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Thailand's oil price subsidy: How long can it last?

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Finding the 'tipping point'

- **The number is USD130**. Our analysis shows that as long as the Dubai oil price does not reach USD130 per barrel, the government can maintain the subsidy program until it expires in April. In this case, the negative impact of higher oil prices on the economy should be contained, and partly offset by the positive effects of higher agricultural export prices and wages.
- **The importance of diesel.** We focus our analysis on the diesel subsidy scheme given that diesel accounts for over 50% of domestic petroleum consumption and serves as an important transport cost given the heavy reliance on trucks in the freight system. A hike in the price of diesel would have a significant impact on GDP and headline CPI inflation, in our view.
- **The rule of the game.** These are precisely the reasons why the government is subsidizing diesel, capping retail prices below THB30 (roughly USD1), with funds from the THB23bn (USD780mn) oil fund. This is a specialized entity that, in turn, collects revenues from other types of petroleum products. The program is supposed to last until the end of April, but the government has said that it will reconsider this timeline should the fund reduce to THB10bn (USD338mn).
- **A USD10 rise brings USD84mn worth of pain**. With the Dubai oil price (the main reference price used in Thailand) currently around USD110, the costs of subsidizing domestic diesel prices is equivalent to USD186mn (0.05% of GDP) per month. According to our calculations, a USD10 rise in the Dubai oil price would raise the oil fund's monthly cost by about USD84mn (0.02% of GDP).
- **Is there life after the scheme?** Should global oil prices remain elevated at the April expiry of the scheme, we think that the government could be tempted to continue the subsidy program to avoid economic and political disruptions before the general election, which are widely expected to be held by June.
- **Fiscal purse to bear the brunt.** The government might draw on its fiscal purse by cutting the excise duty of diesel products for three months, for example, to contain retail prices. Assuming that the Dubai oil price stays between USD110-USD130 during the three-month period, we estimate that the tax cut would add about 0.2%-0.3% of GDP to our 3.7% estimate of the fiscal deficit for fiscal year 2011.
- **Potential impact on GDP and CPI**. While it is not our central scenario, we also conduct a sensitivity analysis to assess the risks to GDP and inflation of the government letting the diesel price jump. Our model suggests that a 10% permanent increase in the domestic retail diesel price would shave 0.5pp of GDP growth and add 0.7pp to headline CPI inflation within one year, currently estimated at 4.6% and 3.8% for 2011, respectively.

Why is this issue important?

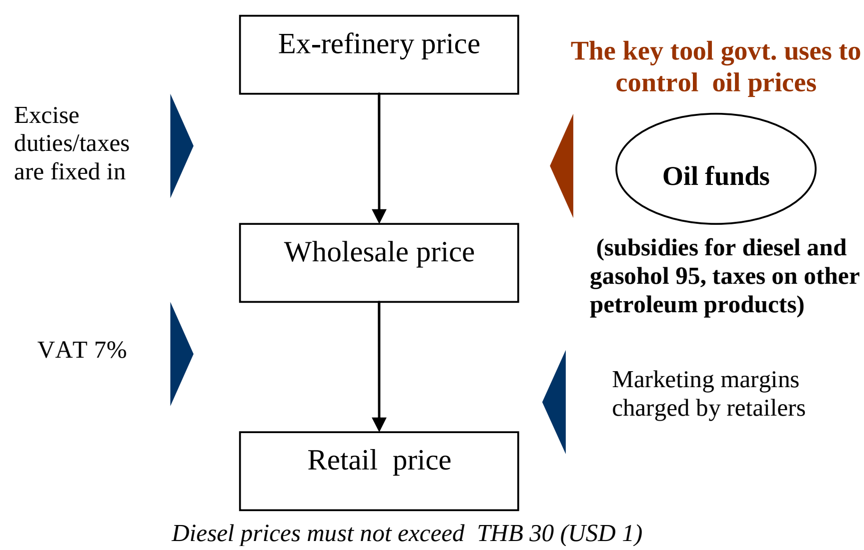
The recent reintroduction of diesel subsidies as part of the pre-election package

In December 2010, the Thai government announced that it would reintroduce diesel subsidies to make sure that the retail price of diesel was capped below THB30 (USD1) until April 2011 (with the recent extension). The scheme essentially brought back the diesel subsidy scheme using funds from the national oil fund, which had been in place prior to the diesel price liberalization in 2005. The price cap on diesel was also introduced briefly between March-July 2008 to alleviate the impact of the spike in global oil prices on producers and consumers. In *Thailand: Elections and high food prices – recipe for stronger private consumption?* (published on 16 February), we argued that oil subsidies, while possibly not the optimal policy in the long run, could help alleviate the real income squeeze on consumers in the short run. The focus on diesel is also important since it represents over 50% of the country's consumption of petroleum products and serves as a critical input to the transport system, which relies on heavy and pick-up trucks. As we will show later in the report, a hike in the retail diesel price could have a significant impact on GDP and headline inflation.

It is important to note that this report will focus mainly on the diesel price subsidy scheme and the possibility of a rise in the domestic diesel price on Thailand's GDP, CPI, and fiscal position. For a cross-country comparative study of how the global oil price might affect FX and interest rates of different economies, please see the analysis by our economists and strategists in *Rising oil prices: winners and losers in EM*, published on 1 March.

How does the current scheme work?

Exhibit 1: The current scheme of diesel subsidies



Source: Credit Suisse, the Energy Policy and Planning Office (EPPO)

In a nutshell, the pricing of retail diesel can be broken down into three stages (See Exhibit 1).

1) **From crude oil to ex-refinery prices.** Imported crude oil is processed at the refinery, which produces refined petroleum products that are then sold at the 'ex-refinery price'. Using regression analysis, we estimate that a 1pps rise in the Dubai oil price would result in about a 0.65pp-0.70pp increase in the ex-refinery price[1]. We use the Dubai oil price rather than Brent as the former is considered to be the most relevant for Thailand given that it imports most of its crude oil supply from the Middle East. It should be noted also that the Ministry of Finance and Bank of Thailand also look at the Dubai price as an input into their economic models.

2) **From ex-refinery to wholesale prices.** The government then adds taxes and excise duties, which are fixed in absolute THB terms per liter (not as a percentage of the price), to the ex-refinery price. This is the stage where different fuel products are also taxed or receive subsidies from the oil fund, a specialized entity that does not share the fiscal purse with the Ministry of Finance. In general, products such as unleaded gasoline are taxed, whereas diesel and biodiesel receive subsidies from the oil fund. Therefore, the scheme can be seen as a form of cross-subsidization. The value of the subsidy per liter is implemented to ensure that the retail price of diesel remains below THB30, as explained above. As of February, the amount available in the oil fund was reported by the Energy Policy and Planning Office to be THB23bn (USD780mn) or about 1.5% of the total budgeted expenditure for fiscal 2011.

3) **From wholesale to retail prices.** To determine the retail price, VAT and marketing margins charged by retailers are added to the wholesale price obtained from the last two stages. For diesel products this mounts to about 7% mark-up on average over the wholesale price.

How long can the oil fund last?

Exhibit 2: Scenario analysis of subsidy costs to the oil fund

Assumptions: Monthly net inflows to the oil fund from other petroleum products are the same as reported for the month of February; tax structure as given by www.eppo.go.th as of 25 February; average monthly consumption = average in 2010; oil fund's current size = THB2300mn (USD780mn); Pass-through from Dubai oil to ex-refinery diesel of about 65%-70% (estimated using regression); estimated average USDTHB in 2011= 29.5; The calculation excludes the change in biodiesel content, which could save the oil fund about THB600mn (USD20mn) per month.

Scenarios/ Dubai oil prices per barrel	USD110	USD120	USD130
Subsidies per liter needed to keep retail diesel	THB3.5-4	THB5.2-5.7	THB6.9-7.4
prices below THB30 (USD1)	(USD0.12-0.14)	(USD0.18-0.19)	(USD0.23-0.25)
Approx. costs to oil fund per month	THB5500mn	THB8100mn	THB10700mn
	(USD186mn)	(USD275mn)	(USD363mn)
	(0.05% of GDP)	(0.08% of GDP)	(0.1% of GDP)
Number of months it takes for oil fund to shrink	2months	1 to 2 months	1 month
to THB1000mn (USD338mn)*			
Number of months to completely drain the fund	3 to 4 months	2 to 3 months	1 to 2 months

Source: Energy Policy and Planning Office, CEIC, Credit Suisse
*The government has promised to re-consider the scheme if the oil fund reach this level.

1 This is a univariate regression with both Dubai oil and ex-refinery prices expressed in percentage change over the last quarter.

We estimate that a USD10 rise in Dubai oil prices will raise the monthly cost to the oil fund by about USD84mn (0.02%)

To answer this question after we have already calculated the costs of the diesel subsidy scheme, we need to know the net inflows into the oil fund from other activities and energy products. This is admittedly the most complicated part of the calculation given the complex structure of the oil fund and the government policies that affect the flows in and out of the fund. Thus, it is important to stress that the figures estimated above should be seen as an approximation of the maximum length of time the oil fund can last under the current tax and subsidy regime (which also varies from year to year).

To make the exercise manageable, for the monthly net inflows into the oil fund from non-diesel products, we use the figures reported by the Energy Fund Administration Institute (EFAI) as of February 2011[2] of approximately THB50mn (USD1.7mn) per month. We assume that this non-diesel portion of monthly flows remains the same for the whole year. Based on this exercise, if the Dubai oil price stays around USD110 per barrel, the scheme could last about 3-4 months before the fund runs out. However, the government has also stated that it will reconsider the diesel subsidy scheme if the oil fund shrinks to THB10bn (USD338mn), which may imply that the scheme could be modified or abolished before the oil fund runs out. With the Dubai price at USD110 per barrel, we estimate that the scheme would have to be reconsidered by the cabinet within about two months, which is exactly when the government has said the program will expire (April). As Exhibit 2 shows, however, the critical number is USD130 – if the Dubai oil price approaches that level, it is likely that the government will be forced to reconsider or even abandon the scheme before its expiry date. While this is not our main scenario, the simulation does raise an important question: What will happen after the oil fund runs low?

What might happen after the program expires or the oil fund run low?

Better the fiscal purse than GDP and inflation

This question is relevant not only in the case of the global oil price reaching USD130 and the oil fund running below the threshold level before expiration of the subsidy program. It is also important in the case of global oil prices remaining elevated after April. In this latter situation, it is possible that the government could extend the subsidy program until June when the general election is expected by the Prime Minister to be held (if it is not held earlier). A significant jump in the retail diesel price in the lead up to a general election could have an undesirable political impact on the incumbent administration. Thus, we consider the three main options that the government has after the subsidy scheme ends, whether due to the planned expiration of the subsidy or because the oil fund runs low.

a) **The subsidy could be continued until the oil fund runs out**. This option could bring about a significant negative political reaction as was seen when the previous government drained the oil fund in 2005. Consequently, we think it is unlikely that the government will resort to this approach.

b) **The subsidy could be withdrawn, allowing the diesel price to rise above THB30 per liter.** This would have a direct impact on GDP and CPI inflation. To estimate the impact of a 10% permanent hike in the domestic retail diesel price, we utilize a four-variable vector auto-regression (VAR) framework (real GDP, diesel price, CPI, real effective exchange rate), for which details are given in Exhibit 3.

[2] For the details see: http://www.efai.or.th/theoil/theoil-use.htm

Taking the estimated impact at face value, if the Dubai oil price moves higher than USD120 and the government abandons the subsidy scheme (effectively amounting to a 10% hike in the domestic diesel price), this would subtract 0.5% of GDP and add 0.7% to headline CPI within one year. The impact of a rise in oil prices is significant and confirms our view that diesel is a critical input to the economy. Given the magnitude of the negative economic impact (and most likely social impact), we think that it is highly unlikely that the government will resort to this option in the election year.

Exhibit 3: Estimated impact of a 10% hike in the diesel price on GDP and inflation

*The impact coefficients are obtained from impulse response function from the VAR model with the following structural ordering: real GDP, diesel prices, CPI, real effective exchange rates (i.e. the variables on the left hand side have no contemporaneous impact on the variables on the right hand side). All variables are in % year-on-year change. The maximum lag used was 5 quarters as specified by the likelihood ratio test.

Variables	Impact of a 10% hike in price of high-speed diesel*	Time it takes to deliver full impact
Real GDP	0.5	4 quarters
CPI inflation	0.7	2 quarters

Source: Credit Suisse, CEIC
For a similar approach, see *Oil price shocks and real GDP growth,* by Rebecca Jiménez-Rodríguez and Marcelo Sánchez, ECB working papers No. 362, May 2004.

c) **The fiscal purse could be used to absorb the costs.** As an alternative to subsidizing the price of diesel with the oil fund, the government could also cut the excise duties it collects on diesel products. Under the current regime, the excise duty rates are THB5.31 (USD0.18) per liter for high speed diesel and THB5.04 (USD0.17) for 5% biodiesel (B5). Economically, it is just a matter of which purse the government wants to use, but politically, this may be more appealing than draining the oil fund. Assuming that other factors (e.g. marketing margins, VAT, municipality tax) remain unchanged, the fiscal costs of tax cuts should be the same as our estimates of the monthly costs to the oil fund above. Exhibit 4 illustrates the fiscal balance under different oil price scenarios corresponding to those in Exhibit 2 and assuming that the government would try to maintain the price cap until the end of May. In general, as long as the Dubai price of oil does not reach USD130 per barrel, the tax cut would subtract an additional 0.2% of GDP from the fiscal balance, resulting in an estimated overall fiscal deficit in fiscal year 2011 of 3.9%.

Exhibit 4: Scenario analysis of fiscal burden of subsidies

*Assuming that the same marketing margin, and that wholesale prices are the same as when the government was using the oil fund – the only change is that the burden now falls upon the fiscal purse

Scenarios/ Dubai oil prices	USD110	USD120	USD130
Approx. costs to per month	THB5500mn	THB8100mn	THB10700mn
	(USD186mn)	(USD275mn)	(USD363mn)
	(0.05% of GDP)	(0.08% of GDP)	(0.1% of GDP)
Total costs of a 3-month program	THB16500mn	THB24300mn	THB32100mn
	(USD558mn)	(USD825mn)	(USD1089mn)
As % of GDP	0.15%	0.23%	0.30%
Estimated fiscal balance for 2011 (% of GDP – now est. at -3.7%)	-3.9%	-3.9%	-4.0%

Source: Energy Policy and Planning Office, CEIC, Credit Suisse

Conclusion

While we generally do not expect global oil prices to remain elevated for a protracted period, given uncertainties around the political tensions in the Middle East and the Thai economy's high exposure to oil, we have conducted a scenario analysis to estimate the sustainability of the government's current diesel subsidy scheme. So long as the Dubai oil price remains comfortably below USD130 per barrel and does not stay above USD110 beyond April, our analysis suggests that the current price cap/subsidy scheme could last until the end of April, as is planned by the government. This would help absorb the negative impact of higher oil price on the economy, especially given that the government also has other forms of price support in place, including, for example, the electricity and public transportation subsidies. The positive boost from higher agricultural export prices[3] and wages, along with relatively stable politics should also help counter the negative impact of high oil prices on GDP, as we argued in *Thailand: Elections and high food prices – recipe for stronger private consumption?*

Even if the price of oil remains elevated after the current subsidy scheme is slated to end, we think that the government will likely adopt other strategies to control diesel prices rather than allowing the price to jump, especially with the general election approaching. A hike in the price of diesel could have a sizable impact on GDP and CPI inflation – our model predicts that a 10% permanent rise in diesel prices would shave 0.5pp off GDP growth and add approximately 0.7pp to headline CPI inflation within one year. For this reason, we believe it more likely that the Ministry of Finance would use fiscal means to absorb the higher oil prices, such as through a temporary cut in the excise duty. We estimate that this could cost the fiscal purse around 0.2%-0.3% of GDP and bring the fiscal deficit in 2011 marginally higher to 3.9% of GDP from our current estimate of 3.7%.

[3] Although at the time of writing, some grain prices have come down, the global level of food price, as measured by the UN's FAO food price index and the latest Thai agricultural export price index, remains relatively high by historical standards. The Thai price of rice is also about 20% higher than its recent low in the middle of 2010.

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