

CHAPTER 1

INTRODUCTION



1.1 Background

Since July 2nd, 1997, Bank of Thailand announced a change in the exchange rate system to a managed floated regime, whereby the value of the baht is determined by market forces in accordance with the changes in supply and demand in the domestic and overseas foreign exchange markets to reflect economic fundamentals. Consequently, Thailand has embroiled in economic crisis and the baht value depreciated continuously. At one point it plunged about 100% of its value against the US dollar shown in Figure 1.1 and Table 1.1.

Figure 1.1: Foreign Exchange Rate of Thai Baht to US Dollars, 1997-1998

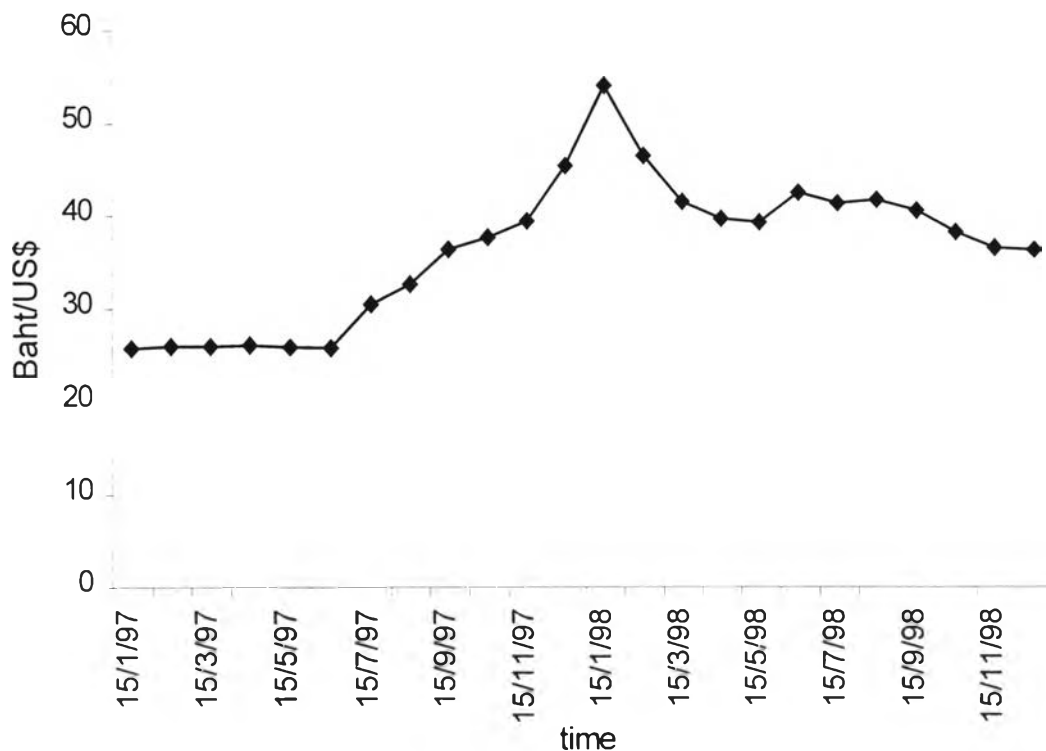


Table 1.1 : Monthly Foreign Exchange Rate of Thai Baht to US. Dollars, 1997-1998

Date	Baht / US.\$	Date	Baht / US.\$
<u>1997</u>		<u>1998</u>	
15/01/97	25.7618	15/01/98	54.0715
15/02/97	25.9784	15/02/98	46.5543
15/03/97	25.9976	15/03/98	41.5887
15/04/97	26.1011	15/04/98	39.7304
15/05/97	25.9195	15/05/98	39.3368
15/06/97	25.8286	15/06/98	42.5601
15/07/97	30.4644	15/07/98	41.4044
15/08/97	32.6196	15/08/98	41.7778
15/09/97	36.4424	15/09/98	40.6281
15/10/97	37.6987	15/10/98	38.3352
15/11/97	39.4722	15/11/98	36.6308
15/12/97	45.4956	15/12/98	36.402

Source : Bank of Thailand.

The devaluation of Thai baht triggered series of events that led Thailand deep into the economic crisis. Domestic prices of many commodities including drugs were increased. Moreover the Thai pharmaceutical system depends on foreign countries on at least 2 levels. First, some of the original drugs are imported as finished products and secondly, pharmaceutical raw materials are imported for local pharmaceutical industry – the category usually called generic drugs. Approximately two-thirds of drugs in value presently being marketed in Thailand are manufactured in the country and the other one-third constitutes imported drugs (Suwit Wibulpolprasert et al, 1995).

As stated in table 1.2, ratio of local manufactured drugs increased while those of imported goods declined during 1996-1997. The proportion changed further from 69:31 in 1987 to 42:58 in 1997. It indicated that both values increased every year, most prominently in 1997 during which the growth of local manufactured drugs was about 60 percent and the figure almost doubled for imported drug. In addition, Thailand imports pharmaceutical product from several countries. Over half of the total imports came from Switzerland, Germany, United State of America and United Kingdom. The top fifteen supplier countries classified by imported value and percentage growth during 1994-1997 are shown in Table 1.3.

During the economic crisis, demand for drugs decreased due to negative growth of GDP. As for government sector, budgets of all ministries were cut accordingly including Ministry of Public Health (MOPH) at 67,125 million baht to 61,078 million baht for fiscal year 1998 (Prakrom Wuttipong, 1998). Comparing with MOPH budget in fiscal year 1997, which was 66,544 million baht, the cut was about 8 percent. When the budget of MOPH declined, the various allocation to public hospitals under MOPH would be inevitably reduced too.

Table 1.2 : Value of Local Manufactured Drugs and Imported Drug in Thailand, 1987-1997.

Year	Local Manufactured Drug (Million Baht)	% Growth	Imported Drug (million baht)	% Growth	Total (Million Baht)	% Growth	Local Manufactured : Imported Value
1987	5,145.15	-	2,325.42	-	7,470.58	-	69:31
1988	6,708.85	30.39	2,570.98	10.56	9,279.83	24.12	72:28
1989	8,372.85	24.80	3,307.60	28.65	11,680.45	25.87	72:28
1990	8,886.02	6.13	3,449.08	4.28	12,335.10	5.60	72:28
1991	9,657.54	8.68	4,216.41	22.25	13,873.95	12.48	70:30
1992	10,696.54	10.76	4,682.61	11.06	15,379.15	10.85	70:30
1993	11,831.03	10.61	5,075.31	8.39	16,906.34	9.93	70:30
1994	12,969.68	9.62	6,086.63	19.93	19,056.31	12.72	69:31
1995	15,820.87	21.98	9,276.47	52.41	25,097.34	31.70	63:37
1996	18,120.41	14.53	10,676.01	15.09	28,796.42	14.74	37:63
1997	29,064.34	60.40	21,102.78	97.69	50,167.12	74.21	42:58

Source: Drug Control Division, Ministry of Public Health.

Table 1.3 : Top 15 Supplier Countries of Pharmaceutical Products Classified by Imported Value and Percentage Growth, 1994-1997

Country	Imported Value : Million Baht (%)				% Growth			
	1994	1995	1996	1997	1994	1995	1996	1997
Switzerland	644.3 (14.7%)	752.8 (13.7%)	892.0 (13.7%)	1,091.4 (14.1%)	45.2	16.8	18.5	32.2
Germany	713.3 (16.3%)	831.9 (15.1%)	977.3 (15.0%)	1,067.8 (13.8%)	19.2	16.6	17.5	17.2
USA.	452.6 (10.4%)	611.1 (11.1%)	691.4 (10.6%)	922.4 (11.9%)	9.0	35.0	13.1	45.0
UK.	529.3 (12.1%)	570.1 (10.4%)	688.3 (10.6%)	872.1 (11.3%)	44.7	7.7	20.7	37.8
France	320.4 (7.3%)	499.6 (9.1%)	571.5 (8.8%)	623.5 (8.1%)	19.0	55.9	14.4	22.8
Australia	229.3 (5.2%)	273.3 (5.0%)	344.3 (5.3%)	484.9 (6.3%)	39.1	19.2	26.0	55.3
Belgium	201.2 (4.6%)	307.6 (5.6%)	419.6 (6.5%)	475.4 (6.2%)	38.0	52.9	36.4	21.3
Japan	186.7 (4.3%)	228.1 (4.1%)	231.8 (3.6%)	322.1 (4.2%)	12.9	22.2	1.6	50.0
Italy	137.0 (3.1%)	197.4 (3.6%)	212.8 (3.3%)	266.2 (3.4%)	17.0	44.1	7.8	33.3
Netherlands	117.8 (2.7%)	161.7 (2.9%)	200.7 (3.1%)	234.5 (3.0%)	5.7	37.3	24.1	25.7
Sweden	136.1 (3.1%)	179.1 (3.3%)	221.5 (3.4%)	231.7 (3.0%)	19.0	31.6	23.7	16.4
Singapore	149.7 (3.4%)	158.7 (2.9%)	200.8 (3.1%)	129.5 (1.7%)	47.2	6.0	26.5	-31.7
Taiwan	32.8 (0.8%)	36.3 (0.7%)	95.9 (1.5%)	102.9 (1.3%)	2.3	10.4	164.3	14.4
South Korea	38.4 (0.9%)	47.0 (0.9%)	70.0 (1.1%)	94.0 (1.2%)	113.2	22.3	49.0	43.0
Ireland	37.4 (0.9%)	61.8 (1.1%)	53.5 (0.8%)	87.0 (1.1%)	9.5	65.4	-13.4	89.2
Subtotal	3,926.2 (89.8%)	4,916.5(89.4%)	5,871.3(90.2%)	7,005.1(90.7%)	26.8	25.2	19.4	29.5
Others	445.4 (10.2%)	586.0 (10.6%)	534.5 (9.8%)	715.9 (9.3%)	-1.9	31.6	8.3	22.0
Total	4,371.6(100.0%)	5,502.4(100.0%)	6,505.8(100.0%)	7,720.9(100.0%)	23.1	25.9	18.2	28.8

Source : Commerce Statistic Center, Department of Customs.

Table 1.4 : Ministry of Public Health Budget and Real Term Budget Based on Present Value in 1999, 1993-1999

Year	Budget (Million - Baht)	% of Govern- ment Budget	Inflation Rate (%)	Real Term Budget Based on 1999 (Million Baht)	Increase/ Decrease in Real Term (%)
1993	32,898	5.8	4.8	47,574	-
1994	39,319	6.3	5.0	54,256	+12.3
1995	45,103	6.3	5.3	59,273	+9.3
1996	55,236	6.6	5.9	68,936	+16.3
1997	66,544	7.0	5.6	78,422	+13.8
1998	61,078	7.5	11.6	68,163	-13.1
1999	57,144	6.9	6.0	57,144	-16.7

Source : Bureau of Health Policy and Planning , Ministry of Public Health

From Table 1.4: Budget of MOPH in fiscal year 1999 was the base line to calculate the real term budget in the previous year, i.e. budgets in the other years were calculated as present value. It is demonstrated that budgets in fiscal year 1998 and 1999 when adjusted to present value were reduced comparable to budget in previous year.

Usually public hospitals have 2 main sources of income or finance as follows:

1. Annual government budget, which was decreased in MOPH hospital due to the reduction of government budget as stated.
2. Funds generated from services provided by hospital and donations.

Sources of Income for hospital services are known as hospital operating budget and details of each source of income after 1997 economic crisis apart from annual government budget are as follows (Viroj Tangcharoensathien and Chongkol Lertthiendamrong, 1998: 1-11).

1. Civil Servant Medical Benefit Schemes (CSMBS): The income from CSMBS is 50 percent of total hospital operating budget in MOPH hospital and can be 60-65% of the budget in university hospital. For CSMBS beneficiaries; charges for outpatient services are paid out of individual pocket and then reimbursed later. Charges for inpatient services can be billed directly from hospitals.

Ministry of Finance had decided on a short-term strategy to deal with demand side interventions by containing the expenditure of CSMB scheme at 10 billion baht in 1998. It was reduced about 35 percent compared with 15,503 million baht in 1997. Estimated payment in 1998 was 18,766 million baht so the budget was cut approximately 47 percent. However this strategy did not succeed because of political pressure consequently both hospitals and patients could claim all the permitted bills. In the meantime the ministry of finance managed to constrain the health expenditure by announcing that only essential drugs listed can be reimbursed.

2. Advance payment by patients that can be reimbursed from private insurance.
3. Patient's out of pocket payment.
4. Social Security Insurance for employees of private firms hiring ten or more people: The number of people under this insurance policy had been reduced due to unemployment even though mechanism payment from social security fund to hospital increased from 800 baht per capital per year to 900-1,000

baht per capita per year and later expanded the insurance further 6 months after unemployment. Thus, the revenue from this source could not increase.

5. The health card program: This program caused public hospitals to lose a lot of money. Cost of health service per person is about 2,000 baht while income of the hospital from this scheme from cardholder is 500 baht and another 230 baht from the government. Thus, hospital loses about 1,170-1,270 baht per card.

It can be stated that because of the economic crisis, public hospitals' income was reduced while the prices of drugs keep increasing depending on exchange rates. Therefore, it is worth examining the prices of drugs in the public hospitals and analyze the effects of foreign exchange rate, types of drug, increase in value added tax, cancellation of medium prices, change in CSMB scheme, and quantity procured on changes in drug price. The results of this study could be used as basic information for the public health administration and pharmacy department for drug purchasing determination.

1.2 Research Questions

1. How do changes in exchange rate affect drug price?
2. What is the degree of change in drug price comparing between original and local made drugs?
3. What is the degree of change in drug price comparing between essential and non-essential drugs?
4. How do changes in government regulations i.e. increasing in VAT, cancellation in medium price and change in CSMB scheme affect changes in drug price?
5. How do changes in quantity procured affect changes in drug price?

1.3 Objectives of the Study

General Objective:

The overall purpose of this research is to analyze changes in hospital drug price before and after economic crisis focusing on the changes in foreign exchange rates, government regulations and quantity procured.

Specific Objectives:

1. To analyze the effect of foreign exchange rate on original, and locally made products including essential and non-essential drug prices.
2. To analyze the effect of VAT, cancellation of medium prices and change in CSMB scheme on drug price.
3. To analyze the effect of drug price in quantity procured on changes in drug price

Definitions

Economic crisis refers to the downturn of the Thai economy triggered by announcement made by the Bank of Thailand changing in the exchange rate system to a managed float regime on July 2nd, 1997

1.4 Scope of the Study

This research studied the changes in hospital drug before and after baht depreciation in the period of 1996-1998. The data collected were the purchasing drug prices from 3 hospitals. Pattern of changes in drug price in these three hospitals could

be used to capture the impact of the crisis. Sampling areas or sources of data were Siriraj Hospital, Ramathibodi Hospital and Police General Hospital. One of the limitations of this study was the inability to find cost of drug production due to its secrecy. As a result, an analysis of prices involving cost of drug was beyond the scope and content of this research.

1.5 Conceptual Framework

Determinants of changes in drug price following the economic crisis were as follows.

1. Foreign exchange rate is a dominant factor especially because the Thai pharmaceutical sector relies heavily on foreign countries. Any fluctuation of foreign exchange rates could trigger change in drug prices.

2. Government regulations that influence change in drug price were as follows:

- 2.1 Change in value added tax from 7 % to 10 % on August 2nd, 1997.

During the economic crisis, government increased value-added tax (VAT) from 7 percent to 10 percent on August 2nd, 1997 in order to raise the government revenue. The impact of tax increases depended on elasticities of supply and demand. When demand is very inelastic relative to supply, the burden of the tax falls mostly on buyers. Therefore, the prices of commodities including medicine appreciated.

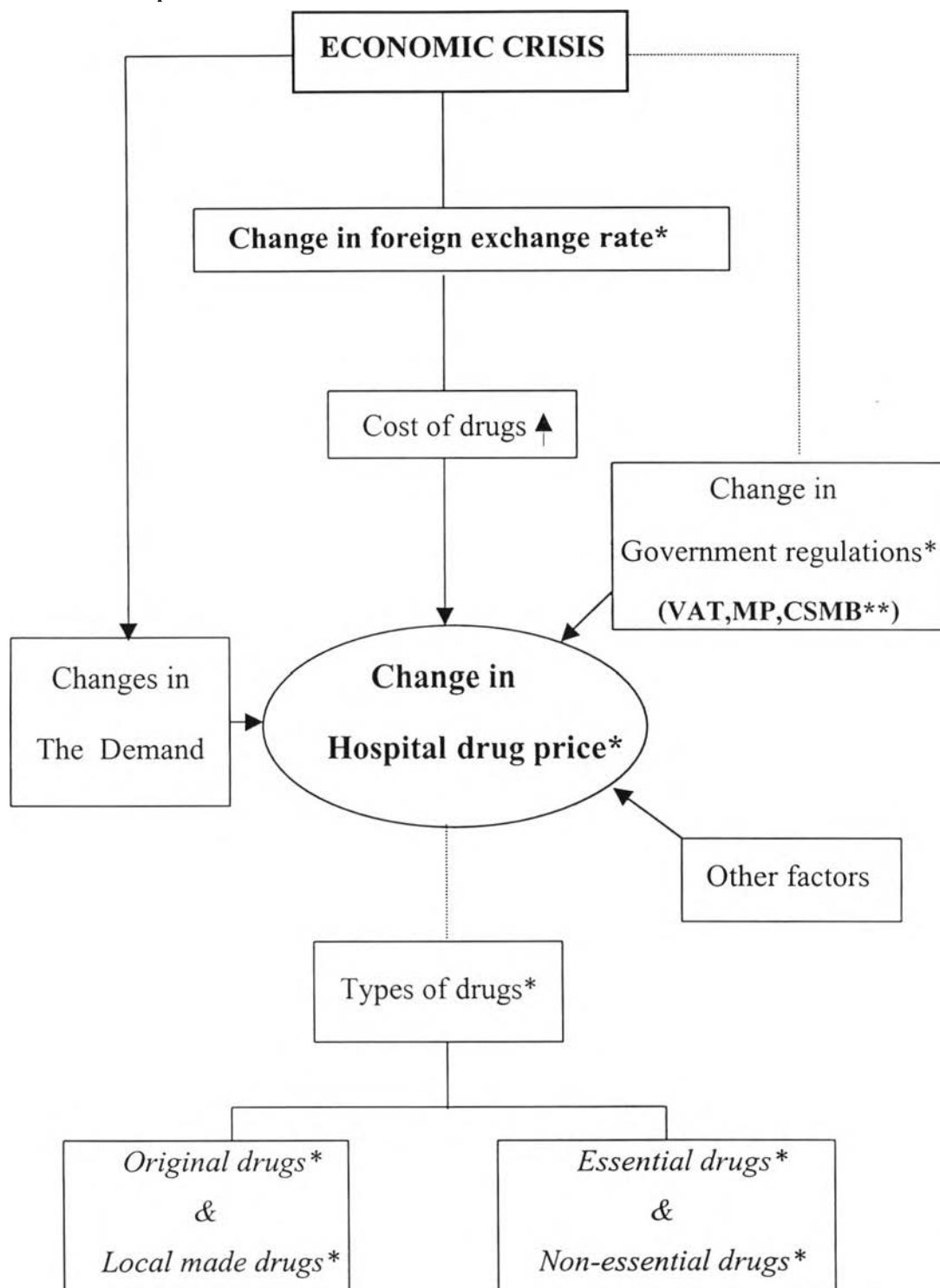
2.2 Cancellation of medium price on December 15th, 1997.

Medium price was a standard or ceiling price of essential drugs and other medical products that public hospitals had to follow whenever procurement is made from annual government budget. When economic crisis occurred, the floated currency and the adjustment of value added tax (VAT) from 7 percent to 10 percent affect capital structure therefore the cost of pharmaceuticals and medical products increased making public hospitals unable to purchase various drugs according to the medium prices. As a result Ministry of Public Health cancelled medium price of National essential drug list AD.1993 effective December 15,1997 and established a committee to reset the medium prices appropriate for the situation.

2.3 Change in reimbursement of Civil Servant Medical Benefit Scheme (CSMB) on March 1st, 1998.

Due to limited government budget, the CSMBS had been modified on March 1, 1998. In the previous scheme, civil servants could file reimbursement claim all medications. However under the new policy reimbursement could be made only on items announced by Ministry of Finance, which were mostly similar to the National Essential Drug List set by National Drug Committee. In order to relax the restriction, a few more items as shown in the hospital drug list were later permitted by respective hospital committees. This change would lead to an increase in the use of essential drugs.

Figure 1.2 : Conceptual Framework



Note : * study the relationship between these parts

**VAT = change in value added tax

MP = cancellation of medium price

CSMB = change in Civil Servant Medical Benefit

Prices of different drugs might be affected differently by the crisis. This study examines the impacts on essential vs non-essential drugs and original vs local made drugs as following:

- 1). Essential drugs referred to drugs listed in National Essential Drug List.
- 2). Non-essential drugs are those are not mentioned in National Essential Drug List.

Besides, drugs can also categorized by type of production firms into two groups, as following:

- 1) Branded drugs or original drugs, or first drug introduced into the market by original firm usually are imported from foreign countries.
- 2) Generic drugs or local made drugs are mostly produced locally in Thailand.

Although demand and supply determined drug price, restriction in purchasing different types of drugs is also another important factor. So impact of economic crisis on each type of drug may not the same. For instance, the impact of economic crisis on original drugs may be greater than on generic drugs because the former had a higher imported proportion than the latter.

1.6 Possible Benefits

It is hoped that this study will provide evidence for assessing the impacts of the economic crisis on drug price. Information derived from this study can also be used as empirical basis for pharmaceutical policy development particularly on medium price setting and price regulation.

1.7 Organization of the Study

There are five chapters in this study. Chapter 1 is the introduction, presenting the background, the objectives, scope of study, and conceptual framework as well as possible benefits. Chapter 2 presents the literature review. Chapter 3 presents methodology consisting of the model, hypothesis of variable coefficient signs, data collection including selected hospital profiles as well as econometric technique. Chapter 4 presents the empirical results and discussion. Finally, the last chapter provides conclusion, policy recommendations and some suggestions for further study.