Ghana: Impact of the Falling Crude Oil Prices

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Executive Summary

This paper looks at the impact of the falling crude oil prices on Ghana's economy. Crude oil production affects Ghana's economic growth while revenues from oil exports and costs of oil imports affect the government budget and macroeconomic performance. Oil thus plays an important role in Ghana and therefore a careful look at the implications of its price swings on the economy is required.

Crude oil prices have been falling since July 2014 when it stood at US$115 per barrel. By the second week of January 2015, the price of the Brent crude had plunged by about 55 percent as stockpiles mounted with no sign of contraction in production. Prices recovered in April and May, suggesting that the previous severe drop was temporary. However, the downswing in prices resumed thereafter, and by the third week of August, the Brent crude had hit a six-year low of US$42.23 a barrel. Prices recovered somehow at the end of August, with the Brent crude price reaching US$50.60 a barrel. Oil analysts believe that the oil price recovery was a short-term relief rally after the markets had stabilized and traders had lowered their expectations for the September interest rate rise by the US Federal Reserve. Oil prices are therefore expected to remain weak in the short run as the market works off the surplus in the second half of the year.

Crude oil was discovered in commercial quantities in Ghana in 2007, but actual production came on stream in December 2010, with 55,000 barrels produced per day. In 2011, commercial production of oil led to a significant GDP growth of 14.0 percent, making the country the highest growing economy in sub-Saharan Africa. Currently, Ghana produces about 103,000 barrels per day, and production is expected to more than double to 250,000 barrels per day by the year 2021. Ghana also imports both crude and refined oil for domestic consumption since its own crude oil cannot be refined locally at the moment due to some technical reasons. In the first two years that Ghana exported oil, it was a net importer of the commodity. In 2013, however, the country became a net exporter of the commodity.

Since 2011, Ghana has been receiving oil revenues which may continue for the next 20 years and beyond. Crude oil exports increased from US$2.8 billion in 2011 to US$3.9 billion in 2013 but dropped to US$3.7 billion in 2014. Correspondingly, total oil revenues (comprising government carried and participating interest, royalties, surface rentals and taxes) increased from US$444.1 million (equivalent to 16.0 percent of total oil export receipts) to US$978.8 million (equivalent to 26.3 percent of total oil export receipts) over the period.

To ensure that Ghana was properly positioned and adequately prepared to manage its new oil boom, a Petroleum Revenue Management Act, 2011 (Act 815) was passed in April 2011. The Act provides for a portion of the oil revenue to be used for budget support (designated the Annual Budget Funding Amount [ABFA]) and portions for Petroleum Funds (comprising the Stabilization Fund and a Heritage Fund). The objective of the Ghana Stabilization Fund (GSF) is to cushion the impact on or sustain public expenditure capacity during periods of unanticipated oil revenue shortfalls while the Ghana Heritage Fund (GHF) is an endowment for the benefit of future generations.

The crude oil price fall since July 2014 has affected Ghana's economy in many ways. First, the country's real GDP growth is set to decline substantially to 3.5 percent in 2015 from 4.0 percent in 2014 and 7.3 percent in 2013 as the government's fiscal adjustment in response to the oil shock dampens economic activity. Second, although the country's oil output is expected to remain unchanged at 102,033 barrels per day in 2015, the government has been forced to revise down substantially the projected oil revenues in the 2015 Budget by a whopping 58 percent, from GH₵4.2 billion to GH₵1.8 billion as a result of the oil price slump. Consequently, government capital spending has been cut from 26 percent in the pre-oil period to 17 percent of total expenditure in 2015. Based on the revised estimates, the fiscal deficit for 2015 has been revised upwards to 7.3 percent of GDP from the original target of 6.5 percent of GDP. The

loss of oil revenues has also necessitated increased borrowing by the government, which has led the country to face a high risk of debt distress and increased overall debt vulnerability. The Ghana Petroleum Funds also received zero allocation during the first half of 2015, while allocations to GNPC and the ABFA were drastically cut. In March 2015, the government indicated that an amount of GH¢487.2 million will be withdrawn from the GSF during the year to close the revenue gap in the Budget. In tabling the 2015 revised Budget in July, the government indicated its intention to further reduce the cap on the GSF for the rest of the year. Third, the slump in oil prices is expected to help Ghana contain inflation and end fuel subsidies by keeping import costs down and also benefit consumers through reduced petroleum prices at the pump. Unfortunately, the seemingly oligopolistic market structure of the downstream petroleum sector, reinforced by the imposition of taxes and levies, may make it unlikely for any significant drop in petroleum prices at the pump. The 2015 Budget also staked the medium term receipts from oil on higher prices, so with the falling prices, the expected foreign exchange inflows and thus the country's foreign reserves are set to reduce sharply, which already is having a serious impact on the exchange rate of the domestic currency.

To help meet Ghana's developmental objectives of macroeconomic stability, accelerated growth and poverty reduction, the government should consider adopting a countercyclical fiscal policy stance, viz. save the windfall oil revenue during price upswings and use these buffers during downswings. The government should also consider reducing taxes on petroleum products so that the private sector can take advantage of the lower oil prices and play a more active role in propelling the economy to increase its pace of growth.

In addition, it is recommended that the government improves the public financial management system, especially with regard to the budget processes. A strong and open public financial management system which ensures that citizens are well informed about the size of oil revenues, the rate of its spending and the composition of spending is very necessary. The Financial Administration Act (FAA) and its accompanying Regulations (FAR) also need to be amended to address some of the institutional weaknesses and introduce more discipline, accountability and transparency in the management of oil revenues and the budget. Given that crude oil prices will continue to remain weak in the short term, the government should consider resuming the hedging program through the 'cap' option to protect future rises in oil prices. Arrangements should also be made so that crude oil importers can buy the country's own oil and save costs. To make this arrangement work, the necessary steps should be taken to ensure that the country's crude oil can be refined and consumed locally. Government should also exploit the opportunity provided by the falling oil prices and build more strategic reserves against a future rise in price.

Contents

1. Introduction

The discovery and production of crude oil and its price volatility have both created opportunities and posed serious economic, social, and political challenges to many low-income countries. Most low-income countries are net importers of fuel and face substantial import bills for oil products. At the same time, crude oil accounts for more than half of total exports of a number of low-income countries, implying that swings in oil prices affect these countries' fiscal and macroeconomic performance and growth prospects. Crude oil price shocks can also lead to high inflation and strong social pressures in low-income countries because food prices which account for nearly half of the consumption basket in these countries are highly correlated with fuel prices. The resulting squeeze on real household incomes increases poverty, calling for mitigating fiscal measures which could have negative impacts on public finances (IMF, 2011).

Crude oil prices fell by about 50 percent between June 2014 and January 2015. For consumers and companies in energy importing countries, the low prices are a boon. But the sharp drop in crude oil prices is having a serious impact on the wellbeing of citizens in developing and resource-rich countries, and governments around the world are struggling to manage unmet expectations created by their oil and mineral sectors (Lassourd and Manley, 2015). Several OPEC members, heavily dependent on oil receipts to balance their budgets, had during their meeting in November 2014 pushed for a production cut to raise prices. These countries require a break-even oil price above $80 dollars a barrel to balance their budgets. Many sub-Saharan African oil producing countries are also exposed to the serious threat of declining oil prices on economic activities. One of the clearest signs of how oil producing nations are struggling as prices slump is the Central Bank of Nigeria's decision to devalue the naira by nearly 8.0 percent and raise interest rates by 100 basis points to 10 percent to protect the country's foreign exchange reserves.

For Ghana, crude oil in commercial quantities was discovered in 2007, and production and exports came on stream in December 2010. Ghana is also an importer of both crude and refined oil for domestic consumption since its own crude oil cannot be refined locally at the moment due to some technical reasons. Oil has thus not only become an export commodity for the country, it has long been a major import commodity, requiring careful handling by policymakers. Against this backdrop, the question that lingers on the minds of many is what has been the impact of these global developments on Ghana's fragile economic recovery given the current crude oil price depression? This is especially important given the fact that the Ghanaian cedi has for the major part of 2014 depreciated against all major international currencies, most notably against the US dollar by over 30 percent. This paper therefore looks at the impact of the falling crude oil prices on Ghana, given the complex role that the oil sector plays in the country's economy.

The paper is organized as follows. Section one deals with the introduction, while section two reviews the crude oil price swings since 2004. Section three discusses the causes of the recent crude oil price slump. Section four discusses the oil find and Ghana's economy. This is followed by section five which looks at the resource curse phenomenon in the Ghanaian context. Sector six discusses the impact of the recent crude oil price fall on Ghana. Section seven reviews the measures taken by the Government of Ghana (GoG) in recent years to mitigate the risks of crude oil price volatility. Section eight discusses policy recommendations, whilst section nine concludes the study.

2. Volatility in Prices

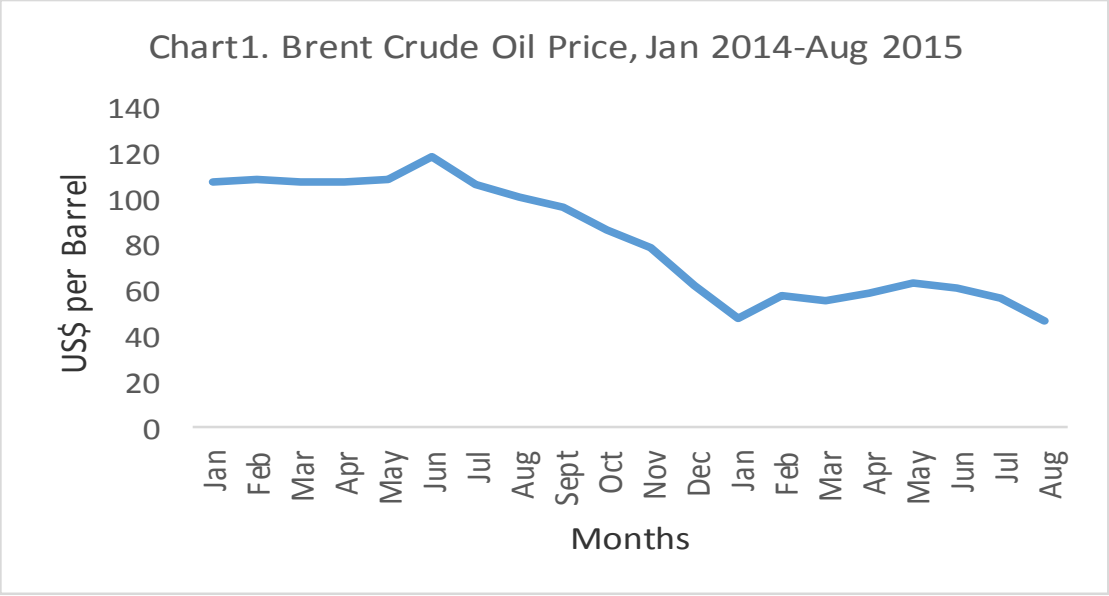
Crude oil has experienced significant volatility in prices since 2005. Prices of the commodity rose from US$44.88 in January 2005 to a historic high of US$134.79 per barrel in July 2008, only to fall precipitously to US$43.29 per barrel in December 2008, shedding all the gains of the preceding four and a half years. The steep price increase experienced from January 2007 to July 2008, in particular, was challenging for many non-oil producing developing countries. While the sharp drop in prices since August 2008 was a welcome news for consumers, the cause of it—the global financial crisis—was not. According

to the World Bank (2008), the extent of pass-through of the rise in world oil prices to the domestic market showed that developing countries could not keep up with the price increases between January 2007 and August 2008. Correspondingly, retail prices in developing countries increased less than in developed countries during the period (IFS, 2015).

Oil prices rose to US$73.23 a barrel in June 2009 amid concerns that massive United States fiscal spending would spark inflation down the road, making oil and other commodities attractive investment alternatives. The benchmark crude for July 2009 delivery rose by US$0.77 to US$72.14 a barrel in Europe and in electronic trading on the New York Mercantile Exchange. After hitting an eight-month high of US$73.23 on June 11 2009, the oil price stayed above US$70.00 a barrel until the end of June 2009 on investors' optimism that the global economy was stabilizing from the severe slowdown. Crude oil prices went up to US$78.00 per barrel in September 2010 and further up to US$125.00 per barrel in April 2011, the highest average monthly price recorded in the year. By December 2011, however, the average monthly price of the benchmark Brent crude had dropped to US$107.72 per barrel, only to jump to US$126.96 per barrel in February 2012, the highest price recorded since July 2008. By June 2012, the Brent crude price had dropped sharply to US$95.89 per barrel but rose again thereafter to US$113.19 per barrel in August before falling to US$109.19 per barrel in December 2012.

3. The Current Price Slump and Causes

Oil traded above US$100 per barrel in 2013 and by June 2014, the price had risen to US$111.80. Crude oil prices started falling sharply thereafter, with significant declines recorded since October 2014. Between June 2014 and December 2014, oil prices declined by about 44 percent and by the second week of January 2015, the price had plunged by about 57 percent to below US$50.00 per barrel as stockpiles mounted with no sign of contraction in production. Consequently, the IMF revised its Brent crude oil price projection for 2015 to an average of US$52.8 per barrel. The rebound in prices in May and June to US$60



per barrel from the mid-US$40s appeared to suggest that the severe drop was temporary (see Chart 1). However, the downswing in prices resumed in late June, pressured by the stronger US dollar and OPEC's decision not to cut production. Crude oil prices dropped for four weeks in a row to the end of July due mainly to the first biggest contraction in China's manufacturing activity in six-and-a-half years that rippled through global stock markets and was reinforced by the effects of Iran's nuclear deal. These developments sent the Brent crude to settle at US$54.62 per barrel spot and the US crude and the Western Texas Intermediate (WTI) at US$48.14 per barrel spot.

Although demand for oil appeared to be picking up after July 2015, the abundance of supply led to a surplus of some two million barrels per day, outweighing the demand growth. USA oil producers added 21 more oil rigs during the month of July 2015 to reach 669 in spite of the falling world market prices, increasing production to an average of 9.6 million barrels per day, the highest level for the country since the early 1970's (see The Economist Magazine, July 4, 2015). A prevailing sense that oil prices may stay lower for long also hit the markets as the US dollar gained strength and Iran geared up to flood the market with more oil. On Monday 24 August 2015, the Brent crude hit a six-year low of US$42.23 a barrel and the US WTI was also down to US$37.75 a barrel. However, by the Sunday, 30 August, the Brent crude oil price had somehow recovered, reaching US$50.60 a barrel and the WTI back above US$45 per barrel (Financial Times Weekend, 29-30 August, 2015). Some analysts believe that the oil price recovery was a short-term relief rally after the markets had stabilized and traders had lowered their expectations for the September interest rate rise by the US Federal Reserve. Their view is that, fundamentally nothing much has changed, the market is still over-supplied, and oil tanker rates have fallen sharply due to lower shipments to Asia. Oil price is therefore expected to remain weak in the short run as the market works off the surplus in the second half of the year (Raval, 2015; Raval and Sheppard, 2015).

Globally, crude oil prices are determined both by actual supply and demand factors, geopolitical considerations and market expectations. Demand for energy is closely related to economic activity. It also spikes in winter in the northern hemisphere and during summers in countries which use plenty of air conditioning. Supply can also be affected by weather (which prevents tankers loading) and by geopolitical upsets. If producers think the price is staying high, they invest, which after a lag boosts supply. Similarly, low prices lead to an investment drought (The Economist, December 8, 2014). In terms of expectations, today's oil price reflects lower future demand and increased future supply. Lower demand reflects both the current weakness of economic activity, particularly in Europe and China, and more importantly in the longer-term, total factor productivity changes (technological changes) such as increases in fuel efficiency and non-fossil based supply sources. The increase in the potential future supply of oil reflects the new output from fracking (shale gas and oil) predominantly in the United States and the development of the Canadian tar sands, among others. OPEC's decisions also shape expectations: if it curbs supply sharply, it can send prices spiking (Saudi Arabia produces nearly 10m barrels a day—a third of the OPEC total). Several OPEC members, heavily dependent on oil receipts to balance their budgets, had during their meeting in the last week of November 2014 pushed for a production curtailment to increase prices.

According to the Economist Magazine, four factors are currently affecting the oil market. First, demand is low because of weak economic activity, increased efficiency, and a growing switch away from oil to other fuels. Second, the oil market is more sanguine about geopolitical risk. For example, the turmoil in Iraq and Libya—two big oil producers with nearly four million barrels a day combined—has not affected their output and they are still producing. Third, the USA has increased its oil production to about 9.6 million barrels per day in June 2015 (The Economist, July 4, 2015). Though the USA does not export crude oil, it now imports much less, creating a lot of spare supply. Finally, the Saudis and their Gulf allies have decided not to sacrifice their own market share to restore the price. Saudi Arabia ramped up its production to an all-time high of 10.6 million barrels per day in June. Saudi Arabia and some of its Gulf allies could curb production to increase prices, but the main benefits would go to countries such as Iran

and Russia. Saudi Arabia, for instance, has $900 billion in reserves and its own oil costs around US$21 per barrel to get out of the ground (The Economist, December 8, 2014).

The negative effects of the current oversupply of oil and the resultant price fall are on the oil-rich countries whose budgets have come under extreme pressure, compelling them to cut spending and review benchmark oil prices, while some have had to fall on their past foreign exchange reserves to support their economies. The main effect of these developments on the oil market is however on the riskiest and most vulnerable sections of the oil industry. These include companies who have borrowed heavily to invest in oil development on the expectation of continuing high prices. They also include Western oil companies with high cost projects involving drilling in deep water in the Arctic, or dealing with maturing and increasingly expensive fields such as the North Sea. But the greatest pain will be felt in countries such as Russia and Iran, where the regimes depend on high oil prices to pay for costly foreign adventures and expensive social programs as well as sub-Saharan African countries like Nigeria and Angola. The pressure on investments by oil companies from the price fall may also force increased discussions for mergers, acquisitions and slushing of planned exploration spending. Frontier countries such as Ghana that have built higher expectations of the promise of oil are also not spared. Particularly, some of the oil frontiers are developing new petroleum laws and are torn between the objectives of maximizing revenues or attracting investments.

4. Oil and Ghana's Economy

4.1 Oil Find and Production

In 1983, the Government of Ghana established a 100 percent state-owned oil company, the Ghana National Petroleum Corporation (GNPC), to promote hydrocarbon exploration and production of the country's entire oil and natural gas reserves. GNPC prospected in 10 offshore blocks between Ada along the Eastern international border of Ghana and in the Tano River Basin and the Keta Basin. In 1989, the Corporation spent GH₵64.9 million (US$30.0 million) on drilling wells in the Tano basin, and in June 1992, an offshore Tano basin well began to produce 6,900 barrels of crude oil daily.

The discovery of oil and reserves in commercial quantities at the Mahogany-1 exploration well in the Jubilee fields in Ghana which was announced in June 2007 by Kosmos Energy, Anadarko Petroleum, and Tullow Ghana Limited, a consortium engaged in oil exploration west of Cape Three Points near Axim, was an encouraging expectation of a major economic boost. It was believed at the time that Ghana had up to about 4 billion barrels of oil in reserves, which was the sixth largest in Africa and the 25th largest proven reserves in the world. The oil discovery presented huge opportunity for accelerating Ghana's economic growth and development as well as creating opportunities for all, both present and future generations, to benefit. Oil revenues were also to provide opportunity for creating fiscal space that could be utilized to support sustainable economic growth.

Ghana started producing crude oil in commercial quantities of 55,000 barrels per day in December 2010. In 2011, the structure of the economy changed dramatically as the commercial production of oil led to a significant GDP growth of 14.0 percent, making the country the highest growing economy in sub-Saharan Africa in the year. Declining productivity at the Jubilee oil field in 2012 however led to a shortfall in revenues of US$100 million to the government, which had budgeted for oil revenue of more than US$650 million. The oil companies blamed the decline on sand contamination of the flow lines that carry the oil from the underwater wells into the storage facility on the surface. Despite the decline in production, the oil and gas sector contributed 8.0 percent to GDP in 2012. In the first half of 2013, Ghana produced an average of 115,000 barrels of crude oil per day. From the start of production at the Jubilee Field in December 2010 to September 2014, Ghana produced more than 37 million barrels of oil (Adams, 2014). Currently, Ghana produces about 103,000 barrels per day, and production is expected to more than

double to 250,000 barrels per day by the year 2021 as output rises at the Jubilee field and other sites start production.

Ghana also has new oil fields at different stages of appraisal and development. Oil from the *Tweneboa-Enyera-Ntomme* (TEN) fields is expected to come on stream in late 2016. These fields have reserves of about 245 million barrels and a peak daily production forecast of 76,000 barrels (Bloomberg, April 24, 2013). GNPC is also pushing exploration in the onshore Voltaian Basin which stretches from the southern to the northern part of Ghana and covers about 40 percent of the country. The company has conducted field mapping and site surveying of selected locations and has received geophysical data on the region, which it is currently analyzing. According to the Minister of Petroleum, the government plans to invest about $20 billion in the development of new oil discoveries over the next five years. This investment is expected to boost the production of oil and gas in the country and thus the growth of the national economy in a significant measure (GoG, October 11, 2013).

In September 2014, the government revealed that eight new petroleum agreements had been signed to widen oil exploration and expand production. The agreements, which involve the exploration and production of oil and gas in commercial quantities offshore the Cape Three Points, have been ratified by Parliament. The new agreements have paved the way for an aggressive exploratory campaign to be launched to add on new reserves to ensure that the country's production profile is increased. The state-owned GNPC also plans to partner with some foreign oil companies to operate a number of blocks. GNPC, in line with its strategy to acquire capacity to conduct petroleum operations on its own, has also taken commercial interest in a number of blocks through the establishment of joint venture companies.

4.2 Oil and Government Revenue

Since 2011, Ghana has been receiving oil revenues which may continue for the next 20 years and beyond. In 2011, crude oil exports amounted to US$2.8 billion, corresponding to a daily average production of 66,290 barrels. Total government oil revenue in the year amounted to US$444.1 million, which was equivalent to 16.0 percent of total oil export receipts, and the government's share of total oil production was 16.2 percent. Oil exports increased to US$3.0 billion in 2012, reflecting an average daily production of 71,997 barrels. Total government oil revenues increased to US$541.5 million, reflecting both an increase in price and crude oil production. In 2013, crude oil exports amounted to US$3.9 billion,

Table 1. Ghana: Petroleum Revenues, 2011-2014 (US 'million)

Source	2011	2012	2013	2014
Carried and Participating Interest	321.2	390.4	453.6	499.3
Royalties	122.9	150.7	175.4	192.8
Surface Rentals	-	0.4	0.8	1.8
Corporate Income Tax	-	-	217.0	284.5
Others (Price differences; PHF interest)	-	-	-	0.4
Total Government Oil Revenue	444.1	541.5	846.8	978.8
Memorandum Item				
Oil Revenue/Total Revenue and Grants (%)	5.3	5.9	8.5	11.2
Oil Revenue/GDP (%)	1.2	1.3	1.8	2.5
Total Oil Exports (US$' million)	2.8	3.0	3.9	3.8
Oil Revenue/Total Oil Exports (%)	16.0	18.2	21.8	26.3
Oil Production (Jubilee: barrels/day)	66,290	71,997	99,685	101,976
Government's Share of Oil Production (%)	16.2	18.7	19.1	20.6
Oil Exports/Total Exports (%)	21.7	22.0	28.3	28.2
Average Brent Crude Price/Barrel (US$)	110.9	112.8	108.7	99.4

Source: Bank of Ghana Statistical Bulletin (various issues); Ghana Statistical Service (2015); Ministry of Finance (2013)

equivalent to 28.3 percent of the country's total merchandise exports. This corresponded to a total production of 35.59 million barrels of crude oil (an average of 99,685 barrels per day), compared to 2012 total production of 26.35 million (an average of 71,998 barrels per day). In 2013, higher-than-projected oil revenue outturns resulted in a windfall, with the actual petroleum revenues of US$846.8 million exceeding the projected revenues by US$265.05 million, and representing an increase of some 46 percent. This was due to higher prices, increased crude oil production and the receipt of corporate income tax from operators. Oil exports dropped to US$3.8 billion in 2014 due mainly to the fall in prices, but total government oil revenues increased to US$978.8 million, or by 15.6 percent than was received in 2013. This was due to the increase in both corporate income tax and royalty payments, which increased by 31.1 percent and 9.9 percent, respectively in the year (see Table 1).

4.3 Oil Revenue Management

To ensure that Ghana was properly positioned and adequately prepared to manage the new oil boom, the government decided to pass a law to govern the management of oil revenues even before production came on stream. To this end, civil society groups, academics and the general public were afforded the opportunity to contribute in harnessing ideas to ensure effective administration and management of the oil resources. Following from the public discussions and extensive consultations, the government prepared and placed before Parliament in November 2010 a Petroleum Revenue Management Bill for consideration and passing into law, one month before the first oil production in commercial quantities came on stream. The Bill was passed into law on April 11, 2011, giving birth to the Petroleum Revenue Management Act (PRMA), 2011 (Act 815). The Act provides for a portion of the oil revenue to be used for budget support, viz. the Annual Budget Funding Amount (ABFA), and portions for Petroleum Funds (Stabilization Fund and a Heritage Fund). The objective of the Ghana Stabilization Fund (GSF) is to cushion the impact on or sustain public expenditure capacity during periods of unanticipated oil revenue shortfalls while the Ghana Heritage Fund (GHF) is an endowment for the benefit of future generations. Rules governing movement of funds into and out of the Petroleum Funds define clearly the circumstances under which such transfers to the consolidated budget can be made, the amounts and frequency. The Act provides for 70% of oil revenues to go to the ABFA, and that 70% of the ABFA must be used to fund investments that facilitate long-term growth and transformation of the economy.

Ghana also passed a local content law in November 2013 to enhance local participation in the oil and gas value chain. Since then, there has been significant improvement in the level of local participation in the award of contracts. Between 2008 and the first quarter of 2014, about US$584 million worth of contracts were awarded to Ghanaian companies. And as at December 2013, about 152 Ghanaian companies out of 232 companies registered with the Petroleum Commission were providing direct and indirect services to the upstream industry. A total of 6,929 personnel were also employed in the petroleum upstream sector, comprising 5,589 Ghanaians and 1,340 expatriates (Adams, 2014).

4.4 Net Oil Exporter or Importer?

In 2011, when crude oil began to be exported, it added to cocoa and gold as Ghana's major export commodities, which together accounted for more than 80% of the country's total export revenue. Having trailed behind gold and cocoa in 2011, oil became the second biggest export revenue earner starting from 2012, when it contributed 22 percent of the country's total export revenue. Export revenue from cocoa declined to 20.9% in 2012 while revenue from gold increased to 41.6%. In both 2013 and 2014, the share of oil export revenue in total export revenue significantly increased while those of cocoa and gold declined (see Table 2). Thus, oil has not only become one of the three major export commodities in Ghana but its contribution to total export revenue has been on the increase since its coming on stream. This has happened despite the fact that the country has not yet begun to export oil from the second phase of exploration, which is poised to begin in 2016 barring any unforeseen circumstances.

During the first two years that Ghana exported oil, it was a net importer of the commodity. In 2011, the country exported 24.7 million barrels of crude oil earning US$2.78 billion in revenue while it imported 11.70 million barrels of crude oil in the same year costing US$1.34 billion in expenditure. Ghana, however, spent an additional US$1.64 billion on imports of refined oil products. In total therefore, the country imported oil products amounting to US$2.99 billion in 2011, which was US$210.0 million more than its total receipts from oil exports. In 2012, the country imported 7.5 million barrels of crude oil at the cost of US$885.52 million and refined oil products amounting to US$2.32 billion, bringing the total oil imports to US$3.20 billion. Receipts from oil exports, on the other hand, amounted to US$2.98 billion in 2012, implying that oil imports exceeded oil exports by US$220.0 million in 2012 (see Table 3).

Table 2: Ghana. Exports of Crude Oil, Cocoa and Gold (% of Total Export Revenue)

Commodity	2011	2012	2013	2014
Crude Oil	21.7	22.0	28.3	28.2
Cocoa Beans and Products	22.5	20.9	16.5	19.8
Gold	38.5	41.6	36.1	33.2
Total	82.7	84.5	80.9	81.2

Source: Bank of Ghana

Table 3: Ghana: Exports and Imports of Oil, 2011 – 2014

Item	2011	2012	2013	2014
Exports				
Value (US$' million)	2,778.53	2,976.10	3,885.1	3,725.0
Volume (barrels in million)	24.73	26.43	36.05	37.98
Unit Price (US$/barrel)	112.35	112.60	107.80	98.10
Imports				
Total Value (US$' million)	2,992.62	3,201.89	3,453.69	3,502.98
Crude Oil (US$' million)	1,339.75	885.52	1,051..80	525.2
Volume (barrels in million)	11.69	7.55	9.27	4.87
Unit Price (US$/barrel)	114.54	117.33	113.40	107.80
Refined Oil Products (US$' million)	1,652.87	2,316.40	2,401.90	2.977.80

Source: Bank of Ghana (Statistical and Quarterly Bulletins, various issues)

Export of crude oil increased substantially to 36.15 million in 2013 and 38.0 million barrels in 2014, increasing total receipts from oil exports to US$3.9 billion in 2013 and US$3.7 billion in 2014. On the other hand, total expenditure on oil imports increased slowly to US$3.4 billion in 2013 and US$3.5

billion in 2014. This means that Ghana actually became a net exporter of oil from 2013. It is important to point out that this has taken place despite the fact that Ghana has increasingly relied on imports of refined oil products which cost a lot more than crude oil because of value addition. Furthermore, the country has also been importing crude oil at a significantly higher price than it exports in each year since 2011 (see Table 3).

5.0 The Resource Curse Phenomenon

Although the discovery of oil in commercial quantities was greeted with joy, some Ghanaians were skeptical that the country may be plunged into the resource curse syndrome. This is because, countries that have high ratios of natural resource exports to GDP tend to have lower growth performance than those that are less reliant on natural resources. Nevertheless, the experiences of countries such as Norway, the UK, Thailand, and Malaysia gave hope that the natural resource curse could be avoided if there were strong institutions and well-designed policies in place before extraction began. Unfortunately, this is not the situation in many Africa countries where institutions appear to be too weak to manage properly the varied interests that evolve from the development of their extractive industries. The history of natural resource exploitation and management in Africa is certainly not a very positive one. Numerous poor examples have often been cited to support this view, and the most recurring ones being the situations in Nigeria, Cameroon and Gabon.

While the issue of oil curse and the skepticism surrounding the oil find and production were a concern to Ghanaians, the fact of the matter is that the country's exports are relatively more diversified than many oil-producing countries in Africa. Ghana receives billions of dollars from cocoa and gold exports as well as from a couple of non-traditional exports. This indicates that the country does not depend wholly on oil revenues to deal with its macro-fiscal challenges and is therefore in a far better position to manage it more effectively. Also, given the broad experiences of oil-rich economies available to Ghana, its strong institutions, policies and stable democracy, there is ample opportunity for the country to derive significant benefits from the discovery.

6.0 Impact of Falling Crude Oil Prices

Crude oil prices have been falling sharply on the world market since July 2014. For Ghana, the slump in oil prices has serious negative implications for economic growth, fiscal management, and macroeconomic stability. These issues are discussed below.

6.1 Economic Growth

Ghana's real GDP growth is set to decline substantially as fiscal adjustment in response to the oil shock dampens economic activity. The projection is that real GDP growth will decline to 3.5 percent in 2015 from 4.0 percent in 2014 and 7.3 percent in 2013 before recovering over the medium term. The lowered prospects for real GDP growth will act as a disincentive for private investment and weaken the country's capacity to diversify away from oil-related sectors. This will reinforce the direct effect of lower investment in the oil sector stemming from the continuous depressed oil prices as well as the impact of the exchange rate depreciation on private sector balance sheets, and hence on investment (IMF, 2015). With the oil prices plummeting, oil fields investors in the country may find it uneconomical now to drill some new fields or continue working on some of the existing ones which have complex formations and high cost structures. This is especially so for offshore fields for which operations are likely to be scaled down for some time, until the price shoots up again to beyond the US$80 mark considered to be the break-even price for many oil producers.

The impact of the crude oil price slump on the development of the TEN fields may be minimal if any at all. This is because all the major contracts for the conversion of the new FPSO, subsea infrastructure, and a drilling rig have been completed. The TEN fields have estimated recoverable reserves of 245 million barrels of oil and 365 billion cubic feet of gas. The project will cost US$4.9 billion (excluding the FPSO lease cost) to come on stream, with the first oil expected in 2016. According to Tullow Oil (the major partner in the TEN development), the company will focus the majority of its capital expenditure in 2015 on high-quality, low-cost oil production in West Africa which generates important cash flows for its business. To this end, the company has allocated US$1.21 billion to the Jubilee and TEN developments in 2015 (see Tullow Oil, July 2015). In its highlights for the quarter ended in June 2015, Kosmos Energy (the other major partner in the Jubilee and TEN developments) also indicated that the TEN project is approximately 65 percent complete and remains on schedule to produce its first oil in the third quarter of 2016 (see Kosmos, August 2015). Output from the fields is expected to reach a high of 80,000 barrels a day. The *Sankofa-GyeNyame* block is predominantly a gas discovery and as such it is not wholly dependent on oil prices to break-even. Technical appraisal works, including commercial assessment, have been completed on the block and it is estimated to hold 116 million barrels of oil and 1.11 trillion cubic feet of gas reserves. Oil from this field is expected to come on stream in the last quarter of 2016 with the first gas following a year later. Gas from TEN and *Sankofa-GyeNyame* fields are critical to Ghana's medium term plans. They are expected to deliver at least 5,000MW of energy generation capacity to fuel the country's industrialization program (Acheampong, 2014).

Ghana and its partners are hopeful of increasing the country's oil production when the TEN project is completed in 2016. But all may not be well as the economics of the project begin to realign to market conditions. It has been reported that the commercial viability of the TEN fields' project was based on an oil price of US$80 per barrel. With oil prices below US$60 per barrel, analysts are skeptical about the schedule of the TEN project. Tullow Oil, the operator of the project together with GNPC, has applied a greater share of its capital in 2015 to its core oil projects in West Africa including the Ghana TEN project. This development has taken place at the expense of the company's projects in other countries. Tullow Oil has operations in Kenya, Uganda and Mauritania and it is not clear yet what the strategy of its partners in the project will be as uncertainty about market conditions continues. It is good news though that Tullow Oil and GNPC consider the project a high priority for them given that they both need higher production levels to meet financial commitments in other projects. Tullow for instance has largely funded some of its African operations with revenues from Jubilee, whilst GNPC has outlined ambitious investment projects to position itself as a major player in the industry. However depending on how long the oil crash holds, circumstances may warrant a review of plans by the partners (Adams, 2014).

6.2 Fiscal Impact

The fall in crude oil prices on the world market since July 2014 presents serious challenges to sustainable fiscal management in Ghana. The 2015 Budget estimated total revenue from oil at US$1.24 billion (GH₵4.2 billion), equivalent to 3.1 percent of GDP using a benchmark price of US$99.38 per barrel and output of 37.4 million barrels. Of the total oil revenue, the ABFA was estimated at US$721.82 million and the Ghana Petroleum Funds were to receive US$309.35 million to be distributed between the GSF and the GHF in the order of US$216.54 million and US$92.81 million, respectively. For 2016 and 2017, the projected benchmark prices are US$102.37 and US$99.90, respectively; the estimated outputs are 42.31 million barrels for 2016 and 54.96 million barrels for 2017; and estimated revenue of US$1.44 billion in 2016 and US$1.71 billion in 2017 (GoG, 2014).

Available information indicates that Ghana's oil output is expected to remain unchanged at the 102,033 barrels per day used in the original 2015 Budget. But, as oil prices plunged, the government moved to revise down substantially the oil revenues indicated in the 2015 Budget. Total petroleum receipts for fiscal year 2015 have been dropped by a whopping GH₵2.4 billion or 58 percent, from GH₵4.2 billion to GH¢1.8 billion, based on the IMF's forecast price of US$52.8 per barrel (GoG, 2015). Consequently, the

government revised downwards revenues from taxes on domestic goods and services as well as non-oil taxes on income and property relative to the original estimates in the 2015 Budget by GH¢358.7 million. In addition, a substantial decline in corporate income tax revenue from oil companies, arising from the huge drop in total petroleum receipts, was also announced in the revised 2015 Budget. Revenue from company taxes on oil was revised downwards to just GH₵52.5 million from GH₵1.65 billion contained in the original 2015 Budget. This is because the production costs for some of the oil companies will outstrip their revenues and result in losses.

Apart from the direct impact on petroleum receipts, the decline in crude oil prices is also likely to impact negatively on revenue from the special petroleum tax announced in the 2015 Budget. For this new tax, an amount of GH¢185.6 million was initially estimated to be lost, but the figure was revised downwards to GH₵124.4 million in the mid-year budget. In total, domestic revenue for 2015 is expected to drop by GH₵2.2 billion to GH¢28.5 billion, reflecting a shortfall of 7.6 percent. The drop in domestic revenue resulting from the decline in crude oil prices could slightly be reduced by the expected increase in grant disbursements, following the approval of a three-year arrangement under the Extended Credit Facility by the IMF and pledges from development partners to disburse additional GH¢381.1 million to support the 2015 program (GoG, 2015). Despite this, total revenue and grants for 2015 was revised downwards by GH₵1.9 billion or 5.8 percent, from GH₵32.4 billion (24 percent of GDP) to GH₵30.5 billion (22.8 percent of GDP) mainly on account of lower oil revenue projection.

On the expenditure side, periodic budget ceilings given to ministries, departments and agencies (MDAs) were all revised downwards and across the board reductions of GH₵344.0 million in expenditure ceilings on goods and services were effected. Domestic-financed capital expenditure was revised downwards by GH₵722.8 million to GH₵1.8 billion while foreign-financed capital expenditure was revised upwards by GH₵123.1 million to GH₵4.5 billion, bringing the total cut in capital expenditure estimated in the revised budget to GH¢599.8 million. With these cuts, capital spending has fallen from 26 percent to 17 percent of total government expenditure and grants since oil production began in 2011. The cut in domestic-financed capital expenditure was the result of the expected drop in the ABFA, from which a minimum of 70 percent is expected to be used to support investment expenditures in line with the PRMA. The estimated transfer to GNPC from the government's carried and participating interest in oil is also reduced to GH¢497.9 million from GH₵679.9 million due to lower estimated oil revenue. Efforts were also made to remove costly fuel subsidies by deregulating the petroleum market. In summary, the estimate for total expenditure and arrears clearance for 2015 has been revised downwards by GH¢1.5 billion, from GH¢41.2 billion (equivalent to 30.5 percent of GDP) to GH¢40.2 billion (equivalent to 29.8 percent of GDP. Based on the revised estimates, the fiscal deficit for 2015 was revised upwards to GH¢9.7 billion, from the original target of GH¢8.8 billion. This implies that the projected fiscal deficit increases to 7.3 percent of GDP for 2015 from the original target of 6.5 percent of GDP.

At US$100 per barrel reference price and based on output of about 103,000 barrels per day, the country could earn over US$700 million annually from oil exports excluding corporate tax receipts, surface rental and other charges. However, at a price level between US$60 and US$70 that figure plummets below US$500 million on the same output basis, complicating the country's efforts to dig out of the deep budget deficits and help finance critical infrastructure to support economic growth. With the oil price plummeting to below US$60 per barrel the Ghanaian economy and its budget are being subjected to serious economic shocks, triggering costly economic adjustments. The results have been persistent fiscal deviations from planned targets, delay of critical investments, and undermining of economic growth.

When oil production came on stream in December 2010, it was expected that oil revenues would help reduce government borrowing from the open market (which tends to increase interest rates) and thus make more funds available to the private sector. In the short-term, it was expected that the country would require additional external resources as it went through a transition period of relatively low oil revenues and institution-building to better manage higher levels of oil revenue in the future. The

medium-term expectation of oil revenues' impact on borrowing has been undermined by the falling prices and has rather necessitated increased borrowing by the government. A recent study by the Institute for Fiscal Studies (IFS) shows that Ghana's public debt situation has worsened in recent years in spite of the coming on stream of oil revenues, and the country now faces a high risk of debt distress and increased overall debt vulnerability. Total public debt service-to-revenue ratio (including payments on external and domestic debt) has not only assumed a rapidly increasing trend but has breached its indicative long term threshold. Debt service now absorbs a large part of domestic revenues, leaving the country vulnerable to shocks (IFS, 2015). All other debt indicators have deteriorated owing to tight domestic and external borrowing conditions, weak fiscal consolidation and weakening of the domestic currency, pointing to a greater risk of sovereign debt default over the medium term (see Blomberg, July 28, 2015).

6.3 Impact on Petroleum Funds

The situation in Ghana is that domestic benchmark crude oil prices are determined by rules stipulated in the PRMA as the seven-year moving average of dated Brent crude price (the reference marker crude price). In the event that the crude oil price on the international market falls below the projected domestic benchmark price, the government may have to make withdrawals from the GSF to augment the ABFA, and this has been the situation since the oil price fall in July 2014. The 2015 Budget, for instance, anticipated the impact of the continuous decline of crude oil prices and its implications for the fiscal position for the year in terms of revenues losses, yet the government was handicapped in terms of its ability to revise down the reference benchmark price. Hence, with the projected 6.94 million barrels of the country's share of oil production in 2015 and a benchmark price of US$99.38 per barrel, the projected total revenue at the benchmark price for the year is US$689.89 million, which at the government's revised projected price of US$58.00 per barrel translates into a loss of US$294.31 million (see Table 4).

Table 4. Ghana: Crude Oil Production and Revenues, 2010 – 2015

Item	2010*	2011	2012	2013	2014	2015**
Total Oil Production (ml bbl.)	1.22	24.20	26.35	35.59	33.96	37.24
Ghana's Interest (%) ***	18.64	16.53	18.71	16.27	20.49	18.64
Ghana's Share (bbl.)	0.0	4.00	4.93	5.79	6.96	6.94
Crude Oil Price (US$/bbl.)		111.0	109.8	108.7	93.34	99.38
Crude Oil Price (US$/bbl.)						57.00
Revenue at Benchmark Price (US$' ml)		444.1	541.1	629.4	649.65	689.89
Revenue at Lower Price (US$' ml)						395.58
Revenue Loss (US$' ml)						294.31

Source: Bank of Ghana Statistical Bulletins (various issues) Government of Ghana (2014; April 2015)

*production commenced in December 2010 and Ghana's entitlement was carried over to 2011

**represents benchmark projections

***comprising royalty, carried and participating interest

As a result of the oil revenue losses resulting from the continuous price fall below the projected benchmark prices, the GPF received a zero allocation during the first half of 2015, while the GNPC received US$66.3 million and the ABFA took US$147.2 million. Table 5 shows that total inflows to the GPF increased sharply from US$24.1 million in 2012 to US$388.2 million in 2014, with the allocation to the GSF increasing from US$16.9 million to US$271.8 million and the allocation to the GHF also increasing from US$7.2 million to US$116.5 million over the period. Income from investment of the Petroleum Funds also increased from US$0.27 million in 2012 to US$5.88 million in 2014.

Table 5. Ghana Petroleum Funds, 2012-2014 (US$' million)

Item	Ghana Stabilization Fund			Ghana Heritage Fund			Ghana Petroleum Fund		
	2012	2013	2014	2012	2013	2014	2012	2013	2014
Opening book value	54.81	71.90	319.03	14.40	21.69	128.13	69.21	93.59	447.16
Inflow during the year	16.88	245.73	271.76	7.24	105.31	116.47	24.12	351.05	388.23
Income from investment	0.21	1.41	1.55	0.06	1.13	4.33	0.27	2.54	5.88
Withdrawal	-	-	305.68	-	-	-	-	-	305.68

Source: Government of Ghana (April 2015)

In addition, in early 2014, the government, already aware of the debt and debt sustainability challenges confronting the country, took a decision to cap the GSF at US$250 million. This allowed the government to use savings above the designated level and any future excess amount to fund the growing budget deficit. By the end of 2014, US$305.68 million had been taken away from the GSF, and projections of "excess" petroleum savings had become an integral part of government's debt repayment plans. In the 2015 Budget, the government sought parliamentary approval to raise the cap on the GSF in the first quarter of 2015 to US$300 million with the excess amount over the cap to be treated as follows:

- 50 percent to be paid into the Sinking Funds to build up resources to meet specified debt obligations of the government;
- 25 percent to be paid into the Contingency Fund established in May 2014; and
- The remaining 25 percent to be deposited back into the GFS.

In March 2015, the government indicated that an amount of GH¢487.2 million will be withdrawn from the GSF on a quarterly basis during the year to close the revenue gap in the Budget. During the first five months of the year, however, an amount of GH₵205.7 million was withdrawn by the government from the GSF to help finance the budget (GoG, July 2015). In tabling the 2015 revised Budget in July, the government proposed to reduce the cap on the GSF further to GH₵150 million for the rest of the year without indicating how the excess amount over the cap will be used (see GoG, July 2015). In the absence of detailed provisions in the PRMA for managing the GSF, the decision to cap the Fund and also withdraw money from it risks turning future petroleum revenues into a lifeline for an unsustainable fiscal deficit and thus increases the budget's overall vulnerability to oil price falls.

Another serious concern with the Ghana Petroleum Funds is that, during the first half of 2015, the investment of the GSF yielded 0.47 percent return while the investment of the GHF returned negative 0.54 percent return. These results were in sharp contrast to what was recorded in the second half of 2014, which saw the GSF return 1.47 percent and 5.37 percent for the GHF. The net return on investment of the GPF reached US$10.91 million during the first half of 2015, compared to the US$8.64 million recorded in the second half of 2014. The poor performance of the Funds in the first half of 2015 is a grave concern if they are to serve as a buffer for the economy in the future. Already the government has planned to withdraw US$487.2 million from the GSF to support the 2015 Budget, since the crude oil price fall has caused a revision of the oil revenue forecast for the year by GH₵2.4 billion or 58 percent. The zero allocation to the GSF and GHF during the first half of the year is also in sharp contrast to the combined US$215 million allocated to the two funds in the second half of 2014 (BoG, 2015) despite the country making more than US$274 million from the lifting of crude oil within the period. This is set to reduce the Funds' size and ultimately when oil prices fall there will be a larger hole to manage than would have otherwise been the case.

6.4. Macroeconomic Implications

Besides the fiscal implications, cheaper fuel helps the country to contain inflation by keeping import costs down. For consumers therefore, the fall in fuel prices is beneficial as it implies an increase in disposable

income. Unfortunately, the current setup of the country's downstream petroleum sector is such that crude oil price downswings are unlikely to lead to any significant drop in petroleum product prices at the pump. This is because until the recent deregulation of petroleum prices, the downstream sector consisting of oil marketing companies, oil trading companies, and bulk distribution companies which handle petroleum products supply and distribution in the country under the regulatory authority of the National Petroleum Authority (NPA) were operating in a pseudo oligopolistic market where prices are rigid downwards. The tendency for petroleum products prices to go up due to the oligopolistic market structure is reinforced by huge taxes and duties on petroleum products and under-recoveries on account of foreign exchange losses by fuel importers.

The falling crude oil prices will also affect the country's trade balance, current account, and foreign reserves. Ghana's oil and gas import bill increased steadily from US$3.0 billion in 2011 to US$3.5 billion in 2014, despite the coming on stream of oil in 2011. As a percentage of GDP, oil imports increased from 8.0 percent to 9.6 percent between 2011 and 2014. Consequently, the oil trade balance which moved from a deficit of US$386.9 million in 2011 to a surplus of US$334.6 million in 2013 had by end-2014 reduced sharply to US$65.1 million (Bank of Ghana, 2013; 2014). The fall in crude oil prices from about US$115 per barrel in July 2014 to about US$42 per barrel in August means that Ghana's oil imports bill has been trimmed by over US$60 per barrel, with positive impact on the trade balance.

The 2015 National Budget also staked the medium term receipts from oil and gas on higher prices, so with the falling prices, the expected foreign exchange inflows and thus the country's foreign reserves are set to reduce. This development is having a serious impact on the exchange rate of the cedi which was tumbling even before the oil prices started dropping in July 2014. For 2014, the cedi depreciated against all major international currencies, most notably against the dollar by almost 30.9%, and in the first five months of 2015, it tumbled by nearly 20 percent. Should the sharp depreciation of the cedi exchange rate continue when interest rates are rising this will also have serious negative effects on the country's financial institutions. Currently, foreign liabilities of commercial banks are relatively small and net foreign asset positions have remained stable until end-December 2014, albeit with some minor variations across the banks. Gross foreign liabilities have however increased and there are some huge loans to the energy sector. Should the pressure on the cedi exchange rate not abate, the huge loans in the energy sector will be at risk.

7. Mitigating the Risks of Oil Price Volatility

At the peak of the surge in oil prices from 2004 to mid-2008, nearly all developing countries intervened with price-based policies to mitigate the price increase on the world market. Ghana, which had liberalized fuel prices in February 2005 and set price ceilings in line with world prices, froze the ceilings between May and November 2008. As the oil price upsurge continued, the government discussed the possibility of hedging but did not pursue it. The large fall in the price after August 2008 provided some breathing space, and consequently, in March 2009, the new administration lowered fuel taxes in response to the falling world prices to ease the financial burden on consumers. The government also started exploring the possibility of hedging crude oil prices as part of the measures to reduce the impact of the oil shock on the economy. On March 11, 2010, Cabinet approved a Commodity Price Risk Management Policy submitted jointly by the Minister for Finance and Economic Planning and the Minister for Energy. The primary objective of the program was to contain the phenomenon of crude oil price volatility, achieve price stability and guarantee the availability of petroleum products on the domestic market. A nine-member Risk Management Committee was inaugurated to oversee the program, with initial focus on petrol and diesel purchases. Hedging of crude oil exports was to be considered at a later date. The Committee was later reconstituted as a National Risk Management Committee with representatives from the Ministries of Energy and Finance, Attorney-General's Department, Bank of Ghana, Ghana National Petroleum Corporation, Cocoa Marketing Company, and Volta River Authority (IFS, 2015). In addition, the Ministry of Finance strengthened the institutional capacity by training five young economists in hedging with the support of Goldman Sachs and other international financial institutions.

The hedging program commenced in October 2010 and involved the purchase of both 'call' and 'put' options from counterparty banks. The call option specified a strike price which was a cap on the price of crude oil purchases over the duration of the option, thus insuring against price volatility around the cap, which was settled in cash by the counterparty banks in the country's favor. The put option gave the country the right, but not the obligation, to sell crude oil at a set price over its duration.

Initially, the government hedged at a strike price of US$82.50 per barrel on monthly imports of 1,000,000 barrels. Subsequently, as the market price of crude oil went up, the strike prices were adjusted upwards to contain the cost of the hedge. Despite forecasts by the World Bank and the IMF that the price of a barrel of crude oil would remain below US$80.00 in 2011, the government went ahead to hedge at US$82.50 per barrel. The government's foresight was proven right when four months later crude oil price surged past US$115.00 per barrel. As a result of this success, the scope of the hedging program was expanded to cover 100 percent of the country's oil imports, beginning in July 2011. By the end of 2011, the government had hedged 2,000,000 barrels per month at an average strike price of US$115.00 per barrel. In January 2012, a decision was taken to hedge on a quarterly basis (IFS, 2015).

The scope of the hedging program was expanded in May 2011 to include crude oil exports and thus protect the government's projected oil revenues for the 2011 and 2012 fiscal years. The instrument used was a put option under which the country had the option to sell crude oil at a price of US$107.00 per barrel through to the end of 2011. The government was guaranteed this minimum price for its exports, which helped to stabilize the projected oil revenue in the 2011 and 2012 national budgets.

The hedging program was very successful and, together with other prudent policy measures pursued by the government, it brought about one of the longest periods of monetary and fiscal stability in the history of Ghana's economic management. In the first two months of the hedging program, marginal losses were made, but thereafter the program recorded net surpluses which reached US$98.4 million (net of premium costs of US$63.7 million) in August 2011. The key benefit however was the stabilization of prices of petroleum products, which were partially protected even as crude oil prices soared from $78.00 per barrel in September 2010 to $125 per barrel in April 2011. The frequency of petroleum price adjustments was therefore reduced. The success of the hedging program in 2010-12 showed that with a structural plan and clear goals, hedging against fuel price volatility can have a significantly positive effect on the national economy. It needs to be emphasized that Ghana's hedging program was not designed to make speculative profits, but was primarily an insurance program to ensure a predictable maximum price for consumption and a minimum price for exports over a reasonable period (IFS, 2015).

The oil price fall since July 2014 presented a golden opportunity to Ghana. On the consumption side, the resultant drop in oil imports bill should help the government to end fuel subsidies and also reduce petroleum product prices at the pump. On the production side, the government could have taken a "put" option to protect the risks of oil revenue losses resulting from the price fall. On both sides therefore, there could have been a positive impact on the national budget. Unfortunately, a benchmark oil price of US$99.38 per barrel was factored in the 2015 national budget and with prices falling to below US$50 per barrel with no hedging in place, this had a negative impact on the national budget and exposed the country to huge risks.

8. Policy Recommendations

8.1 Oil Revenues and Fiscal Space

Oil revenues are expected to create important fiscal space for the country to meet development objectives of accelerated growth and poverty reduction. There is therefore the need to pursue fiscal policy rules that ensure fiscal sustainability to cushion the economy against revenue volatility and

economic underperformance. For this reason, the rules governing the use of the GSF should be reviewed to make the Fund operate as savings for the country that can only be used during national emergencies. The view here is for the government to adopt a countercyclical fiscal policy stance, viz. save the windfall oil revenue during price upswings and use these buffers during downswings. The effectiveness of such a countercyclical policy stance, however, depends on the degree of monetary policy autonomy and the level of net public debt. At high levels of debt such as Ghana's current situation, debt reduction should become a priority to help reduce the sovereign risk premium and build credibility prior to adopting a countercyclical fiscal policy. The passing of the Petroleum Revenue Management (Amendment) Act, 2015 to incorporate a lower benchmark price over the course of the fiscal year regardless of the seven-year moving average and also secure a revenue stream for the GSF and GHF by allocating at least 30 percent of oil revenue to the Funds irrespective of whether the projected benchmark revenue or ABFA is realized or not is in the right direction.

8.2. Reduce Tax on Petroleum Products

While for fiscal reasons it is very tempting to increase taxes on petroleum consumption during periods of oil price fall, the government should not lose sight of the fact that the private sector can easily be frustrated and discouraged, and thus economic growth undermined by continuous high petroleum products prices despite the low crude oil prices. Many Ghanaian homes and businesses now have standby generator sets because of the unreliable supply of electricity from the national grid, increasing demand for petroleum products and thus prices. The government should therefore consider reducing taxes on petroleum products, especially the 17.5 percent special tax on petroleum, so that the private sector can take advantage of the lower oil prices and play a more active role in propelling the economy to increase its pace of growth. This issue becomes even more pressing with the deregulation of petroleum prices and the continuing energy crisis.

8.3 Strong Institutions and Discipline

Strong institutions and discipline are required to implement fiscal policies to achieve success. Ghana needs to work to improve the public financial management system, especially with regard to the budget processes. A strong and open public financial management system which ensures that citizens are well informed about the size of oil revenues, the rate of its spending and the composition of spending is very necessary. It will also introduce sound budget procedures and accountability systems and improve expenditure planning. The development of a sound institutional framework is also very important if the country is to avoid the fiscal challenges that accompany oil booms. This will open up public institutions for scrutiny by citizens on the management of public resources.

The government also needs to amend the Financial Administration Act (FAA) and its accompanying Regulations (FAR) to address some of the institutional weaknesses and introduce some fiscal rules, discipline, accountability and sanctions in the management of public resources. Whilst a strong FAA may restrict spending powers, it is important to institute it because the cost of fiscal mismanagement in the country's public sector is quite huge. Whilst budget allocations may be appropriate, the efficiency of spending in many areas to ensure value for money is negligible. There is also the need for a more transparent process in the management of oil revenues and the budget.

In addition, the government needs to enact a legislation to prohibit oil-backed and forward loans. The danger with these transactions is that oil is exhaustible and its prices are volatile, therefore a commitment of oil to commercial transactions subjects the country to serious future fiscal challenges, particularly when oil prices become volatile. Oil-backed and some forward loans have high interest rates and short maturities that favor banks and not the state. They undermine fiscal sustainability and adversely affect intergenerational equity. The government may also consider adopting a prudent fiscal policy around a sustainable path for the non-oil fiscal deficit over the medium-term.

8.4 Hedging

For over a year now crude oil prices have been tumbling on the international market. Since the country's hedging program has not resumed, the economy is unable to withstand the impact of the external shock, which is reinforcing macroeconomic instability and slowing down economic growth. Already, the cedi exchange rate has slumped nearly 20 percent in the first five months of the year. The continuous fall in oil prices has negatively impacted the country's balance of payments, foreign reserves, household and business activities through the weak foreign exchange inflows and lower corporate tax receipts.

To mitigate the risks of the oil price downswing, Tullow Oil and Kosmos Energy, the two largest oil producing companies in Ghana, have implemented hedging programs. The two companies are the major partners in the development of the two major oil development projects in Ghana, i.e., the Jubilee and TEN fields. As Table 5 shows, approximately 60 percent of Tullow's 2015 entitlement of oil sales are hedged with an average floor price of around US$86 per barrel, with further hedges in place for 2016, 2017 and 2018. According to the company, the hedging program provided it with revenue protection during the first half of 2015, resulting in a realized post-hedge oil price of US$70.6 per barrel and a positive mark-to-market value of oil commodity hedging program of approximately US$0.3 billion as at end-June 2015 (see Tullow, July 2015.). For Kosmos Energy, some 3.1 million barrels of oil are hedged in 2015 at an average protected floor price of US$89.41 per barrel. Kosmos also has future hedging programs in place under which 6.0 million barrels of oil are hedged for 2016 at an average floor price of US$81.67 and 2.0 million barrels are hedged for 2017 at an average floor price of US$72.50 (see Table 5).

Table 5. Tullow Oil and Kosmos Energy Crude Oil Hedging Program

Item	2015	2016	2017	2018
Tullow Oil				
Volume (bopd)	35,500	31,257	19,500	5,000
Average Floor price protected (US$/bbl)	85.98	79.29	76.68	68.04
Kosmos Energy				
Volume (millions of barrels)	3.1	6.0	2.0	
Average Floor price protected (US$/bbl)	89.41	81.67	72.50	

Source: Tullow Oil (July 2015); Kosmos Energy (August 2015)

Given that crude oil price may not recover to US$80.00 before the end of 2015, the government should move quickly to resume the hedging program to ensure price stability for domestic petroleum products. The government also needs to undertake the required adjustments now to ensure that its fiscal consolidation objectives are not undermined. The decision to set up a Mitigation Fund to hedge the pump price when oil prices start to rise is a good initiative which should be implemented without delay.

8.5. Ensure Domestic Processing of the Country's Own Crude Oil

Ghana imports crude oil at higher prices than it exports its own crude oil despite the perception that the country produces higher grade oil (see Table 3).With the volumes of crude oil imported into Ghana, the country could have saved over US$160 million in oil consumption cost between 2011 and 2014 had the oil importers purchased the crude oil produced in the country and thus saved insurance and freight costs. For this reason, arrangements should be made so that crude oil importers can buy Ghana's own oil and

save costs. But before this can work, the necessary steps should be taken to enable local refining of the crude oil produced in the country to be undertaken to serve the nation, minimize cost and help save foreign exchange.

8.6. Build Strategic Reserves

The current slump in oil prices is a fleeting window of opportunity for the country to grab. It is now a buyers' market and importers (consumers) of oil should experience considerable savings on their oil import bills. While steps are being taken to ensure domestic refining of the country's own crude oil, in the meantime the government should exploit the opportunity and build more strategic reserves against future rise in price. It is time to build underground storage tanks filled with crude oil across the country. Perhaps, the government may rise to the challenge by taking a cue from some countries such as South Africa and the USA where huge strategic oil reserves are maintained.

9. Conclusion

For Ghana, the fall in crude oil prices poses a serious threat because it is leading to significant reduction in oil revenue which would worsen the projected fiscal deficit in 2015 and in the medium term. This development will have serious negative implications for macroeconomic stability and economic growth in the country. The country's economic recovery therefore seems to be inextricably linked to the recovery of oil prices. As a primary commodities exporting nation, the weaknesses of the domestic currency relative to the major international currencies will be reinforced by the lower oil prices with the resultant decline in foreign exchange inflows and lower corporate tax receipts. This has the potential to significantly affect the country's gross international reserves and balance of payments.

There is also no doubt that a recovery in oil prices and thus revenues will provide fiscal relief to the Ghanaian economy. However, this requires sound fiscal policies to ensure prudent and sustainable utilization of these resources. It needs to be recognized that many countries in the developing world with abundant natural resource wealth have not been able to turn this wealth into lasting benefits for their people and Ghana may not be an exception if its new-found wealth is not used to diversify the economy and build appropriate capital to support short term and long-term growth of the economy. The optimal approach would be a countercyclical policy response that will see windfall oil revenues being saved during price upswings and spent during downswings to ameliorate the macro-fiscal volatilities induced by the commodity price cycles. The country also needs to strengthen its institutions and enhance transparency in the management of public resources. This will ensure public confidence-building in the overall public financial management system and reduce governance risks associated with managing natural resource wealth; a situation which has become very essential if Ghana is to escape the 'curse' of oil.

One lesson that emerges from world oil price episodes is that both consumers and producers have to prepare for the unexpected. No one anticipated the speed at which oil prices rose in 2008, or the magnitude of the rise. And just when analysts predicted the price to surge to US$200 per barrel, it crashed suddenly and affected oil projects. The tumbling of oil prices since July 2014 is also something that many consumers and producers never anticipated. This underscores the need for both producers and consumers to take measures to mitigate the impact of price swings when confronted with a regime of market-driven oil prices. Hedging is one such effective mechanism to deal with oil price volatility risks as has been done effectively by Tullow Oil and Kosmos Energy, the two giant oil producers in the country. GNPC should follow Tullow and Kosmos' footsteps and pursue a hedging program to help mitigate the risks associated with future oil price swings.

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