

GEZ PETROL STATION: SPREADSHEET MODELLING FOR CAPITAL BUDGETING*

Abstract

Purpose – This case requires students to prepare a good financial model to find the net present value of the business and make a capital budgeting decision, using Excel spreadsheet. In order to prepare the capital budget, students need to prepare a cash flow statement by business segments. The financial model should be sufficiently flexible to allow various what if analysis to be performed. Students should be able to apply what if analysis tools in Excel such as Goal Seek and Data Tables.

Design/methodology/ approach - The operational and financial data are obtained from the owner of Baron Service Station. Other data are obtained through interviews with the area manager of GEZ Berhad and websites of the relevant institutions.

Findings – The case is suitable for Management Accounting, Financial Modelling, Integrated Case Study, Financial Management courses, both at the undergraduate and postgraduate levels, and Executive Development Programme on Entrepreneurship for business entrepreneurs and sole proprietors.

Value of the paper – This case is expected to enhance students' critical thinking and enable them to integrate IT in decision making decisions. This is one of the avenues where lecturers can integrate IT in teaching and learning, in line with the requirements of the accounting profession and Ministry of Education of Malaysia. Besides being able to design a financial model, students at the same time should be able to assume the role of a user and use the model in making business decisions.

Introduction

Mr Haris retired from the army in 2011 and was very motivated to venture into a business. It has been his interest to become a petrol service station dealer and planned to operate one in Selangor, one of the fast-growing states in Malaysia. He saw the potentials of the business upon gathering information about the industry and after several discussions with his good friend, who has been operating the

* This is an extension of the case GEZ PETROL STATION: CVP ANALYSIS AND SPREADSHEET MODELLING FOR PLANNING AND DECISION MAKING, to be published in Emerging Economy Markets Case Studies. While the previous case concentrates on building a financial model to perform cost-volume-profit-analysis, this case focuses on building a model for capital budgeting. Information gathered on sales and expenses are the same.

station in the northern state of Malaysia. One of the dealership programmes that attracted him most is GEZ service station dealership. He was hoping that he would be appointed as a service station dealer under the concept of Company Owned Station (COS) concept, as he had no land and sufficient fund to finance the capital expenditure. With the retirement benefit that he received, he had sufficient fund to finance the DBS project. The project required a working capital of RM170,000 in the form of liquid assets such as savings and current account, fixed deposits, unit trust and shares traded on Bursa Malaysia. Other initial costs that he expected to incur would amount to RM30,000. Mr Haris required a 10% rate of return from the project. Successful applicants will be given an initial 5 year contract of dealership, and renewable after the initial contract. Despite being a stable business with increasing number of vehicles, often times petrol station operators faced the difficulty of sustaining the business, leading to the termination of the dealership license. Mr Haris was contemplating whether he should apply for the dealership and venture into the business.

Mr Haris sought the assistance of Mr Rizal, an accounting lecturer at a University nearby in making the decision. Mr Rizal was also an expert in building financial models, using spreadsheet programmes such as Excel, for decision making purposes. Mr Rizal has been giving trainings on financial modelling to financial managers around the country. In order to develop the spreadsheet model for capital budgeting purposes for Mr Haris, Rizal gathered the relevant data from the manager of Baron Service Station (BSS), one of GEZ petrol service dealers in the Northern region of Malaysia. Mr Haris and Rizal believed that the service station that Mr Haris is going to operate would be similar to BSS in terms of the size of the station and market, as well as its modus operandi.

GEZ Petrol Stations

As at October 2010, there were 3,182 petrol stations and 332 mini petrol stations in the country, selling about 25,000 million litres of petrol and diesel. Selangor saw the highest number of petrol stations, followed by Johor and Perak (see Appendices A and B). GEZ petrol stations were set up by GEZ Berhad, one of the main players in the petroleum retailing industry. GEZ petrol station operators run the business under three basic concepts, namely Company Owned Station (COS), Partially

Company Owned Station (PCOS) and Dealer Built Station (DBS). The operators of PCOS and DBS were landowners themselves, or those being nominated and agreed by GEZ. Under the COS concept, the operators were not the landowners.

Normally, a GEZ petrol station conducted two main businesses – the fuel business and the convenience store business, known as *SelesaMart*. Under the fuel business, the petrol stations sold Petrol Ron 95 (R95), Petrol Ron 97 (R97), and Diesel. In 2010, the total monthly sales of petrol and diesel for GEZ stations throughout Malaysia were 200 million litres and 150 million liters, respectively.

The *SelesaMart* stores sold, among others, groceries, snacks, drinks, confectionery, and cigarettes. On average, there were about 2,500 stock keeping units (SKU) in each store. In addition, there were more than 40 business partners operating at GEZ service stations. Affiliations with reputable business partners have always been GEZ's preference at the service stations and convenience stores, which include amongst others, A&W, AmBank, American International Group (AIG), Bank Rakyat, BSN, Burger King, CIMB, Délifrance, Dunkin' Donuts, Giant, KFC, Maybank, McDonald's, OCBC and RHB, to name a few. Automated Teller Machines (ATM) were also installed at some of the service stations and GEZ also provided counters for *Touch 'n Go* reloads.

One of the advantages of operating a petrol station is that the business is stable and consistent in the long run. With the growing number of vehicles in the country, the demand for fuel kept increasing. In 2010, there were 20.2 million motor vehicles registered with the Road Transport Department, an increase from about 17 million in 2008 (see Appendix C). The figures were expected to increase to more than 21.4 million and 22.7 million in 2011 and 2012, respectively. The Federal Territory of Kuala Lumpur recorded the highest number of motor vehicles (4.6 million in 2010), followed by Johor, Selangor and Pulau Pinang (see Appendix D). Another advantage was that the operators did not have to spend on advertising as GEZ would do it. There was no problem in dealing with customers as the price of fuel was fixed.

According to the manager of BSS, there were several disadvantages associated with petrol stations. First, the fuel business had a very low profit margin. It was important that operators managed their cash collection very well. In 2010, the cost of petrol was about 94% of the sale price. In addition, there was a product loss due to evaporation of fuel during filling. Another problem that petrol operators had to face was the increasing cost of credit card fees paid to banks as more and more customers were using credit cards. The credit card fee imposed by banks was 1% of the sales price.

Developing a Capital Budgeting Model: The Case of Baron Service Station

To begin the assignment, Rizal gathered the necessary data from Baron Service Station (BSS), BSS operated under the Company Owned Station concept. The land, building and facilities are owned by GEZ Petrol. Located in the state of Kedah, BSS was one of the busiest petrol stations in the state with monthly average sales of about RM1.7 million in 2010. Of the amount, RM1.6 million was generated from the fuel business and the remaining from *SelesaMart*. Under the fuel business, the sales proportion was about 79% for R95, 2% for R97, and 19% for diesel. All products were subject to product loss due to evaporation of fuel during filling. The tolerable product loss was 0.3% for diesel and 0.5% for petrol. The petrol station had four pumps for petrol and one for diesel. The total number of nozzles was 20.

As for *SelesaMart* business, the average gross profit margin of the products is 20%. The operator paid a royalty of 5% of the sales value to GEZ. In addition, a fixed equipment fee was paid on a monthly basis.

Revenue and Cost of Fuel

In 2010, BSS generated a sales revenue of RM20,682,189.60 comprising RM19,251,897.60 of fuel sales and RM1,430,292 of *SelesaMart* sales. Sales from *SelesaMart* was expected to vary directly with

the total liters of fuel sold. Table 1 shows the information on sales units in litres, price per litre, cost per litre and the percentage of product loss of the three types of fuel in 2010.

Table 1: Baron Service Station - Revenue and cost of fuel

Products	Sale (litres)	Price per litre (RM)	Cost per litre (RM)	Product loss
R95	8,459,604	1.80	1.6856	0.5%
R97	174,576	2.05	1.9356	0.5%
Diesel	2,037,072	1.80	1.7388	0.3%

Employees and Salary

BSS hired one station manager who looked after both businesses. Under his direct supervision were two supervisors – one for the fuel business and one for *SelesaMart*. Twelve crew members were located at the forecourt to assist customers in filling the fuel, working in different time shifts. At any point of time, there were two cashiers working at the sales counter – one will concentrate on the fuel transactions, and one for the shop, even though they handle both transactions at times. In total, there were 6 cashiers working for BSS.

One clerk was responsible for documenting and recording the transactions of both businesses. Two general workers were hired to ensure the cleanliness of the station. A security guard was appointed to take care of the station during night time. The monthly salary per employee according to jobs is shown in Table 2.

Table 2: Baron Service Station - Monthly salary and number of employees

	Monthly salary per person (RM)	No. of staff
Station manager	3,206	1
Supervisor	1,674	2
Cashier	950	6
Crew	812	12
Clerk	960	1
General worker	805	2
Security guard	1,000	1

Other Expenses

Credit card sales accounted 40% of total sales. A 1% fee was charged by banks for credit card transactions. Sixty percent of the electricity, water and telephone expenses were allocated to the fuel business and 40% to *SelesaMart*. During 2010, Baron spent RM75,000 on electricity, water and telephone.

BSS rented several pieces of equipment which include gondolas, a chiller, a pelmet and a cashier's counter for the operation of *SelesaMart*. The annual rental payment of the equipment for 2010 was RM7,380. The petrol station paid an insurance premium of RM1,920 in 2010. The insurance package covers robbery, fire, public liability and workmen compensation for the entire business. During the same year, BSS spent RM2,400 on stationeries.

Cash Flow

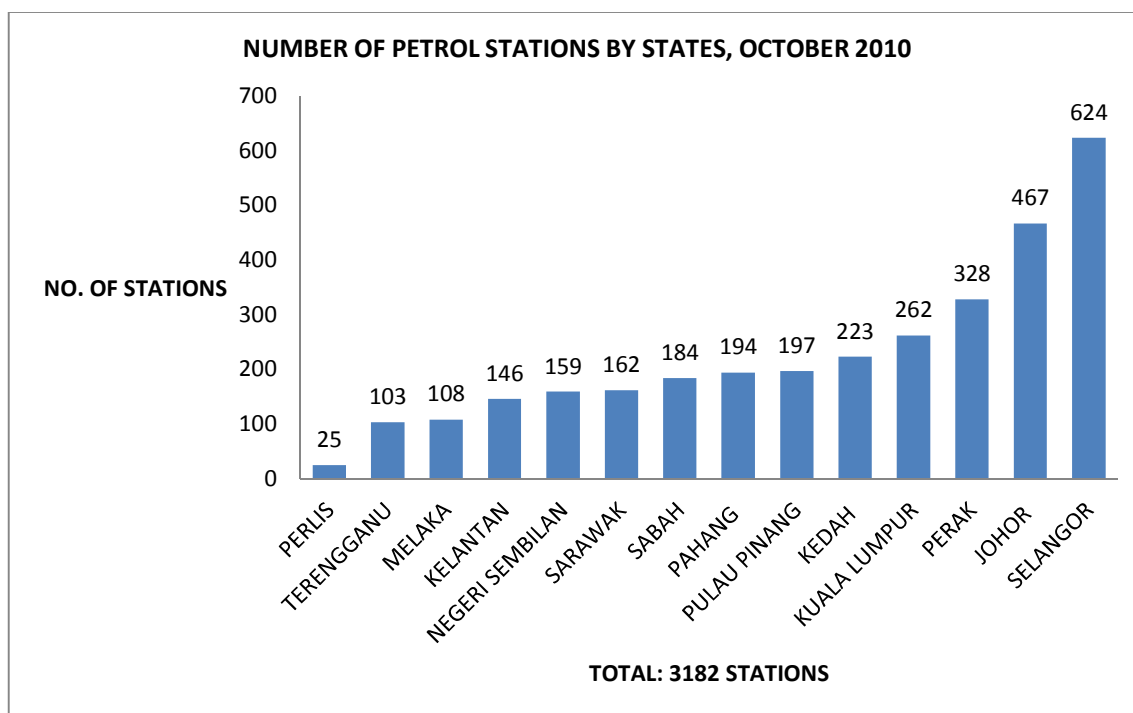
All expenses and purchases were paid as incurred. As the fluctuation in sales was minimal, accruals were not an important issue. For example, the beginning and inventory would be the same for every

period. From the analysis of the books of BSS, cash flow appeared to be constant every year since the beginning of the business. Mr Rizal expected the same for the new business.

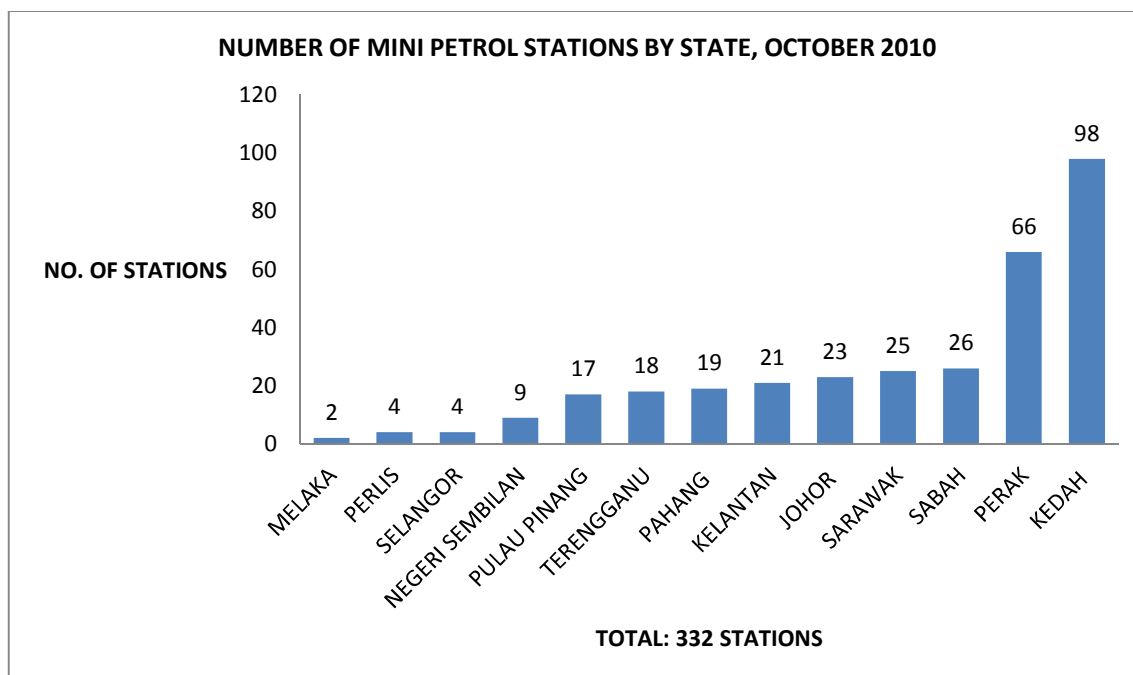
What If Analysis

Armed with the above operational and financial data, Rizal began his analysis to find out how lucrative is the service station business after taking into consideration all the revenues and possible costs. Will it be a good investment for Mr Haris if he assumes the business for 5 years? What if it is 10 years? What if the required rate of return and credit card sales are increased to a certain percentage? Rizal was also concerned that the financial model should be flexible to perform scenario analysis, such as what would happen to the profitability of GEZ Petrol Station if there were revisions to the fuel prices to reduce government fuel subsidy. Normally, a revision in fuel price will not affect the operators' profitability so much. The margin per litre would remain the same, at least in the short-run. For example, when the government announced that there would be a 40 sen increase in price per litre, operators would also have pay 40 sen higher.

NUMBER OF PETROL STATIONS IN MALAYSIA: OCTOBER 2010



NUMBER OF MINI PETROL STATIONS IN MALAYSIA: OCTOBER 2010



Source: Domestic Trade Division, Ministry of Domestic Trade, Co-operatives and Consumerism

Appendix B**SALES OF FUEL (MILLION LITRES)**

YEAR	PETROL (Million Litres)		DIESEL (Million Litres)
	RON 97	RON 95	
2000	7,340	-	2,873
2001	7,894	-	2,511
2002	8,232	-	2,987
2003	8,736	-	4,113
2004	9,083	-	5,563
2005	9,613	-	5,622
2006	9,896	-	5,467
2007	10,266	-	5,027
2008	10,836	-	6,039
2009	8,161	3,816	5,566
2010 (Jan – Nov)	1,629	10,496	6,526

Source: Domestic Trade Division, Ministry of Domestic Trade, Co-operatives and Consumerism

Number of Motor Vehicles Registered by Type, Malaysia, 2008 – 2010

Vehicle Type	2008	2009	2010
Total registered	17,971,901	19,016,782	20,188,565
Buses	64,050	66,581	69,149
Goods Vehicles	909,243	936,222	966,177
Motorcars	7,966,525	8,506,080	9,114,920
Motorcycles	8,487,451	8,940,230	9,441,907
Taxis and hired cars	90,474	95,728	102,961
Other vehicles ¹	454,158	471,941	493,451

¹Includes vehicles such as caravans, government and private fire vehicles, driving school vehicles, hearse, vehicles for disabled, government vehicles, local authority vehicles, ambulance and embassy vehicles.

Source: Road Transport Department

Total Motor Vehicles, by Type and State, 2010

	Motorcycle	Motorcar	Bus	Taxi	Hire and drive car	Goods vehicle	Others	Total
PERLIS	60,200	17,979	206	196	2	1,826	1,379	81,788
KEDAH	683,134	257,193	3,254	3,591	755	35,008	19,209	1,002,144
PULAU PINANG	1,124,476	890,652	5,781	3,701	529	62,952	19,140	2,107,231
PERAK	1,089,128	613,094	4,729	4,355	73	63,303	36,487	1,811,169
SELANGOR	1,037,498	987,024	7,232	9,593	325	149,805	70,406	2,261,883
WILAH PERSEKUTUAN	1,349,885	2,867,830	18,050	34,142	14,632	204,886	145,787	4,635,212
NEGERI SEMBILAN	443,358	280,914	2,785	2,080	16	39,923	7,778	776,854
MELAKA	368,365	270,143	2,019	1,797	46	24,193	5,865	672,428
JOHOR	1,414,665	1,160,041	9,982	12,022	114	121,729	49,713	2,768,266
PAHANG	445,922	305,042	2,050	2,666	16	38,435	13,677	807,808
TERENGGANU	278,927	158,860	1,131	1,127	17	19,731	7,288	467,081
KELANTAN	393,690	232,322	2,002	2,044	10	25,889	7,895	663,852
SABAH	204,662	487,510	6,783	5,096	1,233	104,495	53,402	863,181
SARAWAK	547,997	586,316	3,145	2,251	532	74,002	55,425	1,269,668
MALAYSIA	9,441,907	9,114,920	69,149	84,661	18,300	966,177	493,451	20,188,565

Source: Road Transport Department