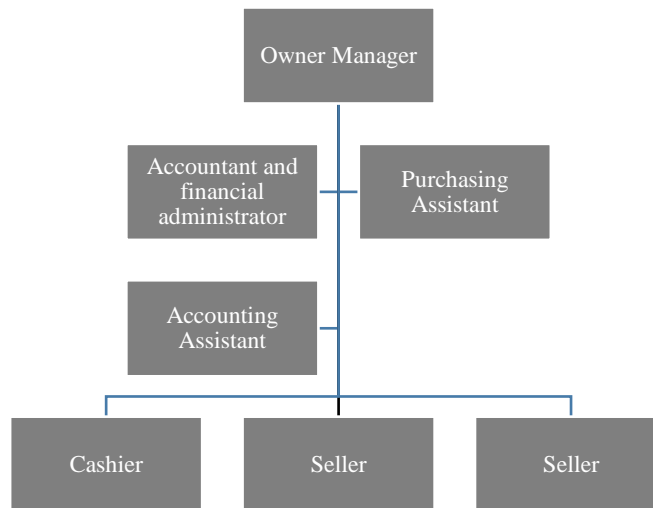
The company with the trade name "Motorbil" carries out its economic activity under the Simplified Regime for Entrepreneurs and Popular Businesses (RIMPE) in the Entrepreneur category, obliged to keep accounts and registered with the Single Taxpayer Registry (RUC) in the name of the Natural Person Martha Catalina Yunga Barros, with identification number 0104084512001. The company began its commercial activities in January 2008, in the city of Cuenca, the capital of the province of Azuay; its establishment is located at Avenida Loja 6-690 and Calle Puerto de Palos; it is essential to note that the company works in a complementary way to the family commercial activity, focused on the repair of motor vehicles and related activities. From there was born the initiative of the company that began with the sale of tires for light vehicles as a complement to the service of Tecnicentro of the spouse of the owner; according to the economic and commercial growth, it has expanded its product offer and currently sells auto parts, supplies, tools and accessories for light vehicles, cargo and motorcycles, These include tires, tubes, suspension parts, air conditioning, collision, engine, batteries, light bulbs, electrical parts and pieces, spark plugs, and bolt-type metallurgical products.

The company details its commercial, operational hierarchy with the registration of 5 people in the following order: the general manager is the owner in charge of the management; that is, she makes the decisions that maintain or modify the course of the company and the control, part in which she evaluates the operations developed by the operational staff. Then there is the accounting department, in charge of an engineer in plant accounting who performs the tax declarations and regulatory operations at the accounting and financial administrative level of the organization, hand in hand with the accounting assistant who records the movements of the company, enters the invoices of purchases, sales, and expenses. Finally, two salespeople work together with the manager on the physical premises. They oversee the entire sales process, customer service, face-to-face, telephone or digital sales, cash, transfer or credit card collection, and electronic

invoicing. It is necessary to indicate that the company is created in a family environment as a significant number of establishments in the city; for this reason, there are areas such as purchases, collections, and after-sales service, among others, the spouse and children carry out.

**Table 1**

*Motorbil's commercial, operational hierarchy*



Customers who make their purchase in person pick up the product instantly; that is, the inventory is available to be delivered. On the other hand, buyers of digital media or by telephone receive the products at home through the independent motorized transport service. An external company provides the removal service from the facilities and goes to the destination the buyer indicated, primarily automotive workshops.

The company's sales have increased during its operation. It is focused on the commercialization of spare parts and tires, offering a catalog of approximately 11,000 products for multi-brand vehicles and a registry of 2,100 current customers. However, consumers present new needs and require new products. By virtue of its development, it proposes to extend its offer to the market through the import of automotive tools.

On the other hand, in the financial sector, the company has a bank account where all the funds and income resulting from the commercial activity are allocated; this account is registered as a current account in the name of the owner, Yunga Barros Martha Catalina, from this account using checks as the only method of payment payments to suppliers are issued, the bank called Banco Pichincha has a record of all the money that has circulated in the company since the beginning of economic activities in 2008.

## 1.2 Company Sales

The company's monthly sales and annual balance sheets for the years 2022 – 2023 are presented below to provide an overview of its economic availability; they serve as a reference to forecast its import capacity, define the amount of product that should be quoted, and project for sale.

**Table 2**

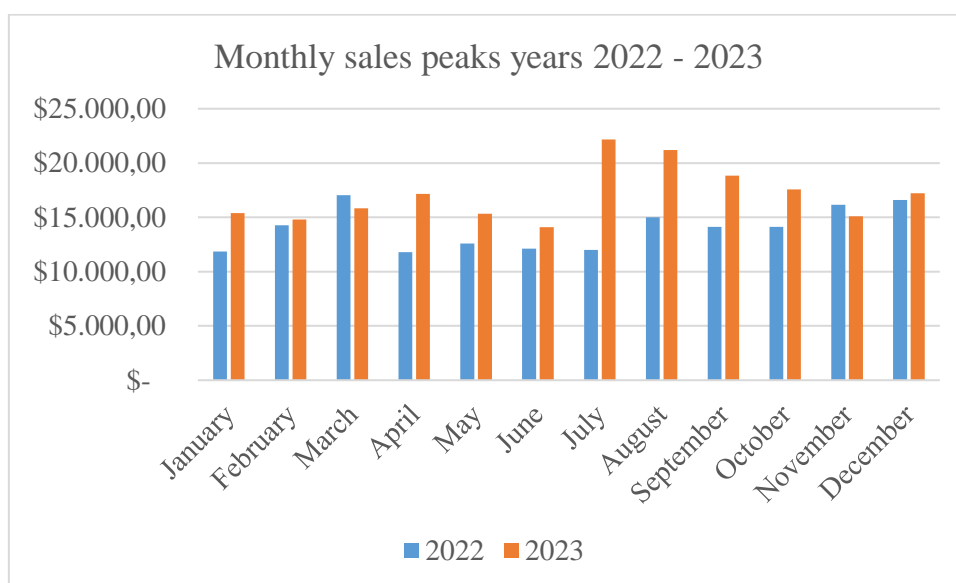
*The company's Monthly sales for "Yunga Barros Martha Catalina" years 2022 – 2023 in USD*

	2022	2023
January	\$11.862,48	\$15.397,28
February	\$14.254,02	\$14.797,81
March	\$17.044,01	\$15.823,51
April	\$11.782,89	\$17.153,72
May	\$12.583,77	\$15.332,18
Jun	\$12.103,45	\$14.091,23
July	\$12.004,07	\$22.180,54
August	\$14.992,37	\$21.189,91
September	\$14.114,56	\$18.826,02
October	\$14.112,59	\$17.582,68
November	\$16.140,98	\$15.095,38
December	\$16.583,72	\$17.210,82
<b>Total</b>	<b>\$167.578,91</b>	<b>\$204.681,08</b>

*Note.* The data has been taken from the company Yunga Barros Martha Catalina. Adapted from the company's database, year 2023.

**Figure 1**

*Monthly sales peaks in 2022 - 2023 for the company Yunga Barros Martha Catalina*



As we can see in Figure 1, sales in 2023 have increased compared to 2022. The highest sales peaks are recorded in July and August 2023, with sales of \$22,180.54 and \$21,189.91, respectively. The average sales of 2022 are \$13,964.91, and that of 2023 is \$17,056.76. Currently, the products are sold only in the city of Cuenca, considering it a safe and well-known market

### **1.3 Product to be imported: Hydraulic Jack**

Richard Dungeon created and patented the hydraulic jack in 1851. His invention was used in industries to lift large weights without the need for strength or personnel. This device is distinguished by its load capacity. It can lift anything from light weights to heavy vehicles, either mechanically or hydraulically (Firestone, 2022).

The hydraulic jack is an essential device for the activities of the automotive area; it is commonly used to lift the tires of cars and be able to disassemble them; however, there are different types of jacks according to their functionality and their load capacity, among them are the hydraulic jacks lizard, the hydraulic bottle jacks, Air pneumatic jacks, transmission jacks, engine jacks, engine support jacks, gearbox jacks and a wide variety of models for specific functions, however, the hydraulic lizard type jack is the essential tool that facilitates the work of the person who needs to lift loads.

#### **Figure 2**

*Image reference hydraulic jack 3 tons*



*Note. Reference 3-ton hydraulic jack. From "RH-4912 3 Ton Hydraulic Garage Jack", by Ronix premium quality, 2024 (<https://ronixtools.com/en/product/floor-jack-3-ton-rh-4912/>). In the public domain*

For this study, the importation of subheading 84.25.42.2000 corresponding to "Hydraulic jacks (excl. fixed vehicle lifts, of a kind used in workshops: portable motor vehicle lifts)" (Servicio Nacional de Aduana del Ecuador, 2024a). This product was selected for this study because it is an essential product within the automotive area. Undoubtedly, every workshop or automotive mechanic fundamentally requires this product to carry out any work on the vehicle. On the other hand, vehicle distributors of auto parts and accessories need to market this product since, according to the Decentralized Autonomous Municipal Government of the Canton of Cuenca (2023). It is a requirement for the Vehicle Technical Review (RTV) that light and heavy vehicles circulating in the canton have a jack inside the tool kit to lift the vehicle in case of suffering any damage, such as changing a damaged tire.

Additionally, according to data from the Central Bank of Ecuador (2024), the import of hydraulic jacks for 2023 has a record of 14,037 units, with an increase in 2021-2023. These data can be visualized in Table 5. These aspects have been relevant and influential in the choice of the axis product of the study, and it is highlighted that the study will focus on the hydraulic jack with a load capacity of 3 tons and with a reference elevation of 45cm, these being the standard characteristics for ease, comfort, and usefulness for automotive work.

## **CHAPTER 2 THE MARKET**

### **2. DEMAND ANALYSIS**

#### **2.1 Analysis of demand in the city of Cuenca**

Focused on the analysis of demand, the market study is the tool that makes visible the reality of a project since it determines the viability of a product or service in the market, exposes the marketing platforms, and, in relation to demand, identifies the number of consumers, their main characteristics, and the geographical location of the buyers of a product or service. The results obtained through this study are considered fundamental for decision-making and projection of changes in the selected market or project approaches (Sapag Chain et al., 2014).

The Directory of Companies of the Statistical Registry of Companies (REEM) is a tool offered by the National Institute of Statistics and Censuses (INEC) that details the number of companies registered by category. Thus, it focuses on the commercial activity of the categories G452001, G453000, G452002, G452003, and G454003 that operate in the city of Cuenca (Registro Estadístico de Empresas, 2023). These are characterized as potential consumers of the product to be imported called Hydraulic Jacks.

**Table 3***The number of companies related to the automotive area in Cuenca*

Province	Canton	CIU Nivel 6	Economic activity	Number of companies
Azuay	Cuenca	G452001	Maintenance and repair of motor vehicles: mechanical repair, electrical repair, electrical injection systems, bodies, parts of motor vehicles: windshields, windows, seats, and upholstery. It includes anti-rust treatment, spray or brush paints on vehicles and automobiles, the installation of parts, pieces and accessories that are not carried out as part of the manufacturing process (speakers, radios, alarms, etc.).	697
Azuay	Cuenca	G454003	Motorcycle maintenance and repair activities.	40
Azuay	Cuenca	G452002	Maintenance and repair, installation, change of tires (rims) and tubes (vulcanizers).	77
Azuay	Cuenca	G453000	Sale of all types of parts, components, supplies, tools, and accessories for motor vehicles such as: tires (rims), inner tubes for tires (tubes). Includes spark plugs, batteries, lighting equipment, parts, and electrical parts.	723
Azuay	Cuenca	G452003	Washing, greasing, spraying, waxing, oil changes, etc.	245
Total				1.782

*Note. The table shows the number of companies related to the automotive sector; however, the commercialization of motor vehicles is excluded. Adapted from "Cross-referencing of variables of the Statistical Registry of Companies - REEM 2022", by Statistical Registry of Companies, 2023 (<https://rb.gy/jeq3x8>). In the public domain.*

The number of companies related to the automotive area in Cuenca is 1,782. The G453000 section, related to the sale of automotive parts, tools, and accessories, has 723 registered companies, and this would be the main consumer on which the company would focus its sales, hand in hand with the G452001 section with 697 entities with car maintenance and repair service. defined as potential consumers and sections G452002, G452003, G454003 as complementary or infrequent consumers.

## **2.2 Location and Consumers**

According to Sapag (2014). The location of a company can condition demand since when a project needs to have face-to-face contact with the company, this can become a limitation, so it is essential to analyze factors such as population size, lifestyle, or other characteristics that support the initiative of marketing the good or service that is intended



to be offered. To this end, figures related to this project are described by the National Institute of Statistics and Censuses (2022), which points out that the province of Azuay, for the year 2022, registered a few vehicles that responded to 185,674. The population of Azuay represents approximately 712,127; this announces that a motor vehicle is owned for every 3 to 4 people. The city of Cuenca, the commercial axis of the province of Azuay because it is its capital, is an attractive market for the distribution of automotive tools, for this study specifically of hydraulic jacks, since it has a significant number of companies in the automotive sector that can be considered potential consumers of the products offered in this line.

It is important to note that the location of a company conditions the demand. However, we currently have a series of tools that allow products from different places to reach their destination; in relation to this, the company proposes in the future to make online sales, although currently, they allow their customers to buy by phone and WhatsApp, The application of a website so that the client can interact with the company without limitation of time and schedule, is considered a necessary step for its development.

**Table 4**

*Evolution of vehicles registered in Azuay*

Year	Registered Vehicles	Percentage Growth
2018	154.597	
2019	145.729	-6,09
2020	152.676	4,55
2021	163.598	6,68
2022	185.674	11,89

*Note.* Data from 2018 to 2022. Adapted from "Transportation Statistics", by National Institute of Statistics and Censuses, 2022 (<https://rb.gy/nc0ca3>). In the public domain.

The evolution of vehicles registered in Azuay from 2018 to 2022 is presented; for 2018, base year, 154,597 vehicles are registered, a decrease of -6.09 is exhibited in 2019, a possible modifying factor the Covid-19 pandemic, in 2020 a growth of 4.55%, 2021 increases by 6.68% and the highest peak is in 2022 with an increase of 11.89% reaching 185,674 registered vehicles, that is, the trend is on the rise, it is possible to refer to the fact that in the coming years, the number of vehicles circulating in Azuay will increase.

### **2.3 Tentative Sales Forecast**

The hydraulic jack will be analyzed for the import of the case study company. With the data obtained from the Central Bank, it will be possible to properly analyze the data

extracted from the imported product in FOB values and units to make a tentative sales forecast in the next five years.

**Table 5**

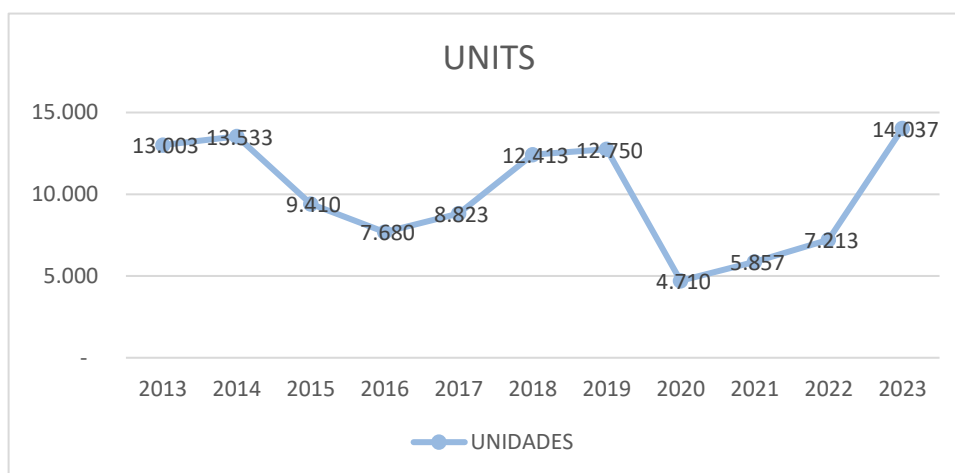
*Import of hydraulic jacks under subheading 84.25.42.2000 years 2013-2023*

YEAR	WIGHT - Ton	UNITS	FOB - \$
2013	390,10	13.003	\$1.024.600,00
2014	406,00	13.533	\$907.100,00
2015	282,30	9.410	\$601.000,00
2016	230,40	7.680	\$353.400,00
2017	264,70	8.823	\$421.200,00
2018	372,40	12.413	\$680.400,00
2019	382,50	12.750	\$613.200,00
2020	141,30	4.710	\$285.800,00
2021	175,70	5.857	\$322.600,00
2022	216,40	7.213	\$489.100,00
2023	421,10	14.037	\$622.800,00
<b>TOTAL</b>	<b>1.709,40</b>	<b>109.430,00</b>	<b>\$6.321.200,00</b>

*Note.* The value in units was obtained by multiplying the number of tons of each year by 1000 to convert this amount to kilograms, the product obtained was divided by 30 kg which is the average weight of a hydraulic jack. Adapted from "Foreign Trade Statistics of Goods", by Central Bank of Ecuador, 2024 (<https://shorturl.at/tCXBI>). In the public domain.

**Figure 3**

*Analysis of Table 4, Annual Change in Units Imported from Subheading 84.25.42.2000*



**Table 6**

*Sales projection of the market company Yunga Barros Martha Catalina*

	Year 1	Year 2	Year 3	Year 4	Year 5
Total Sales Units	7.862	8.019	8.260	8.590	9.019
Percentage of company sales	2,00%	2,00%	2,50%	2,50%	3,00%
Company Sales Units	157	160	206	215	271
Unit Price (USD)	\$152,33	\$154,55	\$156,81	\$159,09	\$161,42
Total Revenue (USD)	\$23.915,03	\$24.727,83	\$32.301,90	\$34.205,36	\$43.744,14

To project the number of total sales units for year 1, which is 7,862, the forecast formula was used, which uses the values in the "Units" and "Years" section of Table 5. The amount of 2%, equivalent to the percentage of the company's sales this year, is related to the company's purchasing power. The product's unit price was agreed at a value of \$152.33 after having carried out a comparative analysis with the prices of the product within the national market. At the same time, it has been taken into account that inflation in Ecuador for the year one would increase to reach 1.55% inflation. The number of total sales units in year 2, which is 8,019, was obtained by increasing the value of total sales units in year 1 by 2%.

Meanwhile, the percentage of sales of the company remains stable, and the unit value, due to the decrease in inflation to 1.46%, was reduced to a price of \$154.55 as of this year the unit price will remain in a constant growth parallel to inflation, which will remain with the same percentage of 1.46% until year 5. The amount of 8,260, which represents the value of the total sales units of year 3, was obtained by increasing by 3% the value of the previous year. In this case, the company's sales percentage did increase to 2.5%. To obtain the total sales units for year 4, the quantity for year 3 was increased by 4%, obtaining a value of 8,590 units. The same format was used for the last projected year as in previous years. Total sales units increased by 5% to the amount in year 4. The company's sales percentage was increased to 3% to reach 271 sales units. These increases in total sales units were progressive since, as seen in Table 5, the import of hydraulic jacks increased by 8% in 2013 compared to 2023.

## **CHAPTER 3**

### **3. COLLECTION OF SUPPLIER INFORMATION**

For the development of this research, we will use a Mixed Qualitative – Quantitative methodology, "Some research, such as market or business research, deal with qualitative and quantitative aspects together. In such cases, both approaches are used, as long as it is in a complementary way" (Hernández Sampieri et al., 2014). For this analysis of suppliers, the characteristics such as quality, warranty, location, and general data of the product and the supplier; on the other hand, the quantitative part will be generated in values of prices, freight, insurance, taxes, duties, and weights of the product.

The following sections provide detailed information on the providers selected for the research, who have been chosen from different backgrounds.

#### **3.1 Supplier China**

Huafengtech, or by its full name, Anhui Huafeng Import & Export Co., Ltd., is China's leading supplier of hydraulic jacks. This company is in Hefei City, Anhui Province, and its production factory is in Zhejiang. To contact the company, you can do so with the sales manager, Miss Erica Xu, at her contact number 86-15375347965, or directly with the company through your contact references via e-mail [gerente@huafengtech.com.cn](mailto:gerente@huafengtech.com.cn), with your number 0551 65635260.

Anhui Huafeng Import & Export Co., Ltd. is a manufacturer and exporter responsible for developing, designing, and producing high-quality tools with ISO9001 approval. Some products even have CE certificates, which have generated appreciation and total customer satisfaction in different markets worldwide (Huafengtech, 2005).

Within the list of products offered, you can find low-profile hydraulic jacks. Within the specifications, you can find both its model, which is TX643, which is composed of steel and has CE certification. On the other hand, the technical characteristics of the equipment establish that it can lift 3 tons with a minimum range of 13.5 cm to 50 cm. Within the scope of the possibilities offered by the company as a supplier is the price of \$57.72 per unit with a minimum order of 100 units. However, it allows placing a minimum order of 1 piece for \$10 (Made-in-China, 2024a).

Regarding the commercial conditions, it is specified that incoterm FOB has a delivery time between 1 and 3 months, either in high season or out of season. Finally, the

goods will be delivered to the nearest ports, either in Ningbo or Shanghai (Made-in-China, 2024b).

Provider Information:

- Company: Huafengtech
- Location: Hefei, Anhui Province, China.
- Availability: Minimum order of 100 units.
- Payment terms: 30% transfer in advance and the remaining before shipment.
- Payment Methods: Payment Against Documents (D/P), Telegraphic Transfer (T/T), Letter of Credit (L/C).
- Product Features.
- Product: Hydraulic Floor Jack.
- Model: TX643.
- Brand: Own (Sustools).
- Material: Steel.
- Dimensions: Minimum height 13.5 cm / maximum height 50 cm.
- Net Weight: 30 kg.
- Load: Maximum 3 tons.
- Rules: ISO9001.
- Warranty: 1 year warranty.
- Unit Price: \$57.72 EXW.
- Container: 20 feet.
- Origin: Port Ningbo.
- Destination: Port Guayaquil.
- Ocean Freight: \$3,666.25.
- Logistics company: Farletza.
- Insurance: Equinoctial Insurance is 60% insured.

**Table 7***Taxes and duties applicable to the product of Chinese origin*

Taxes subheading 842542200	
Arancel Ad Valorem	13,5%
ICE	0%
FONDINFA	0,5%
IVA	15%
Antidumping	0%
Safeguard	0%

*Note.* The product requires INEN starting at USD 2,000.00 per month.

**Table 8***Details of China Hydraulic Jack Per Unit*

Box Dimensions (m):	0,69 m	0,39 m	0,2 m
Box Size (m <sup>3</sup> )	0,05 m <sup>3</sup>		
Weight:	30 kg		
Container capacity: 20 ft (m3):	33 m <sup>3</sup>		
Container Capacity: 20ft (kg):	17440 kg		
Number of boxes in a container by size	613		
Number of boxes in a container by weight	581		
Freight T	\$ 3.666,2500		
Freight/u	\$ 6,3066		

Table 8 describes the measurements of the box in which the hydraulic jack is going to be transported; this data, together with the value of the weight of the box, will serve to know the number of boxes that can fit in a 20-foot container. As detailed in the Table, a maximum of 581 boxes can fit in a container, as this reaches the limit weight that a container supports. This value was obtained by dividing the maximum weight capacity supported by the container by the weight of the hydraulic jack. The freight value per unit was obtained by dividing the total freight value by the number of boxes that go into the container.

**Table 9***Costs and Unit Value*

FOB	\$52,7200
Freight	\$6,3066
Insurance	\$0,7083
CIF	\$59,7349
Ad Valorem	\$8,0642
Fodinfra	\$0,2987
Subtotal	\$68,0978
IVA	\$10,2147
Total	\$78,3125

In order to calculate the value of the insurance, the CFR was multiplied by 60%, which is the percentage that will be insured. Then that result is multiplied by 2%, thus giving the insurance value of \$0.7083 per unit according to data from the insurer "Seguros Equinoccial". Once the insurance value was obtained, it could be added to the CFR, resulting in a CIF value of \$59.7349. The 13.5% corresponding to the Ad Valorem was added to the CIF since it has an international agreement with Ecuador, and the 0.5% corresponding to Fodinfra. With these calculated values, a price of \$68.0978 was obtained, which is the value of the merchandise without the value of VAT. Once the 15% VAT was added, a total value of \$78.3125 was obtained.

**Table 10***Retail Price of Chinese Hydraulic Jack*

Agent Aduana and INARPI	815,3300
National Freight GYE - CUE	402,5000
Stevedoring CUENCA	122,6666
SUBTOTAL	1340,4966
Quantity per unit	581
NATIONAL COSTS	2,3072
Unit Cost	80,6197
Operating Utility	17,1644
Utility	58,6705
Pvp	156,4546

The first step to obtaining the retail price is to add the costs of the customs broker, the national freight from Guayaquil to Cuenca, and the stevedoring in Cuenca; the value obtained represents the "subtotal" of the entire load. Therefore, it has to be divided by the

number of quantities imported. In this case, 581 units, this way, the national cost per unit will be obtained. Subsequently, to this national cost is added to the total value of unit cost found in Table 9, obtaining the value of the unit cost of sale; this value is added to the operating profit, and the corresponding profit of 60% will obtain the retail price with the value of \$156.4546.

#### **Figure 4**

*Reference image of TX643 hydraulic floor jack*



*Note.* TX643 hydraulic floor jack reference. From "3 Ton Fast Lifting Hydraulic Floor Jack", by Made-in-China, 2024 (<https://rb.gy/4fb01n>). In the public domain.

### **3.2 Supplier Mexico**

Truper S.A. de C.V. is a 100% Mexican company with one of the largest and most modern tool factories in Mexico and North America in Jilotepec, State of Mexico (Castillo Barrera, n.d.).

Truper SA de CV is the most recognized company in Latin America in manufacturing, marketing, and distributing tools and products for the hardware industry (Truper S.A de C.V, 2024a).

The product catalog offered by Truper includes more than 15,000 products, including hydraulic jacks. For the use of the project, it will focus on the Gapro-300 model, which has a load capacity of 3 tons, a minimum height of 13 cm, and a maximum height of 47.5 cm; for the ease of the customer, it has a double pump that increases the force and has a handle that controls the lifting and lowering, Thanks to its safety valve, overload can be controlled. It is made of steel for greater strength and durability, and its tomato color is representative of the brand. Regarding product dimensions, it has a net weight of 31 kg with a length of 63 cm (Truper S.A de C.V, 2024b).



Provider Information:

- Company: Truper S.A de C.V.
- Location: Jilotepec, State of Mexico.
- Availability: Limited.
- Payment Terms: Cash.
- Product Features.
- Product: Professional 3t Hydraulic Skid Jack, Fast Elev, Truper.
- Model: GAPRO-300.
- Brand: Truper.
- Material: Steel.
- Dimensions: Minimum height 14.5cm / maximum height 47.5cm.
- Net Weight: 31 kg.
- Load: Maximum 3 tons.
- Standards: ISO 9001.
- Warranty: 1 year warranty.
- Unit Price: \$190.72 EXW.
- Container: 20 feet.
- Origin: Port Manzanillo.
- Destination: Port Guayaquil.
- Ocean Freight: \$1,146.25.
- Logistics Company: Farletza.
- Insurance: Equinoctial Insurance 60% insured.

**Table 11**

*Taxes and duties applicable to the product of Mexican origin*

Applicable taxes subheading 842542200	
Arancel Ad Valorem	15%
ICE	0%
FONDINFA	0,5%
IVA	15%
Antidumping	0%
Safeguard	0%

*Nota.* The product requires INEN starting at USD 2,000.00 per month.

**Table 12***Details of Mexico Hydraulic Jack Per Unit*

Box Dimensions (m):	0,78 m	0,37 m	0,20 m
Box Size (m <sup>3</sup> )	0,06 m <sup>3</sup>		
Weight:	31 kg		
Container Capacity 20 ft (m <sup>3</sup> ):	33 m <sup>3</sup>		
Container Capacity 20 ft (kg):	17440 kg		
Number of boxes in a container by size	574		
Number of boxes in a container by weight	563		
Freight T	\$1.146,25		
Freight/u	\$2,0375		

Table 11 describes the measurements of the box in which the hydraulic jack will be transported; this data, together with the value of the weight of the box, will serve to know the number of boxes that can fit in a 20-foot container. As detailed in the Table, a maximum of 563 boxes can fit in a container, as this reaches the weight limit allowed by a container. This value was obtained by dividing the maximum capacity supported by the container by the size of each box. The freight value per unit was obtained by dividing the total freight value by the number of boxes that go into the container.

**Table 13***Costs and Unit Value*

FOB	\$190,7200
Freight	\$2,0375
Insurance	\$2,3131
CIF	\$195,0706
Ad Valorem	\$29,2606
Fodinfra	\$0,9754
Subtotal	\$225,3065
IVA	\$33,7960
Total	\$259,1025

In order to calculate the value of the insurance, the CFR was multiplied by 60%, which is the percentage that will be insured. Then that result was multiplied by 2%, thus giving the insurance value of \$2.3131 per unit according to data from the insurer "Seguros Equinoccial". Once the value of the insurance was obtained, it could be added to the CFR, resulting in a CIF value of \$195.0706. To the CIF was added the 15% corresponding to the Ad Valorem and the 0.5% corresponding to the Fodinfra; with these added values, a

price of \$225.3065 was obtained, which is the value of the merchandise without the value of VAT. Once the 15% VAT was added, a total value of \$259.1025 was obtained.

**Table 14**

*Retail Price of Mexican Hydraulic Jack*

Agent Aduana and INARPI	815,3300
National Freight GYE - CUE	\$402,5000
Stevedoring CUENCA	\$122,6666
<b>SUBTOTAL</b>	<b>\$1.340,4966</b>
Quantity per unit	\$563,0000
<b>NATIONAL COSTS</b>	<b>\$2,3810</b>
<b>Unit Cost Sold</b>	<b>\$261,4835</b>
Operating Utility	\$17,7131
Utility	\$83,7590
<b>Pvp</b>	<b>\$362,9556</b>

The first step to obtaining the retail price is to add the costs of both the customs broker, the national freight from Guayaquil to Cuenca, and the stevedoring in Cuenca; the value obtained represents the "subtotal" of the entire load. Therefore, it has to be divided by the number of quantities imported. In this case, 563 units; this way, the national cost per unit will be obtained. Subsequently, to this national cost is added to the total value of unit cost found in Table 13, obtaining the value of the unit cost of sale; this value is added to the operating profit, and the corresponding profit of 30% will obtain the retail price with the value of \$362.9556.

**Figure 5**

*Reference image of Professional 3t Hydraulic Skid Jack, Fast Elev GAPRO-300*



*Note. Reference of Professional 3t Skid Hydraulic Jack, Quick Lift GAPRO-300. From "Professional 3t Skid Hydraulic Jack, Fast Lift, Truper", by Truper S.A de C.V, 2024 (<https://shorturl.at/ryNW1>). In the public domain.*

### 3.3 Supplier Germany

The Ronix company offers high-quality tools, with a catalog of 2000 tools guaranteed by their quality and at affordable prices. It has been in the market for 20 years, manufacturing and marketing tools with high durability standards, maximum performance, and precision to facilitate and perfect users' work (Ronix Premium quality, n.d.).

This company offers Ronix brand hydraulic jacks, model Rh-4912, with a load capacity of 3 tons for domestic or professional use. Its minimum height is 13cm, and its maximum lift is 46.5cm; its lifting system is hydraulic, so less effort is needed to lift the load; this product is made of high-quality materials and has a long life, and its presentation comes in bright red. The net weight of this product is 27.4 kilograms, and its packaging is in a red Ronix box. It maintains the protection of the tool during transport to its destination (Ronix Premium Quality, 2024)..

#### Provider Information:

- Company: Ronix.
- Location: Frankfurt am Main, Germany.
- Availability: High.
- Payment Terms: CASH.
- Return: Not mentioned.
- Product Features.
- Product: Hydraulic Jack.
- Model: RH-4912.
- Brand: Ronix.
- Material: Steel.
- Dimensions: Minimum height 13cm / maximum height 46.5cm.
- Net Weight: 27.4 kg.
- Load: Maximum 3 tons.
- Standards: ISO 9001.
- Class: Type A.
- Warranty: No.
- Unit Price: \$160.74.
- Container: 20 feet.

- Origin: Port of Hamburg.
- Destination: Port Guayaquil.
- Ocean Freight: \$1693.66.
- Logistics company: Farletza.
- Insurance: Equinoctial Insurance 60% insured.

**Table 15**

*Taxes and duties applicable to the product of German origin*

Applicable taxes subheading 842542200	
Arancel Ad Valorem	4,3%
ICE	0%
FONDINFA	0,5%
IVA	15%
Antidumping	0%
Safeguard	0%

*Note.* The product requires INEN of USD 2,000.00 per month.

**Table 16**

*Details of Germany Hydraulic Jack Per Unit*

Box dimensions (m):	0,75 m	0,35 m	0,20 m
Box size (m3)	0,05 m <sup>3</sup>		
Weight:	27,4 kg		
Container capacity 20 ft (m3):	33 m <sup>3</sup>		
Container capacity 20 ft (kg):	17440 kg		
Number of boxes in a container by size	635		
Number of boxes in a container by weight	636		
Freight T	\$1.693,66		
Freight/u	\$2,6691		

Table 11 describes the measurements of the box in which the hydraulic jack will be transported; this data, together with the value of the weight of the box, will serve to know the number of boxes that can fit in a 20-foot container. As detailed in the Table, a maximum of 635 boxes can fit in a container, as this is how it reaches the maximum capacity that a container allows. This value was obtained by dividing the maximum capacity that a container allows. This value was obtained by dividing the maximum capacity supported by the container by the size of each box. The freight value per unit

was obtained by dividing the total freight value by the number of boxes that go into the container.

**Table 17**

*Costs and Unit Value*

FOB	\$160,7400
Freight	\$2,6691
Insurance	\$1,9609
CIF	\$165,3700
Ad Valorem	\$7,1109
Fodinfra	\$0,8269
Subtotal	\$173,3078
IVA	\$25,9962
Total	\$199,3040

In order to calculate the value of the insurance, the CFR was multiplied by 60%, which is the percentage that will be insured. Then that result was multiplied by 2%, thus giving the insurance value of \$1.9609 per unit according to data from the insurer "Seguros Equinoccial". Once the value of the insurance was obtained, it could be added to the CFR, resulting in a CIF value of \$165.3700. To the CIF was added the 4.3% corresponding to the Ad Valorem, since it has an international agreement with Ecuador, and the 0.5% that corresponds to the Fodinfra; with these added values, a price of \$173.3078 was obtained, which is the value of the merchandise without the value of VAT. Once the 15% VAT was added, a total value of \$199.3040 was obtained.

**Table 18**

*Retail Price of German Hydraulic Jack*

Agent Aduana AND INARPI	815,3300
National Freight GYE - CUE	\$402,5000
Stevedoring CUENCA	\$122,6666
SUBTOTAL	\$1.340,4966
Quantity per unit	\$635,0000
NATIONAL COSTS	\$2,1110
Unit Cost	\$201,4150
Operating Utility	\$15,7047
Utility	\$108,5599
Pvp	\$325,6796

The first step to obtaining the retail price is to add the costs of both the customs broker, the national freight from Guayaquil to Cuenca, and the stevedoring in Cuenca; the value obtained represents the "subtotal" of the full load. Therefore, it has to be divided by the number of quantities imported. In this case, 635 units; in this way, the national cost per unit will be obtained. Subsequently, to this national cost is added to the total value of unit cost found in Table 17, obtaining the value of the unit cost of sale; this value is added to the operating profit, and the corresponding profit of 50% will obtain the retail price with the value of \$325.6796.

### **Figure 6**

*Reference image of the Rh-4912 hydraulic jack*



*Note.* Hydraulic jack reference Rh-4912. From "RH-4912 3 Ton Garage Hydraulic Jack", by Ronix premium quality, 2024 (<https://ronixtools.com/en/product/floor-jack-3-ton-rh-4912/>). In the public domain.

## **3.4 Supplier United States**

OTC is an American brand that belongs to the Bosch company; this is one of the manufacturers and suppliers of automotive equipment and tools; it has different manufacturing plants, and the one that develops the OTC brand is in Owatonna, Minnesota, which indicates its location at 655 Eisenhower Drive and its contact 507-455-722 [intl.inquiries@service-solutions.com](mailto:intl.inquiries@service-solutions.com) (OTC Tools, 2024b).

This company offers OTC brand hydraulic jacks, model 1504A, with a load capacity of 3 tons for domestic or professional use. Its minimum height is 16cm, and its maximum lift is 62.23cm; its lifting system is hydraulic, so less effort is needed to lift the load; this product is made of high-quality materials and has a long life; its presentation comes in matte blue. The net weight of this product is 36.28 kilograms, and it has

packaging that protects the tool during the time of transport to its destination (OTC Tools, 2024a).

#### Provider Information

- Company: OTC.
- Location: United States.
- Availability: High.
- Payment Terms: Cash.
- Return: Yes.
- Product Features.
- Product: Hydraulic Jack.
- Model: 1504th.
- Brand Name: OTC.
- Material: Steel.
- Dimensions: Minimum height 16cm / maximum height 62.23cm.
- Net Weight: 36.28 kg.
- Load: Maximum 3 tons.
- Standards: 5 ASME PASE-2019 Security Standards – ISO 9001.
- Warranty: Lifetime.
- Unit Price: 335.00 EXW.
- Container: 20 feet.
- Origin: Port Seattle.
- Destination: Port Guayaquil.
- Ocean Freight: \$3890.00.
- Logistics company: Farletza.
- Insurance: Equinoctial Insurance 60% insured.



**Table 19***Taxes and duties applicable to products of North American origin*

Applicable taxes subheading 842542200	
Arancel Ad Valorem	15%
ICE	0%
FONDINFA	0,5%
IVA	15%
Antidumping	0%
Safeguard	0%

*Note.* The product requires INEN of USD 2,000.00 per month.

**Table 20***U.S. Hydraulic Jack Details Per Unit*

Box Dimensions (m):	0,62 m	0,34 m	0,16 m
Box Size (m <sup>3</sup> )	0,03 m <sup>3</sup>		
Weight:	36,28 kg		
Container Capacity 20 ft (m <sup>3</sup> ):	33 m <sup>3</sup>		
Container Capacity 20 ft (kg):	17440 kg		
Number of boxes in a container by size	974		
Number of boxes in a container by weight	481		
Freight T	\$3.890,00		
Freight/u	\$8,0923		

Table 8 describes the measurements of the box in which the hydraulic jack is going to be transported; this data, together with the value of the weight of the box, will serve to know the number of boxes that can fit in a 20-foot container. As detailed in the Table, a maximum of 496 boxes can fit in a container since this is how it reaches the limit weight that a container supports. This value was obtained by dividing the maximum weight capacity supported by the container by the weight of the hydraulic jack. The freight value per unit was obtained by dividing the total freight value by the number of boxes that go into the container.

**Table 21***Costs and Unit Value*

FOB	\$335,0000
Freight	\$8,0923
Insurence	\$4,1171
CIF	\$347,2094
Ad Valorem	\$52,0814
Fodinfra	\$1,7360
Subtotal	\$401,0268
Iva	\$60,1540
TOTAL	\$461,1809

In order to calculate the value of the insurance, the CFR was multiplied by 60%, which is the percentage that will be insured. Then that result was multiplied by 2%, thus giving the insurance value of \$4.1171 per unit according to data from the insurer "Seguros Equinoccial". Once the value of the insurance was obtained, it could be added with the CFR, resulting in the CIF value of \$347.2094. The 15% corresponding to the Ad Valorem was added to the CIF, considering that to date there is no trade agreement, and the 0.5% that corresponds to the Fodinfra, with these added values, a price of \$401.0268 was obtained, which is the value of the merchandise without the value of VAT. Once the 15% VAT was added, a total value of \$461,1809 was obtained.

**Table 22***Retail Price of American Hydraulic Jack*

Agent Aduana and INARPI	815,3300
National Freight GYE - CUE	\$402,5000
Stevedoring CUENCA	\$122,6666
SUBTOTAL	\$1.340,4966
Quantity per unit	\$481,0000
NATIONAL COSTS	\$2,7869
Unit Cost	\$463,9678
Operating Utility	\$20,7328
Utility	\$145,4102
Pvp	\$630,1108

The first step to obtaining the retail price is to add the costs of both the customs broker, the national freight from Guayaquil to Cuenca, and the stevedoring in Cuenca; the value obtained represents the "subtotal" of the full load. Therefore, it has to be divided by the number of quantities imported. In this case, 481 units; in this way, the national cost

per unit will be obtained. Subsequently, to this national cost is added to the total value of unit cost found in Table 21, obtaining the value of the unit cost of sale; this value is added to the operating profit, and the corresponding profit of 30% will obtain the retail price with the value of \$630.1108.

### **Figure 7**

*Reference image of the 1504A hydraulic jack*



*Note.* Hydraulic jack reference 1504A. From "3 Ton Service Jack," by OTC Tools, 2024 (<https://www.otctools.com/products/3-ton-service-jack-1>). In the public domain.

## **3.5 National Supplier**

The company Productos Metalúrgicos S.A. is an Ecuadorian supplier that offers hydraulic jacks of the Fortia brand. This company is located in Ecuador, in Guayaquil Km 5.5 via Daule. Its contact references are via E-mail at [pedidos@promesa.com.ec](mailto:pedidos@promesa.com.ec), and its contact numbers are +593962995555 and +59346006060. This company is a current supplier of "Yunga Barros Martha Catalina," with a 10-year business relationship (Productos Metalúrgicos S.A., 2023a).

Productos Metalúrgicos S.A., or PROMESA as it is commercially recognized, is defined as one of the Ecuadorian companies that has contributed to the development of automotive and hardware companies in the country, performing its work for more than 60 years in the national market with 10 divisions in the automotive section and 12 in hardware, offering the market an extensive catalog of products with approximately 10,000 items (Productos Metalúrgicos S.A., 2023b).

Within its product portfolio, it offers platform-type hydraulic jacks in the Fortia brand with the FGP-3T specification and composed of steel; this is within its general characteristics, and in terms of technical characteristics, this instrument can lift loads of

up to 3 tons, with a minimum height of 13.5 centimeters and a maximum lift of 50 centimeters. This product is distributed in units and weighs 35kg (Productos Metalúrgicos S.A., 2024). Due to the close commercial relationship with this company, the price of this product is 118.14 US dollars, including Value Added Tax (IVA), established as a wholesale price and without a minimum purchase amount, with no additional cost for the transport service to Cuenca and with a delivery time between 48 to 72 hours, Concerning the warranty, the hydraulic jacks do not have a warranty, that is, there is no probability that a new one will be delivered. However, the company offers after-sales service to repair damage to the same tool; the service is free, but the buyer must cover the value of the spare parts.

Provider Information:

- Company: Productos Metalúrgicos S.A.
- Location: Guayaquil – Ecuador.
- Availability: Medium.
- Payment Terms: Credit 30 / 60 / 90 days.
- Return: No.
- Product Features.
- Product: Hydraulic Jack.
- Model: FGP-3T.
- Brand Name: Fortia.
- Material: Steel.
- Dimensions: Minimum height 13.5 cm / maximum height 50 cm.
- Net Weight: 35 kg.
- Load: Maximum 3 tons.
- Standards: ISO 9001.
- Warranty: No.
- Unit Price: \$118.14.
- Freight: No.
- Insurance: No.
- Tariffs: No.
- Taxes: 15% included in the price.
- Transportation: \$402.50.

**Table 23**

*Domestic Hydraulic Jack Retail Price*

Domestic Freight GYE - CUE	\$402,5000
Stevedoring CUENCA	\$122,6666
SUBTOTAL	\$525,1666
Quantity per unit	\$500,0000
NATIONAL COSTS	\$1,0503
Unit Cost	\$119,1903
Operating Utility	\$19,9450
Utility	\$55,6541
Pvp	\$194,7895

The first step to obtaining the retail price is to add the costs of both the national freight from Guayaquil to Cuenca and the stevedoring in Cuenca; the value obtained represents the "subtotal" of the entire load. Therefore, it has to be divided by the number of imported quantities, in this case, 500 units. In this way, the national cost per unit will be obtained. Subsequently, to this national cost is added to the total value of unit cost found in Table 24, obtaining the value of the unit cost of sale; this value is added to the operating profit, and the corresponding profit of 40% will obtain the retail price with the value of \$194.7895.

**Figure 8**

*Reference image of FGP-3T hydraulic jack*



*Note.* FGP-3T hydraulic jack reference. From "3ton FGP-3T Hydraulic Platform Jack", by Productos Metalúrgicos S.A., 2024 (<https://shorturl.at/eqsFN>). In the public domain.

After the compilation of data from the five national and international suppliers that offer us 3-ton load hydraulic jacks and under similar characteristics, we detail the following Table:

**Table 24***Collection of Supplier Information*

Suppliers	China	Mexico	Germany	United States	Ecuador
Enterprise	Huafengtech	Truper	Ronix	OTC	PROMESA
Localization	Anhui	Jilotepec	Frankfurt am Main	Michigan	Guayas
Availability	Loud	Limited	Loud	Loud	Limited
Payment	Letter of Credit	Transfer	Transfer	Transfer	Direct Credit
Return	Yes	Yes	No	Yes	No
Model	TX643	GAPRO-300	Rh-4912	1504A	FGP-3T
Brand	Sustools	Truper	Ronix	OTC	Fortia
Material	Steel	Steel	Steel	Steel	Steel
Elevation	13,5 - 50cm	14,5 - 47,5 cm	13 - 46,5cm	16 - 62.23cm	13,5-50cm
Net weight	30 kg	31kg	27,4 kg	36,28 kg	35 kg
Loud	3 tons	3 tons	3 tons	3 tons	3 tons
Standards	ISO 9001	ISO 9001	ISO 9001	ISO 9001	ISO 9001
Guarantee	1 year	1 year	1 year	Unlimited	No
Price EXW	\$52,72	\$190,72	\$160,74	\$335,00	\$118,14

## **CHAPTER 4**

### **4. COMPARATIVE ANALYSIS OF SUPPLIERS AND FINANCIAL FEASIBILITY**

#### **4.1 Analysis Methodology**

The National Customs Service of Ecuador (2024b) emphasizes that importing is inserting a foreign product into a specific customs territory. However, to enter the country, the goods must comply with the formalities and tax obligations corresponding to the import regime to which they apply in their declaration.

Thus, in the Organic Code of Production, Trade, and Investment, COPCI (2010), Article 147 states that the customs procedure under which goods imported from abroad or from a Special Economic Development Zone are registered and whose final destination is to remain in the customs territory is determined as an import for consumption, i.e., the imported goods will remain in the country definitively and freely once they have complied with the established customs formalities and obligations.

Import is the fundamental tool for the development of this study; the secondary information that we have obtained in the collection of data from the national and international hydraulic jack supplier companies will be analyzed through matrices with ratings established using the Likert scale, in this process we will quantify qualitative data such as the characteristics of the suppliers and the products will obtain a rating according to their prioritization. Finally, suppliers will be ranked according to their best characteristics for importing hydraulic jacks with a load capacity of 3 tons.

In this first part, the Likert scale will be defined. Created in 1932 by Rensis Likert, it is a tool to measure people's opinions and attitudes on a specific topic. It is based on a series of questions related to the topic, where participants indicate their level of agreement or disagreement, choosing one of the available answer options on a predefined scale that usually has between 3 and 10 points (De la Rosa de Sáa, 2012).

To quantify the qualitative data collected, we will consider two Likert scales: the first will focus on the qualification of each supplier, assessing the priorities that it provides us, and the other will be related to the importance of the product's characteristics. It should be noted that the rating will be made from 1 to 5, limiting the answer options, thus

reducing the possibility of rating for favorability or for the intention of not creating gaps between suppliers. The scale for providers is defined as follows:

**Table 25**

*Likert Scale Scores for Providers*

Scores	Description
1	It's not important
2	Unimportant
3	Something important
4	Important
5	Very important

## 4.2 Supplier Rating

The importance of the factors concerning the supplier is focused on its management; that is, the qualification is focused on the attention that the seller has when offering his product.

**Table 26**

*Assessment of supplier-related factors*

Characteristics	Priority
Localization	5
Method of payment	2
Avaliability	5
Guarantee	3
Attention	4

Sapag (2014) points out that the location of the supplier of the goods influences the cost of a product, as it establishes the relationship: the farther away the supply center is from the consumer, the more expensive it will be for him to obtain the merchandise in his displays, this generates the phenomenon of diseconomy of scale that refers to the fact that the increase in work to obtain a product makes it more expensive. Location is an essential factor because the origin of the container that transports the goods can influence logistics costs, such as internal transport from factory to port; the distance between the country of origin and the destination, in this case, Ecuador, can modify the cost and time of transport, since it depends on favorable maritime routes and the conditions of each country.



The form of payment is not considered a modifying factor since most suppliers offer similar payment methods. It is clear that it is necessary to consider financing an import project; however, in this project, the company Motorbil has the budget for financing available.

Availability is the supplier's ability to dispatch the requested products. It refers to the inventory or production capacity to cover the company's demand when requesting the products. This is a very relevant characteristic because the availability of hydraulic jacks is the source of the company's demand for the product.

On the guarantee, by the provisions of the Organic Law on Consumer Protection (Oficial Suplemento, 2015), Article 11 states that products such as automobiles, electrical appliances, and household appliances are required to have a warranty provided by the seller for any factory damage or damage during their operation. It is clear that the regulations are applicable within the country; however, it is necessary to consider this factor since the guarantee offered by the supplier will be the same as the one the company offers to its consumers. The guarantee that the supplier gives us on the shipment of your product is a feature that moderately modifies the choice of the supplier since it is considered that he will send hydraulic jacks that do not have faults. If he has them, he will receive these products back to us.

### 4.3 Product Rating

Prioritization of factors concerning the product.

**Table 27**

*Product Feature Rating*

Characteristics	Priority
Origin	4
Weight	4
Product Performance Guarantee	4
FOB Price	5

The product's origin is highly influential from the customer's perspective since this characteristic is influenced by the existing prejudices in the market about the quality of products depending on their country of origin.

The product's weight is a very important factor since it is directly related to the various costs that infer the product's price until its destination. This factor has weight in

the capacity of units that can be brought in a 20-foot container. It is relevant for the company since the values to be hedged can be very high.

The warranty of operation of the product (factory warranty) is related to the one that the supplier offers us as a response to the malfunction or performance of the hydraulic jack during its use and the damages that these may present; it is moderately important because if a product does not work properly a claim can be made about it and obtain a positive response such as a return, It is not defined as an outstanding factor because in the market the guarantee is an advantage as a distinction that is generally not offered. If it is offered, it is not made effective.

The FOB price is very relevant, as it allows us to have the basis for the calculation of taxes of the product; the more expensive its rating is, the more priority it is because it is directly related to financing. (It gives us one of the elements of the tax base).

#### **4.4 Logistics Valuation**

**Table 28**

*Prioritization of factors concerning logistics*

Characteristics	Priority
Freight	4
Insurance	3
Duties and Taxes	5

It is very important to prioritize freight because it will have a lot of influence when calculating the retail price. This characteristic, like the FOB price, will have an inverse rating; the more expensive the freight value, the lower its rating.

Insurance is very important to consider if a product is being imported. However, it has an intermediate prioritization since, for equal conditions, all supplier countries have the same percentage of insurance. On the other hand, not all of them will have the same value, which could affect the calculation of the retail price.

Tariffs and taxes affect the final sale price, and this is also a priority since the tariff percentages will depend on whether or not there is a trade agreement with the supplier country. Just like the FOB price, tariffs and taxes also directly affect financing.

To carry out the respective rating matrices of each supplier country, it is necessary to rate each country's capacity against each characteristic using the Likert scale. Once the

country's rating has been obtained, the score obtained by characteristic is multiplied by its respective level of prioritization.

## 4.5 Qualification Arrays

Qualification matrices by country of origin.

**Table 29**

*China Valuation Matrix*

Characteristics	Priority	China	
Supplier			
Localization	5	4	20
Method of payment	2	5	10
Availability	5	5	25
Guarantee	3	3	9
Customer Support	4	3	12
Product			
Origin	4	3	12
Weight	4	4	16
Product Guarantee	4	3	12
FOB Price	5	5	25
Taxes			
Freight	4	2	8
Insurance	3	5	15
Duties and Taxes	5	5	25
Score			<b>189</b>

The supplier of Chinese origin obtains a score of 189, the main positive factor concerning the supplier is availability; as for the product, it is the FOB price and in taxes the section of duties and taxes; these are the characteristics that make this supplier obtain a good score, China is a country with which we have a Trade Agreement and therefore we have a decrease in the Ad valorem to 13.5% applicable to subheading 84254220 for hydraulic jacks, which has a positive impact on its classification. The price of the product is the cheapest compared to the rest of the suppliers analyzed, and the availability that the supplier of this product offers us is unlimited since they are manufacturers. One of the negative characteristics of this country is the value of freight, being one of the most expensive in relation to other suppliers.

**Table 30***Mexico Valuation Matrix*

Characteristics	Priority	Mexico	
Suppliers			
Localization	5	5	25
Method of payment	2	3	6
Availability	5	3	15
Guarantee	3	3	9
Customer Support	4	2	8
Product			
Origin	4	4	16
Weight	4	4	16
Product Guarantee	4	3	12
FOB Price	5	3	15
Taxes			
Freight	4	5	20
Insurance	3	4	12
Duties and Taxes	5	3	15
Score			<b>169</b>

Mexico obtains a score of 169, its negative factors are mainly customer service, since the supplier company does not provide personalized attention, but the company that wants to acquire its products relates to them through the website, the availability of hydraulic jacks is limited and therefore it is also a factor that has a negative impact. On the other hand, a positive feature of this country of origin is that the freight value is one of the most economical and convenient for this cargo.

**Table 31***Valuation Matrix Germany*

Characteristics	Priorization	Germany	
Suppliers			
Localization		5	20
Method of payment	2	3	6
Availability	5	5	25
Guarantee	3	1	3
Customer Support	4	3	12
Product			
Origin	4	5	20
Weight	4	5	20
Product Guarantee	4	1	4
FOB Price	5	4	20
Taxes			
Freight	4	3	12

Insurance	3	5	15
Duties and Taxes	5	5	25
Score			<b>182</b>

Germany reflects a rating of 182 points since its characteristics are attractive. However, it does not offer a guarantee of its products, and for this reason, its rating is low; another negative factor is the price of freight; however, a factor that stands out is that of tariffs and taxes because Ecuador has a trade agreement with the European Union, therefore, with Germany, thus obtaining the lowest applicable Ad Valorem, in relation to the other suppliers.

**Table 32**

*U.S. Valuation Matrix*

Characteristics	Priorization	United States	
Suppliers			
Localization	5	3	15
Method of payment	2	3	6
Availability	5	5	25
Guarantee	3	5	15
Customer Support	4	3	12
Product			
Origin	4	5	20
Weight	4	3	12
Product Guarantee	4	5	20
FOB Price	5	1	5
Taxes			
Freight	4	1	4
Insurance	3	1	3
Duties and Taxes	5	3	15
Score			<b>152</b>

The United States has several negative characteristics, such as the value of freight that is registered as the most expensive. We do not have a trade agreement, so there is no reduction in tariffs. It has the FOB price plus costs among suppliers. However, its positive characteristic is that the supplier guarantees the product for life.

**Table 33**

*Valuation Matrix Ecuador*

Characteristics	Priorization	Ecuador	
Suppliers			
Localization	5	5	25
Method of payment	2	5	10
Availability	5	2	10

Guarantee	3	1	3
Customer Support	4	4	16
Product			
Origin	4	3	12
Weight	4	3	12
Product Guarantee	4	1	4
FOB Price	5	4	20
Taxes			
Freight	4	0	0
Insurance	3	0	0
Duties and Taxes	5	0	0
Score			<b>112</b>

The treatment for the national supplier is different; it does not have measurable qualifying characteristics in relation to international logistics since the supplier is located in the country and can allocate the products to the warehouse of the Motorbil company in Cuenca. However, this product's availability is limited and not guaranteed, decreasing the rating.

## 4.6 Country Comparison Matrix

**Table 34**

*Comparative Country Valuation Matrix*

Characteristics	Priorization	China	Mexico	Germany	United States	Ecuador
Suppliers						
Localization	5	20	25	20	15	25
Method of payment	2	10	6	6	6	10
Availability	5	25	15	25	25	10
Guarantee	3	9	9	3	15	3
Customer Support	4	12	8	12	12	16
Product						
Origin	4	12	16	20	20	12
Weight	4	16	16	20	12	12
Product Guarantee	4	12	12	4	20	4
FOB Price	5	25	15	20	5	20
Taxes						
Freight	4	8	20	12	4	20
Insurance	3	15	12	15	3	15
Duties and Taxes	5	25	15	25	15	25
Score		189	169	182	152	172

This matrix shows the scores of each national and international supplier obtained by the assessment of each characteristic; it is highlighted according to the supplier's

location, payment method, availability, guarantee, and customer service, depending on the product, the origin, weight, product warranty, FOB price and according to taxes the freight, insurance and duties and taxes. Based on these characteristics, the Chinese supplier stands out as the best score with 189 points, followed by the German supplier with 182 points. The Mexican supplier had 169 points, followed by the American supplier, with 152 points, and finally, the national supplier, with 112 points. The treatment of the last supplier is different because it is modified in the taxes section because it does not depend on international logistics; however, without considering these characteristics and thus giving it the maximum rating, the provider would obtain a score of 172. It should be noted that the prioritized characteristics have been location, availability, tariffs and taxes, and the FOB price, with which it has been obtained that China is the best-scored country of origin and thus becomes the most attractive supplier for importing these products.

On the other hand, it is elementary to also consider the empirical part of this project, there are various projects and businesses that are developed empirically, that is, they are not part of the statistics, such as the opinion and criteria of the people of the automotive businesses for this through an interview we rescue some of the qualities that entrepreneurs value when they acquire hydraulic jacks, They generally acquire this product through distributors that offer them in their commercial premises or in supermarkets, they highlight that the prices of this product and the related ones have increased over the years and that mostly the price is important when buying this tool, since they need a good product but that is not so expensive, However, there is a criterion that differs and that is that if the product is of quality there is availability to pay whatever it costs, the warranty and the price are the necessary factors to know when buying this tool and the willingness to pay for this product fluctuates between \$201.00 and \$300.00 USD. These considerations agree with those studied; it is always the price that stands out in the choice of a product when acquiring it; however, buyers are aware that there are excellent quality products that are necessary to acquire at a higher cost; quality is essential in a tool like this that is indispensable for automotive work.

#### **4.7 VAN and TIR**

The Net Present Value (NPV) and the Internal Rate of Return (IRR) are two fundamental tools in the evaluation of investment projects such as the one analyzed in this study; these indicators help to make effective decisions based on the viability and

profitability of the project, according to Baca (2010). The Net Present Value (NPV) represents the comparison of the profit expected to be generated by the business with the cash outflow used in the process to achieve the profits. If the result of this calculation is zero, it expresses that the profits obtained cover the costs invested. It is highlighted that the profits must be greater than the investment for the NPV to be positive, and this expresses that the profits not only cover the investment, they also generate more than expected, and this is the result of the excellent turn of the business. Simisterra et al. (2018) highlight that the Internal Rate of Return (IRR) is an indicator that expresses the return on investment; it means that the IRR shows if the money invested in the project is generating profits that exceed the capital, it can be said that the investment in a project is financially viable when the results of the operation are positive, which means that there is always enough cash to meet the needs in the process of implementing and operating the business.

To determine the minimum rate expected to be obtained from the project, various characteristics are considered, such as financing, inflation, business risk, and possible modifying factors that are diverse among countries (Baca Urbina, 2010). The expectation percentage is compared with the expenses necessary for the development and operation of the business; if the calculation of the IRR is equal to the minimum rate established, it is undesirable to develop the business since the income is the same as the expenses. Therefore, there is no profit nor additional benefit. The IRR must be higher than the expected rate for the project to be attractive. Thus, it is understood that the business generates profits that cover expenses and leave a profit margin that exceeds the minimum expected rate (Mete, 2014).

**Table 35**

*Calculation of NPV and IRR by country and year*

NPV and IRR calculation							
China	Investment	Año 1	Año 2	Año 3	Año 4	Año 5	TIR
	-12531,552	3378,5387	3665,4681	6329,6229	7050,0661	10538,3632	31%
VAN	4127,38546	2815,44892	2545,463989	3662,97619	3399,916143	4235,13181	
Mexico	Investment	Year 1	Year 2	Year 3	Year 4	Year 5	TIR
	-40923,15	6380,3215	7049,3893	11110,6800	12489,2633	17968,8244	9%
VAN	-11036,76	5316,93462	4895,409267	6429,79166	6022,985793	7221,26752	
Germany	Investment	Year 1	Year 2	Year 3	Year 4	Year 5	TIR
	-31507,105	8692,6690	9347,2950	13992,6495	15416,0473	21554,2213	28%
VAN	6422,15515	7243,89085	6491,177101	8097,59812	7434,436383	8662,1581	
Unites States	Investment	Year 1	Year 2	Year 3	Year 4	Year 5	TIR



	-72691,047	13543,0108	14769,1200	21598,7063	24016,7211	33242,0821	12%
VAN	-13708,235	11285,8424	10256,33332	12499,2513	11582,13787	13359,2473	
Ecuador	Investment	Year 1	Year 2	Year 3	Year 4	Year 5	TIR
	-18712,877	3415,8543	3763,7889	6534,9703	7347,7856	11020,2864	17%
VAN	-1498,4798	2846,54525	2613,742291	3781,81151	3543,492267	4428,80595	

The Net Present Value was calculated by adding the present value of the expected cash flows from the commercialization of hydraulic jacks, discounted at a specific discount rate that has been defined as 20%, considering the percentage that banks generally grant for investment, which corresponds to approximately 9%, considering Ecuador's inflation that fluctuates between 1% and 2% and the risk of the business between 3.5% and 4%. Finally, the initial investment was subtracted according to the variations of each supplier country. Now, based on the Internal Rate of Return, this is the discount rate that makes the NPV of a project zero, makes the future cash flows minus the specific discount rate equal the initial investment; for the calculation, the cash flows are recorded, including the initial investment as a negative value and its response value is percentage.

#### 4.8 Profitability of the business

It is important to express the business's profitability as it reflects its ability to generate profits and long-term growth. For the purposes of this business of importing automotive jacks, it is essential that it is profitable because this ensures its viability and growth in a competitive market. Additionally, profitability allows for covering operating and import costs, investment in means of sale, technology, and adequate logistics to distribute the products, especially to maintain an inventory that satisfies customer demand. To visualize the profitability of this business for the Motorbil company, considering the supply of hydraulic jacks from different sources, the following Table summarizes the investment that will be made to sell these products, the IRR, and the NPV.

**Table 36**

*NPV and Project IRR by Supplier Country*

	Investment	IRR	NPV
China	-12531,552	31%	4127,39
Mexico	-40923,15	9%	-11036,76
Germany	-31507,105	28%	6422,16
United States	-72691,047	12%	-13708,23
Ecuador	18712,8771	17%	-1498,48

In the case of Chinese products, the required investment is \$12,531.55, and visualizing that the NPV is positive, the project is profitable according to the discount rate used to calculate the NPV, which means that the present value of the future cash flows is sufficient to cover the initial investment. Additionally, the IRR of 31% is much higher than the minimum rate established to make the project more profitable than allocating the money to a bank. Considering the Mexican product, the investment must be \$40,923.14, which is one of the highest investments compared to the other suppliers; it gives the company a negative NPV; that is, the project is not profitable since its IRR indicates a lower percentage of return than the established one. Conversely, Germany registers an initial investment of \$31,507.10 with an NPV of 6,422.16, generating future cash flows that are necessary to pay for the investment and with an IRR rate higher than the established one. On the side of North American products, these are the ones that register the highest investment with \$72,691.04, clearly generating a lower IRR rate of 12% and an NPV of -13708.23, which is much lower than what the rest of the products of different origin generate, it is emphasized that the investment is the highest. Finally, the hydraulic jacks that can be purchased nationwide have an investment of \$18,712.87, producing a negative NPV of -1498.48, which is not enough to cover the investment, with an IRR of 17%. After analyzing these indicators, Germany's hydraulic jacks, with an NPV of 6422.16, are the most profitable, as they generate the highest net present value among the available options. However, it is China that has the highest Internal Rate of Return with 31% which is 3 points higher than Germany's.

## 4.9 Total Project Valuation Matrix

**Table 37**

*Final Valuation Matrix*

Characteristics	Priorization	China	Mexico	Germany	United States	Ecuador
<b>Supplier</b>						
Localization	5	20	25	20	15	25
Method of payment	2	10	6	6	6	10
Availability	5	25	15	25	25	10
Guarantee	3	9	9	3	15	3
Customer Support	4	12	8	12	12	16
<b>Product</b>						
Origin	4	12	16	20	20	12
Weight	4	16	16	20	12	12
Product Guarantee	4	12	12	4	20	4
FOB Price	5	25	15	20	5	20
<b>Taxes</b>						
Freight	4	8	20	12	4	20
Insurance	3	15	12	15	3	15
Duties and Taxes	5	25	15	25	15	25
<b>Profitability</b>						
Retail price	5	25	10	20	5	20
NPV	4	16	8	20	4	12
IRR	4	20	4	20	8	12
Score		250	191	242	169	216

The retail price has a prioritization with maximum rating since it is a characteristic that is directly related to the purchase decision of customers in front of the product; that is, if the product's final price is cheap, it is attractive to the customer. On the other hand, if the retail price is very high, it will not be well received in the market. For this reason, this feature is going to have a reverse rating. However, it is necessary to take into account that there are products that, due to their origin, will have a particular favoritism for customers.

The Net Present Value (NPV) is very important for evaluating the project, as it allows you to determine if an investment will generate positive returns in the future. A positive NPV indicates that the project will not only recoup the initial investment but also generate a profit, which is essential for the viability and sustainable growth of the company—in this way, considering the NPV vital to ensure the possible existence of long-term profitability.

The Internal Rate of Return (IRR) is a vital tool in evaluating investment projects, as it measures the expected profitability of an investment. It is very important to give it a high priority because it provides a percentage at which future cash values equal the initial cost of the investment, thus indicating the project's break-even point. A high IRR means that the project promises to generate significant returns in excess of the cost of capital.

Including these characteristics in the assessment using the Likert scale significantly impacted each country's final scores. For example, Germany benefited considerably, achieving an increase of 48 points. However, although China did not get the same increase as Germany, its low costs allowed it to remain the most competitive supplier, outperforming all other countries in the final assessment.

## CONCLUSIONS

In conclusion, during the development of this study, "Comparative analysis of suppliers of hydraulic jacks for the company Yunga Barros Martha Catalina,". The description of the company called Motorbil as a commercial name, the organization, and the company's business model have been presented, detailing the focus of its commercial activity, the catalog of products that the company offers to the market, and the number of current customers. Emphasizing that the company, by its growth, exposes its need to import automotive tools to extend its range of products in the market, thus defining the main product to import, which is the hydraulic lizard-type jack. Additionally, charts and figures are detailed that express the monthly income statements corresponding to the years 2022 and 2023, which allows an overview of the company in relation to its economic availability to deduce its import capacity, the number of products that must be quoted, and projected to sell.

The product determined to be imported for Motorbil is the hydraulic jack of 3 tons corresponding to the tariff subheading 84.25.42.2000, defined by 3 axes; the first is that this product is an essential tool for work within the automotive area, another point is that in Cuenca it is a requirement for the Vehicle Technical Review that the vehicles that circulate in the canton have one of these tools and finally, the increase in imports of this product, relevant and influential for the selection of its imports. The basic characteristics of the product to be imported are hydraulic jacks with a minimum lift of 45 cm, a height that enters under the vehicle of approximately 13 cm, and a maximum load capacity of 3 tons.

In this study, the objectives set for its development have been met; the general objective that has been raised was to determine the potential suppliers of hydraulic jacks for the import of the Motorbil company; in order to comply with it, the following specific objectives were presented, initially to diagnose the Motorbil company and the product to be imported, Culminated in the first chapter of this titling project, continuing with the definition of the characteristics of the international suppliers of hydraulic jacks, this objective has been carried out in the second chapter of this project, through the collection of information from national and international suppliers, obtaining data and characteristics from 5 different countries such as China, Mexico, Germany, the United States, and Ecuador, of which the characteristics focused on the service of the supplier, particularity of the product and amounts used in logistics and taxes have been detailed in

detail. Among the data described is the location of the supplier, the availability of delivery of the product, and the method of payment; on the other hand, in relation to the product, its origin, price, and weight are highlighted; all these data have been provided by the supplier's contact and verified on their website. Finally, the freight value from the different ports of origin to Guayaquil, Ecuador, has been obtained through Farletza S.A. The insurance value was calculated using Seguros Equinoccial's data, and the calculation of tariffs and taxes was based on those set in the Ecuadorian Single Window of the National Customs Service of Ecuador.

Finally, we proceed with the third specific objective aimed at making a comparative study of the supply of automotive tools for the Motorbil company; in this part of the study, a mixed analysis is carried out, with the data obtained from the suppliers, different matrices were made that exhibit the characteristics of each supplier with a rating in relation to its prioritization. To elaborate the valuation matrix of factors related to suppliers, the product valuation matrix, the logistics valuation matrix, and finally, the matrix that collects all the above and includes the profitability of the project, a tool called the Likert scale was used; this allowed the quantification of the data that through scores establishes which is the most favorable origin for the import of hydraulic jacks.

The Likert scale is limited to the prioritization that registers each characteristic by the score given to each country; through the sum of the rating of the ratings of each country, scores are recorded, which allows us to compare the countries and define China among them as the supplier with the best score, which means that China with 234 points, It has the best characteristics to provide hydraulic jacks to Motorbil, standing out for the availability that the Chinese company has to supply hydraulic jacks to the company, the low price of the product and the guarantee that the company offers on the product. Additionally, the valuation of logistics and taxes points out the favorability provided by the China-Ecuador Trade Agreement for reducing tariffs.

In terms of profitability, we have obtained that the retail price (RRP) of hydraulic jacks of Chinese origin is the most attractive, with a profit percentage of 60%; the RRP is \$156.45, being the cheapest, followed by the product of the national supplier of \$194.78. On the other hand, analyzing the profitability of the business, most suppliers register a negative Net Present Value (NPV); that is, the cash flows do not cover the investment that would be used to acquire the hydraulic jacks; this is not the case of the Chinese jacks, since it expresses a positive NPV of \$4127.39, with a percentage of IRR

of 31% being much higher than the established minimum. With this, China is the most interesting supplier based on the score in the final matrix. There are factors, such as the price at which the product is marketed, which can be increased to generate more significant cash flows for the rest of the origins. However, it must be considered that the investment for these products varies among all countries; that is, it is necessary to analyze whether the product is sold and the price at which it could be marketed depending on the market. In the case of China, for example, the price could be considered to be raised even to reach the national price, which corresponds to \$194.78.

After analyzing the results obtained from the evaluation using the Likert scale, it has been concluded that Ronix, from Germany, emerges as the second potential supplier of hydraulic jacks. While its warranty and freight costs are significantly high, its appeal lies in the lower tariff costs compared to other suppliers, thanks to the trade agreement between Ecuador and Germany. Therefore, it is suggested that Ronix be considered part of an alternative sourcing plan, taking advantage of the economic benefits derived from this bilateral agreement and considering the profitability of the business based on the import of these products.

After carrying out this analysis, it is emphasized that the company Motorbil has the financial and operational capacity to carry out its commercial activities related to the sale of auto parts and supplies for motor vehicles without having any inconvenience in proceeding to import hydraulic jacks as a segment of its intention to distribute automotive tools in the City of Cuenca. This company can consider the analysis of this study as a source of decisions for the choice of the best-rated supplier, which offers the best qualities for the supply of this product. It is necessary to take into account the negotiations established in this project that we cede to the company so that it can freely carry out the negotiation with the provisional companies and have an import process, which will generate profits and the growth of the company, satisfying the needs of its current customers and the new ones detailed in this work.

## RECOMMENDATIONS

Considering the relevance of the findings obtained throughout the research and based on the detailed results, some suggestions are made to the owner-manager of the case study company "MOTORBIL." These recommendations are designed to promote the economic well-being of the company, as well as expand its share of the automotive market. In order to achieve these points, a series of strategic recommendations are presented below:

- After completing each chapter of the investigation, it can be concluded that Motorbil has a solid financial capacity that supports the viability of importing lizard-type hydraulic jacks. Therefore, it is recommended that Motorbil take advantage of this established economic capacity to venture into the import of lizard-type hydraulic jacks, which will potentially strengthen its position in the market, as it represents an opportunity to diversify operations and expand its product offering, thus allowing it to generate new sources of income.

- Throughout the document, various characteristics of hydraulic jacks from different supplier countries have been detailed. In order to determine the most suitable provider, a Likert scale assessment was carried out for each country, followed by a comparison of the scores obtained. The results indicated that China ranked as the highest bidder, reaching a score of 189. This choice is based on adapting its characteristics to the specific needs of Motorbil, focusing on the availability of supply, the low prices, and the guarantee of the product offered. In addition, in logistical terms, the existence of the China-Ecuador Trade Agreement provides Motorbil with considerable benefits, such as a tariff reduction, thus strengthening the viability and feasibility of this option as a supplier. Therefore, it is recommended that Motorbil consolidate its relationship with the supplier Huafengtech in China, taking advantage of the economic advantages.



## REFERENCIAS

- Baca Urbina, G. (2010). *Evaluación de Proyectos { Project Evaluation }*(4a ed.). <https://econforesyproyec.wordpress.com/wp-content/uploads/2014/11/evaluacion-de-proyectos-gabriel-baca-urbina-corregido.pdf>
- Banco Central del Ecuador. (2024, enero). *Estadísticas de comercio exterior de bienes {Foreign Trade Statistics of Goods}*.
- Castillo Barrera, I. (s/f). *Truper SA de CV*. Recuperado el 9 de abril de 2024, de <https://shorturl.at/ku457>
- Código-orgánico-de-la-producción-comercio-e-inversiones*. (2010).
- De la Rosa de Sáa, S. (2012). *Análisis estadístico comparativo de tres escalas de valoración: Likert, fuzzy-Likert y fuzzy de respuesta libre {Comparative statistical analysis of three rating scales: Likert, fuzzy-Likert and free-response fuzzy}*. Universidad de Oviedo.
- Firestone. (2022, septiembre 19). *Conocé todo acerca de la gata hidráulica y volvete un experto con tu auto {Learn all about the hydraulic jack and become an expert with your car}*. <https://shorturl.at/jzkqz>
- Gobierno Autónomo Descentralizado Municipal del Cantón Cuenca. (2023). *Carta (Guía) de trámites y servicios emov {Letter (Guide) of procedures and services emov}*. Revisión vehicular y levantamiento de improntas. <https://www.cuenca.gob.ec/content/revisi%C3%B3n-vehicular-y-levantamiento-de-improntas>
- Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). *Metodología de la Investigación {Research Methodology}* (5a ed.).
- Huafengtech. (2005). *Perfil de la empresa {Company Profile}*. <https://es.huafengtech.com.cn/>
- Instituto Nacional de Estadísticas y Censos. (2022). *Estadísticas de Transporte {Transportation Statistics}*. <https://rb.gy/nc0ca3>
- Made-in-China. (2024a). *3 Ton Fast Lifting Hydraulic Floor Jack {3 Ton Fast Lifting Hydraulic Floor Jack}*. <https://rb.gy/4fb01n>
- Made-in-China. (2024b). *Perfil de la Empresa {Company Profile}*. <https://rb.gy/b34t97>
- Mete, M. R. (2014). *Valor actual neto y tasa de retorno: su utilidad como herramientas para el análisis y evaluación de proyectos de inversión {Net present value and rate of return: their usefulness as tools for the analysis and evaluation of investment projects}*. [http://www.scielo.org.bo/pdf/rfer/v7n7/v7n7\\_a06.pdf](http://www.scielo.org.bo/pdf/rfer/v7n7/v7n7_a06.pdf)
- Oficial Suplemento, R. (2015). *Ley orgánica de defensa del consumidor {Organic Law on Consumer Protection}*. [www.lexis.com.ec](http://www.lexis.com.ec)
- OTC Tools. (2024a). *Gato de servicio de 3 toneladas {3 Ton Service Jack}*. <https://www.otctools.com/products/3-ton-service-jack-1>
- OTC Tools. (2024b). *Información de la marca {Brand Information}*. <https://www.otctools.com/about/brand-information>
- Productos Metalúrgicos S.A. (2023a). *Contactos {Contacs}*. <https://www.promesa.com.ec/>

- Productos Metalúrgicos S.A. (2023b). *Sobre Promesa {About Promesa}*.  
<https://shorturl.at/ofrw0>
- Productos Metalúrgicos S.A. (2024). *Gato Hidráulico tipo Plataforma FGP-3T de 3ton { FGP-3T 3ton Hydraulic Platform Type Jack}*. <https://shorturl.at/eqsfn>
- Registro Estadístico de Empresas. (2023, octubre 31). *Cruce de variables del Registro Estadístico de Empresas - REEM 2022 {Cross-referencing of variables from the Statistical Register of Companies - REEM 2022}*.
- Ronix premium quality. (s/f). *Sobre nosotros {About us}*. Recuperado el 8 de abril de 2024, de <https://ronixtools.com/en/about-us/>
- Ronix premium quality. (2024). *RH-4912 Gato hidráulico de garaje de 3 toneladas {RH-4912 3 Ton Garage Hydraulic Jack}*.  
<https://ronixtools.com/en/product/floor-jack-3-ton-rh-4912/>
- Sapag Chain, N., Sapag Chain, R., & Sapag, J. M. (2014). *Preparación y evaluación de proyectos { Project preparation and evaluation}* (6a ed.).  
<https://t.ly/Ti1n2>
- Servicio Nacional de Aduana del Ecuador. (2024a). *Consulta de Arancel {Tariff Consultation.}*. Mesa de Servicios SENAE.  
<https://mesadeservicios.aduana.gob.ec/arancel/>
- Servicio Nacional de Aduana del Ecuador. (2024b, enero). *¿Qué es una Importación? {What is an Import?}* <https://www.aduana.gob.ec/servicio-al-ciudadano/para-importar/>
- Simisterra Quiñonez, É. P., Rosa Monserrate, R. A., & Suárez López, S. C. (2018). *La viabilidad de un proyecto, el valor actual neto (VAN) y la tasa interna de retorno (TIR) {The viability of a project, the net present value (NPV) and the internal rate of return (IRR)}* (Vol. 2).  
<https://core.ac.uk/download/pdf/233603324.pdf>
- Truper S.A de C.V. (2024a). *Acerca de Truper {About Truper}*.  
<https://www.truper.com/acerca-de-truper/>
- Truper S.A de C.V. (2024b). *Gato hidráulico de patín 3t profesional, elev rápida, Truper {Professional 3t skid hydraulic jack, quick lift, Truper}*.  
<https://shorturl.at/rynw1>

# APPENDIXES

## Appendix 1

*Motorbil Cuenca Company*



**Appendix 2**  
*Summary of fixed taxes under subheading 84254220*

ECUAPASS | https://ecuapass.aduana gob.ec

Fecha de Consulta: Hoy | 10/04/2024 | 10/04/2024

Subpartida: [ ]

Resultado : 2

Resultado : 9 | Exportar Excel

Subpartida	Código Complementario	Código Suplementario	Código de Tributo	Código de Forma de Aplicación de Tributo	Valor del Tributo	Fecha de Inicio de Vigencia	Fecha d Vig
8425422000	0000	0000	IVA	BASE IMPONIBLE	15	01/Abr/2024	
8425422000	0000	0000	ARANCEL ADVALOR	BASE IMPONIBLE	15	01/Sept/2023	
8425422000	0000	0000	FONDIRFA	BASE IMPONIBLE	0.5	01/Sept/2023	
8425422000	0000	0000	ICE ADVALOREM	BASE IMPONIBLE	0	01/Sept/2023	
8425422000	0000	0000	ANTIDUMPING	BASE IMPONIBLE	0	01/Sept/2023	
8425422000	0000	0000	SALVAGUARDIA	BASE IMPONIBLE	0	01/Sept/2023	
8425422000	0000	0000	INCREMENTO ICE	BASE IMPONIBLE	0	01/Sept/2023	
8425422000	0000	0000	AEC	BASE IMPONIBLE	0	01/Sept/2023	
8425422000	0000	0000	PORCENTAJE TECH	BASE IMPONIBLE	0	01/Sept/2023	

Consultas de detalle de CIPOS

Consultas de porcentaje de liberación y preferencias

Adm. de correlación de nomenclatura arían con otras nomenclaturas

Consultas de las mercancías de restricción y prohibición

Consultas de tributos fijos de mercancías

Adm. de tributos variables de mercancías

Seleccionar

Seleccionar

Seleccionar

Seleccionar

Seleccionar

Seleccionar

## Appendix 3

### Freight quote Hamburg



Cuenca, 15 de abril de 2024

Señores  
TAPITEX M&B CIA. LTDA.  
Ciudad.-

Atención: Sra(Srta). CLAUDIA CAZORLA

De mis consideraciones:

Por medio de la presente, nos es grato poner a su disposición nuestras tarifas para carga FCL-FCL, en términos FOB, con destino a GUAYAQUIL, ECUADOR.

#### FLETE MARITIMO:

PUERTO	20' GP	Cant.	Total
HAMBURGO	€ 890.00	1	€ 890.00

#### GASTOS LOCALES EN DESTINO:

	Valor	Cant.	Total	
VISTO BUENO FCL	\$ 100.00	1	\$ 100.00	BL APLICA IVA
THC	\$ 200.00	1	\$ 200.00	CONTENEDOR NO APLICA IVA
COSTO POR MANEJO DE PAGO	\$ 375.00	1	\$ 375.00	CONTENEDOR APLICA IVA
LOCAL IMPORTACIONES				

PUERTO: HAMBURGO

Subtotal flete + THC: \$1147.41

Subtotal gastos locales en destino(Inc. IVA): \$546.25

**TOTAL DE LA OFERTA: \$1693.66 (Inc. IVA)**

#### NOTAS ADICIONALES:

- \* Tarifas all in.
- \* Exoneración de garantías.
- \* Notificaciones de eventos del contenedor durante su ruta de viaje via mensajes de texto SMS.
- \* Informacion de ubicacion de su contenedor en tiempo real - rastreo de contenedor satelital en tierra y en alta mar.
- \* Envio de la documentacion de manera electronica incluyendo el BL con firma digital- Ecas y aviso de llegada.
- \* Tarifas sujetas a cambios por GRI anunciados
- \* Acceso a nuestra APP FARLETZA en la que usted podra monitorear sus cargas 24/7.
- \* El tipo de cambio a ser utilizado será el del día del arribo/facturación del embarque. Tipo de cambio utilizado en oferta es estimado.
- \* Crédito aprobado de 60 días.
- \* Tarifa válida hasta 30/04/2024.
- \* Salida semanal.
- \* 21 días libres de demoraje.

Agradezco la atención brindada, esperando nuestra propuesta sea de su total agrado.

[WWW.FARLETZA.COM](http://WWW.FARLETZA.COM)

GUAYAQUIL Kennedy Norte Miguel H. Alcivar y Victor Hugo Sicouret Edif. Torres del Norte, Torre A 2do Piso, Of. 205 PBX: 593 4 2687471 1800 FARLETZA  
QUITO Av. Orellana E9 - 195 y 6 de Diciembre Edif. Alisal de Orellana, piso 1, Oficinas. 101 y 102 PBX: 593 2-3819946 - 593 2-3819947 1800 FARLETZA  
CUENCA Av. Federico Malo 1-90 y Av. 12 de Abril, Edif. de la Cámara de Comercio de Cuenca, primer piso PBX: 593 7 4103788 - 4103766

## Appendix 4

### Manzanillo Freight Quote



Cuenca, 15 de abril de 2024

Señores  
TAPITEX M&B CIA. LTDA.  
Ciudad.-

Atención: Sra(Srta). CLAUDIA CAZORLA

De mis consideraciones:

Por medio de la presente, nos es grato poner a su disposición nuestras tarifas para carga FCL-FCL, en términos FOB, con destino a GUAYAQUIL, ECUADOR.

#### FLETE MARITIMO:

PUERTO	20' GP	Cant.	Total
MANZANILLO	\$ 400.00	1	\$ 400.00

#### GASTOS LOCALES EN DESTINO:

	Valor	Cant.	Total		
VISTO BUENO FCL	\$ 100.00	1	\$ 100.00	BL	APLICA IVA
THC	\$ 200.00	1	\$ 200.00	CONTENEDOR	NO APLICA IVA
COSTO POR MANEJO DE PAGO LOCAL IMPORTACIONES	\$ 375.00	1	\$ 375.00	CONTENEDOR	APLICA IVA

PUERTO: MANZANILLO

Subtotal flete + THC: \$600.00

Subtotal gastos locales en destino(Inc. IVA): \$546.25

**TOTAL DE LA OFERTA:** \$1146.25 (Inc. IVA)

#### NOTAS ADICIONALES:

- \* Tarifas all in.
- \* Exoneración de garantías.
- \* Tarifas válidas para carga general, apilable, no peligrosa ni con sobredimensión.
- \* Notificaciones de eventos del contenedor durante su ruta de viaje via mensajes de texto SMS.
- \* Informacion de ubicacion de su contenedor en tiempo real - rastreo de contenedor satelital en tierra y en alta mar.
- \* Envio de la documentacion de manera electronica incluyendo el BL con firma digital- Ecas y aviso de llegada.
- \* Tarifas sujetas a cambios por GRI anunciados
- \* Acceso a nuestra APP FARLETZA en la que usted podra monitorear sus cargas 24/7.
- \* El tipo de cambio a ser utilizado será el del día del arribo/facturación del embarque. Tipo de cambio utilizado en oferta es estimado.
- \* Tarifa válida hasta 30/04/2024.
- \* Salida semanal.
- \* 13-13 días de tránsito estimado.
- \* 16 días libres de demoraje.

Agradezco la atención brindada, esperando nuestra propuesta sea de su total agrado.

[WWW.FARLETZA.COM](http://WWW.FARLETZA.COM)

GUAYAQUIL Kennedy Norte Miguel H. Alcivar y Victor Hugo Sicouret Edif. Torres del Norte, Torre A 2do Piso, Of. 205 PBX: 593 4 2687471 1800 FARLETZA  
QUITO Av. Orellana E9 - 195 y 6 de Diciembre Edif. Alisal de Orellana, piso 1, Oficinas. 101 y 102 PBX: 593 2-3819946 - 593 2-3819947 1800 FARLETZA  
CUENCA Av. Federico Malo 1-90 y Av. 12 de Abril, Edif. de la Cámara de Comercio de Cuenca, primer piso PBX: 593 7 4103788 - 4103766

## Appendix 5

### Freight Quote Ningbo



Cuenca, 15 de abril de 2024

Señores  
TAPITEX M&B CIA. LTDA.  
Ciudad.-

Atención: Sra(Srta). CLAUDIA CAZORLA

De mis consideraciones:

Por medio de la presente, nos es grato poner a su disposición nuestras tarifas para carga FCL-FCL, en términos FOB, con destino a GUAYAQUIL, ECUADOR.

#### FLETE MARITIMO:

PUERTO	20' GP	Cant.	Total
NINGBO	\$ 2,920.00	1	\$ 2,920.00

#### GASTOS LOCALES EN DESTINO:

	Valor	Cant.	Total	
VISTO BUENO FCL	\$ 100.00	1	\$ 100.00	BL APLICA IVA
THC	\$ 200.00	1	\$ 200.00	CONTENEDOR NO APLICA IVA
COSTO POR MANEJO DE PAGO LOCAL IMPORTACIONES	\$ 375.00	1	\$ 375.00	CONTENEDOR APLICA IVA

PUERTO: NINGBO

Subtotal flete + THC:	\$3120.00
Subtotal gastos locales en destino(Inc. IVA):	\$546.25
<b>TOTAL DE LA OFERTA:</b>	<b>\$3666.25</b> (Inc. IVA)

#### NOTAS ADICIONALES:

- \* Tarifas all in.
- \* Exoneración de garantías.
- \* Tarifas válidas para carga general, apilable, no peligrosa ni con sobredimensión.
- \* Notificaciones de eventos del contenedor durante su ruta de viaje via mensajes de texto SMS.
- \* Informacion de ubicacion de su contenedor en tiempo real - rastreo de contenedor satelital en tierra y en alta mar.
- \* Tarifas sujetas a cambios por GRI anunciados
- \* Tarifa válida hasta 30/04/2024.
- \* Salida semanal.
- \* 30-33 días de tránsito estimado.
- \* 21 días libres de demoraje.

Agradezco la atención brindada, esperando nuestra propuesta sea de su total agrado.

Quedamos atentos a sus futuras instrucciones.

Atentamente,

[WWW.FARLETZA.COM](http://WWW.FARLETZA.COM)

GUAYAQUIL Kennedy Norte Miguel H. Alcivar y Victor Hugo Sicouret Edif. Torres del Norte, Torre A 2do Piso, Of. 205 PBX: 593 4 2687471 1800 FARLETZA  
QUITO Av. Orellana E9 - 195 y 6 de Diciembre Edif. Alisal de Orellana, piso 1, Oficinas. 101 y 102 PBX: 593 2-3819946 - 593 2-3819947 1800 FARLETZA  
CUENCA Av. Federico Malo 1-90 y Av. 12 de Abril, Edif. de la Cámara de Comercio de Cuenca, primer piso PBX: 593 7 4103788 - 4103766

## Appendix 6

### Calculation of Net Income and Return on Sales for Year 1

AÑO 1					
<b>INGRESOS</b>	China	México	Alemania	Estados Unidos	Ecuador
INGRESOS VENTAS	<b>21826,0795</b>	<b>62318,6130</b>	<b>48462,6187</b>	<b>108188,5183</b>	<b>31055,9664</b>
COSTO DE VENTAS	12657,298	41052,90644	31622,1536	72842,937	18712,8823
<b>UTILIDAD BRUTA</b>	<b>9168,78149</b>	21265,70658	16840,465	35345,5813	12343,0841
<b>GASTOS OPERATIVOS</b>	<b>7190,9660</b>	<b>7190,9660</b>	<b>7190,9660</b>	<b>7190,9660</b>	<b>7190,9660</b>
GASTOS POR PERSONAL	5664,0360	5664,0360	5664,0360	5664,0360	5664,0360
SERVICIOS BASICOS	568,3600	568,3600	568,3600	568,3600	568,3600
SUMINISTROS DE OFICINA	612,7000	612,7000	612,7000	612,7000	612,7000
MANTENIMIENTO EQ DE COMPUTACION	295,7900	295,7900	295,7900	295,7900	295,7900
IMPUESTOS Y CONTRIBUCIONES	50,0800	50,0800	50,0800	50,0800	50,0800
<b>UTILIDAD OPERATIVA</b>	<b>1977,8155</b>	<b>14074,7406</b>	<b>9649,4990</b>	<b>28154,6153</b>	<b>5152,1181</b>
utilidad antes de participación empleados	<b>1977,8155</b>	<b>14074,7406</b>	<b>9649,4990</b>	<b>28154,6153</b>	<b>5152,1181</b>
15% participación empleados	296,672323	2111,211087	1447,42486	4223,1923	772,817714
utilidad antes de impuestos	1681,1432	11963,5295	8202,0742	23931,4230	4379,3004
22% impuesto a la renta	369,851496	2631,976488	1804,45632	5264,91306	963,446083
<b>UTILIDAD NETA</b>	<b>1311,2917</b>	<b>9331,5530</b>	<b>6397,6179</b>	<b>18666,5099</b>	<b>3415,8543</b>
<b>RENTABILIDAD SOBRE VENTAS</b>	<b>6,0079</b>	<b>14,9739</b>	<b>13,2011</b>	<b>17,2537</b>	<b>10,9990</b>



## Appendix 7

### Year 2 Net Income and Return on Sales Calculation

AÑO 2					
<b>INGRESOS</b>	China	México	Alemania	Estados Unidos	Ecuador
INGRESOS VENTAS	22567,89	64436,6520	50109,7304	111865,5497	32111,4736
COSTO DE VENTAS	12899,1572	41837,35688	32226,3986	74234,8402	19070,4533
<b>UTILIDAD BRUTA</b>	<b>9668,73095</b>	22599,29511	17883,3317	37630,7095	13041,0203
<b>GASTOS OPERATIVOS</b>	<b>7364,1140</b>	<b>7364,1140</b>	<b>7364,1140</b>	<b>7364,1140</b>	<b>7364,1140</b>
GASTOS POR PERSONAL	5837,1840	5837,1840	5837,1840	5837,1840	5837,1840
SERVICIOS BASICOS	568,3600	568,3600	568,3600	568,3600	568,3600
SUMINISTROS DE OFICINA	612,7000	612,7000	612,7000	612,7000	612,7000
MANTENIMIENTO EQ DE COMPUTACION	295,7900	295,7900	295,7900	295,7900	295,7900
IMPUESTOS Y CONTRIBUCIONES	50,0800	50,0800	50,0800	50,0800	50,0800
<b>UTILIDAD OPERATIVA</b>	<b>2304,6170</b>	<b>15235,1811</b>	<b>10519,2177</b>	<b>30266,5955</b>	<b>5676,9063</b>
utilidad antes de participación empleados	<b>2304,6170</b>	<b>15235,1811</b>	<b>10519,2177</b>	<b>30266,5955</b>	<b>5676,9063</b>
15% participación empleados	345,692543	2285,277167	1577,88266	4539,98932	851,53595
utilidad antes de impuestos	1958,9244	12949,9039	8941,3351	25726,6062	4825,3704
22% impuesto a la renta	430,96337	2848,978868	1967,09372	5659,85335	1061,58148
<b>UTILIDAD NETA</b>	<b>1527,9610</b>	<b>10100,9251</b>	<b>6974,2414</b>	<b>20066,7528</b>	<b>3763,7889</b>
<b>RENTABILIDAD SOBRE VENTAS</b>	<b>6,7705</b>	<b>15,6757</b>	<b>13,9179</b>	<b>17,9383</b>	<b>11,7210</b>

**Appendix 8***Calculation of net income and return on sales for year 3*

AÑO 3					
<b>INGRESOS</b>	China	México	Alemania	Estados Unidos	Ecuador
INGRESOS VENTAS	<b>29480,3758</b>	<b>84173,4374</b>	<b>65458,2155</b>	<b>146129,6879</b>	<b>41947,1377</b>
COSTO DE VENTAS	<b>16607,6648</b>	<b>53865,5970</b>	<b>41491,4882</b>	<b>95577,3568</b>	<b>24553,2086</b>
<b>UTILIDAD BRUTA</b>	<b>12872,711</b>	30307,84042	23966,7273	50552,3311	17393,9291
<b>GASTOS OPERATIVOS</b>	<b>7537,2620</b>	<b>7537,2620</b>	<b>7537,2620</b>	<b>7537,2620</b>	<b>7537,2620</b>
GASTOS POR PERSONAL	6010,3320	6010,3320	6010,3320	6010,3320	6010,3320
SERVICIOS BASICOS	568,3600	568,3600	568,3600	568,3600	568,3600
SUMINISTROS DE OFICINA	612,7000	612,7000	612,7000	612,7000	612,7000
MANTENIMIENTO EQ DE COMPUTACION	295,7900	295,7900	295,7900	295,7900	295,7900
IMPUESTOS Y CONTRIBUCIONES	50,0800	50,0800	50,0800	50,0800	50,0800
<b>UTILIDAD OPERATIVA</b>	<b>5335,4490</b>	<b>22770,5784</b>	<b>16429,4653</b>	<b>43015,0691</b>	<b>9856,6671</b>
utilidad antes de participación empleados	<b>5335,4490</b>	<b>22770,5784</b>	<b>16429,4653</b>	<b>43015,0691</b>	<b>9856,6671</b>
15% participación empleados	800,317347	3415,586764	2464,41979	6452,26037	1478,50007
utilidad antes de impuestos	4535,1316	19354,9917	13965,0455	36562,8087	8378,1670
22% impuesto a la renta	997,728959	4258,098165	3072,31001	8043,81792	1843,19675
<b>UTILIDAD NETA</b>	<b>3537,4027</b>	<b>15096,8935</b>	<b>10892,7355</b>	<b>28518,9908</b>	<b>6534,9703</b>
<b>RENTABILIDAD SOBRE VENTAS</b>	<b>11,9992</b>	<b>17,9355</b>	<b>16,6407</b>	<b>19,5162</b>	<b>15,5791</b>

**Appendix 9***Calculation of net income and return on sales for year 4*

AÑO 4					
<b>INGRESOS</b>	China	México	Alemania	Estados Unidos	Ecuador
INGRESOS VENTAS	<b>31217,5714</b>	<b>89133,5411</b>	<b>69315,4838</b>	<b>154740,6990</b>	<b>44418,9645</b>
COSTO DE VENTAS	17333,2424	56218,9483	43304,2231	99753,0666	25625,9216
<b>UTILIDAD BRUTA</b>	<b>13884,3289</b>	32914,59277	26011,2607	54987,6324	18793,0428
<b>GASTOS OPERATIVOS</b>	<b>7710,4100</b>	<b>7710,4100</b>	<b>7710,4100</b>	<b>7710,4100</b>	<b>7710,4100</b>
GASTOS POR PERSONAL	6183,4800	6183,4800	6183,4800	6183,4800	6183,4800
SERVICIOS BASICOS	568,3600	568,3600	568,3600	568,3600	568,3600
SUMINISTROS DE OFICINA	612,7000	612,7000	612,7000	612,7000	612,7000
MANTENIMIENTO EQ DE COMPUTACION	295,7900	295,7900	295,7900	295,7900	295,7900
IMPUESTOS Y CONTRIBUCIONES	50,0800	50,0800	50,0800	50,0800	50,0800
<b>UTILIDAD OPERATIVA</b>	<b>6173,9189</b>	<b>25204,1828</b>	<b>18300,8507</b>	<b>47277,2224</b>	<b>11082,6328</b>
utilidad antes de participación empleados	<b>6173,9189</b>	<b>25204,1828</b>	<b>18300,8507</b>	<b>47277,2224</b>	<b>11082,6328</b>
15% participación empleados	926,08784	3780,627416	2745,1276	7091,58336	1662,39492
utilidad antes de impuestos	5247,8311	21423,5554	15555,7231	40185,6391	9420,2379
22% impuesto a la renta	1154,52284	4713,182179	3422,25908	8840,84059	2072,45234
<b>UTILIDAD NETA</b>	<b>4093,3083</b>	<b>16710,3732</b>	<b>12133,4640</b>	<b>31344,7985</b>	<b>7347,7856</b>
<b>RENTABILIDAD SOBRE VENTAS</b>	<b>13,1122</b>	<b>18,7476</b>	<b>17,5047</b>	<b>20,2563</b>	<b>16,5420</b>

**Appendix 10***Calculation of net income and return on sales for year 5*

AÑO 5					
<b>INGRESOS</b>	China	México	Alemania	Estados Unidos	Ecuador
INGRESOS VENTAS	39923,15	113990,0251	88645,3477	197892,9138	56805,9881
COSTO DE VENTAS	21847,9474	70862,02322	54583,4627	125735,261	32300,5803
<b>UTILIDAD BRUTA</b>	<b>18075,2027</b>	43128,00191	34061,8851	72157,6532	24505,4078
<b>GASTOS OPERATIVOS</b>	<b>7883,5580</b>	<b>7883,5580</b>	<b>7883,5580</b>	<b>7883,5580</b>	<b>7883,5580</b>
GASTOS POR PERSONAL	6356,6280	6356,6280	6356,6280	6356,6280	6356,6280
SERVICIOS BASICOS	568,3600	568,3600	568,3600	568,3600	568,3600
SUMINISTROS DE OFICINA	612,7000	612,7000	612,7000	612,7000	612,7000
MANTENIMIENTO EQ DE COMPUTACION	295,7900	295,7900	295,7900	295,7900	295,7900
IMPUESTOS Y CONTRIBUCIONES	50,0800	50,0800	50,0800	50,0800	50,0800
<b>UTILIDAD OPERATIVA</b>	<b>10191,6447</b>	<b>35244,4439</b>	<b>26178,3271</b>	<b>64274,0952</b>	<b>16621,8498</b>
utilidad antes de participación empleados	<b>10191,6447</b>	<b>35244,4439</b>	<b>26178,3271</b>	<b>64274,0952</b>	<b>16621,8498</b>
15% participación empleados	1528,74671	5286,666586	3926,74906	9641,11428	2493,27747
utilidad antes de impuestos	8662,8980	29957,7773	22251,5780	54632,9809	14128,5723
22% impuesto a la renta	1905,83756	6590,711011	4895,34716	12019,2558	3108,28592
<b>UTILIDAD NETA</b>	<b>6757,0604</b>	<b>23367,0663</b>	<b>17356,2309</b>	<b>42613,7251</b>	<b>11020,2864</b>
<b>RENTABILIDAD SOBRE VENTAS</b>	<b>16,9252</b>	<b>20,4992</b>	<b>19,5794</b>	<b>21,5337</b>	<b>19,3999</b>

## Appendix 11

Total calculation of IRRs and NPVs by supplier countries

Calculo VAN y TIR								
CALCULO VAN CHINA		AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5	TIR	VAN
Inversión	-12531,5516	1311,2917	1527,9610	3537,4027	4093,3083	6757,0604	9%	-3641,09
VAN	-3641,094874	1092,74306	1061,084056	2047,10803	1974,01054	2715,51105		
CALCULO VAN MÉXICO		AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5	TIR	
Inversión	-40923,15	9331,5530	10100,9251	15096,8935	16710,3732	23367,0663	20%	53,63
VAN	53,63	7776,29417	7014,531304	8736,62818	8058,62904	9390,69987		
CALCULO VAN ALEMANIA		AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5	TIR	
Inversión	-31507,1054	6397,6179	6974,2414	10892,7355	12133,4640	17356,2309	17%	-2202,39
VAN	-2202,387257	5331,34822	4843,223171	6303,66637	5851,40047	6975,07992		
CALCULO VAN ESTADO UNIDOS		AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5	TIR	
Inversión	-72691,0471	18666,5099	20066,7528	28518,9908	31344,7985	42613,7251	23%	5545,29
VAN	5545,294658	15555,425	13935,245	16504,0456	15116,1258	17125,5004		
CALCULO VAN ECUADOR		AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5	TIR	
Inversión	-18712,8771	3415,8543	3763,7889	6534,9703	7347,7856	11020,2864	17%	-1498,48
VAN	-1498,479833	2846,54525	2613,742291	3781,81151	3543,49227	4428,80595		

## Appendix 12

### Survey model

Gatos Hidráulicos
¿Dónde suele comprar equipos automotrices como los gatos hidráulicos? <input type="radio"/> Tienda de repuestos o herramientas. <input type="radio"/> Supermercados (Coral hipermercados, kiwi, Bp). <input type="radio"/> Distribuidores.
¿Cuánto está dispuesto a pagar por un gato hidráulico? <input type="radio"/> \$100 - \$200 <input type="radio"/> \$201 - \$300 <input type="radio"/> \$301 - \$400 <input type="radio"/> Alrededor de \$500
¿Cree usted que los precios de este producto y/o relacionados han aumentado con el paso de los años? <input type="radio"/> Si <input type="radio"/> No
¿Qué tan importante es el precio para usted? <input type="radio"/> Muy importante, mientras más barato es mejor. <input type="radio"/> Importante, necesito un producto bueno pero que no sea tan costoso. <input type="radio"/> No es importante, si el producto es de calidad estoy dispuesto a pagar.
Ordene por prioridad en relación con la información necesaria para usted al momento de comprar un gato hidráulico. (Precio, Garantía del producto, Reseña de clientes, Marca).