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The Power of Oil

An Independent Scotland

Helsinki Metropolia University of Applied Sciences

Bachelor of Business Adminsitration

International Business and Logistics

Thesis

April 2015

Helsinki Metropolia University of Applied Sciences

Author(s) Title Number of Pages Date	Simon Ward The Power of Oil 57 pages + 2 appendices 30th April 2015
Degree	Bachelor of Business Administration
Degree Programme	International Business and Logistics
Specialisation option	Logistics
Instructor	Michael Keaney, Head of the Degree Programme

The objective of the thesis is to identify whether or not the price of oil is intrinsic to an independent Scotland's economic success. The research reveals that Scotland has a greater reliance on oil revenue than the remaining parts of the United Kingdom. The decrease in the price of oil over a longer period will have big impact on maturing oil fields in the North Sea, which will lead to the loss of jobs and the premature closure on oil fields. While the oil price is low, reducing taxes on the companies involved in the North Sea, is one way of safeguarding this industry. The oil in the North Sea is in decline, and basing any future on such a volatile substance is very dangerous. Over the long term, investment and exploration in the North Sea oil will decrease. Scotland is sheltered from the low prices of oil and declining oil production, through being part of the United Kingdom.

The outcome of the study was that if Scotland were to become independent from the United Kingdom, it would gain a vast share of the oil fields currently held by the United Kingdom, which will lead them to have an overwhelming majority of the oil revenue. This share can be used to negotiate on major issues with independence such as the currency and debt issue. With the currency issue, a currency union is the only option, which will provide a smooth transition to independence and the strongest possible financial security. In the short term, an increase in borrowing and decrease in public spending are very likely; however in the long term this is not sustainable for a newly independent country. Exports will need to be increased dramatically to cover the possible loss in revenue from oil. Supporting local businesses is very important in achieving this increase in exports. Attracting further responsible foreign direct investment is important. Scotland must set up an oil fund to safeguard against lost revenue from maturing oil fields and sudden drops in the oil price. An independent Scotland's finance sector needs to be restructured to withstand a financial crisis. The price of oil is not intrinsic to an independent Scotland's economic success if the above changes are made, but oil revenue is a very important asset to Scotland.

Keywords	Oil, Scotland, North Sea, independence, economic success

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1 Introduction

1.1 Research Topic

The topic of the research is to study the impact of the price of North Sea Oil on Scottish independence.

On 18 September 2014, the Scottish independence vote took place. If the “Yes” campaign had been successful, Scotland would have become an independent country in 2016. One of the biggest arguments in the build up to the referendum was regarding oil, which will play a very important role in this research; however other factors will need to be considered to gain a greater understanding of key factors that could lead to an independent Scotland’s economic success. The purpose of this thesis is to carefully analyse the different arguments, but to maintain a sufficiently critical distance in order to preserve objectivity.

This study has four major objectives:

1. To establish whether or not the price of oil is intrinsic to an independent Scotland’s economic success
2. To measure the impact of oil priced at less than 70 dollars per barrel
3. To discover other key factors that will play an important role in Scotland’s economic success
4. To establish a sufficiently comprehensive understanding of the topic to enable recommendations to be made that could lead an independent Scotland to economic success

1.2 Research Question

Is the price of oil key to economic success for an independent Scotland?

1.3 Scope

The subject is the centrality of oil with regards to the Scottish economy. The aim is to see if the price of oil is intrinsic to an independent Scotland's economic success and therefore whether an independent Scottish economy will thrive.

1.4 Expected outcomes

This thesis has several expected outcomes:

1. A clear analysis of whether the price of oil is intrinsic to an independent Scotland's economic success
2. An analysis of the impact of variances in the price of oil could have on an independent Scottish economy
3. Analysis of the amount of oil left in the North Sea
4. Analysis of the impact oil will have on the future of Scotland
5. Other possible opportunities and threats of becoming independent
6. Final publication of the thesis

1.5 Method

1. A literature review will be conducted on the price of oil and the impact it will have.
2. Continued monitoring of the Scottish, English and International news has been continuously undertaken, to check for any relevant developments.
3. No primary research is needed, but instead an extended literature review will be conducted.

1.6 Limitations

Time is a major limit on any research report; a thesis requires a lot of data secondary. Another limited is that the researcher is based in Finland, while the area of research is Scotland. There is a substantial distance between the two. Finding good objective secondary data can be a problem, as the majority of the UK's media and data sources have been written with a strong bias against Scottish independence. The timetable is very strict and the researcher must keep within the planned timetable.

2 The price of oil

2.1 Global oil prices

The price of oil from 2010 until mid-2014 was relatively stable, with a value of $110 per barrel (Rowling, R. 2015). However since June 2014, there has been a significant decrease in the price. According to the *BBC*, this has led to numerous shortfalls in revenue from energy exporting countries. (Bowler, T. 2015)

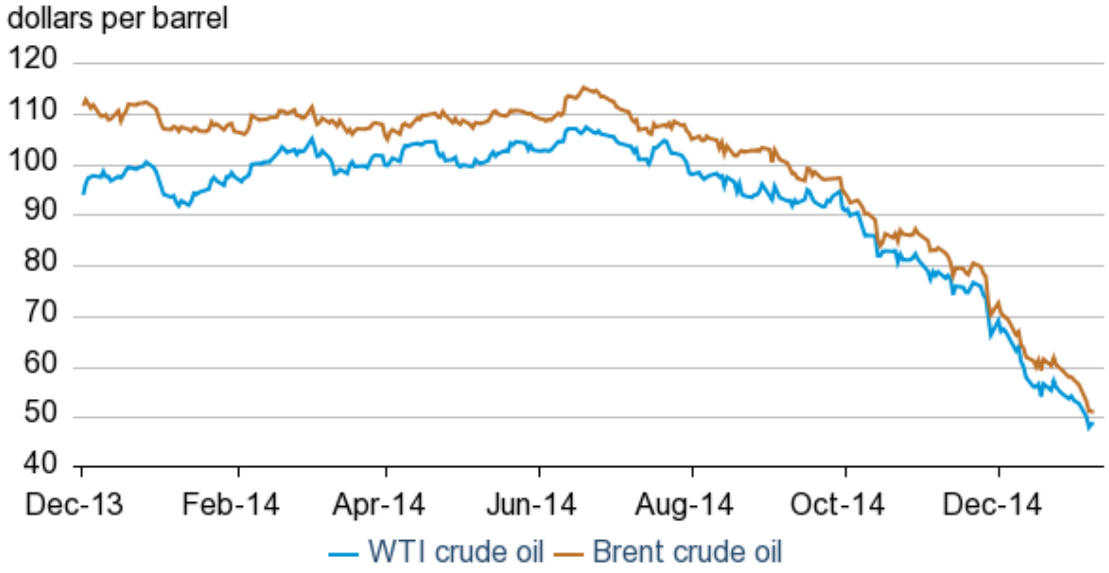

Figure 1. Historical crude oil front month future prices. Source: Preciado, 2015

As can been seen from Figure 1, the prices of both West Texas Intermediate (WTI) crude oil and Brent crude oil have fallen from a high of around $110 per barrel of oil to around $50 per barrel of oil in January 2015. This means that the price of oil per barrel has more than halved from its original value. As of 8th January, the price of WTI crude oil per barrel was listed as $48.79 (Eia 2015).

Many reports have been written regarding the reason for these changes. They come down to a number of factors; firstly there has been weak demand for oil in many countries due to slow growth rates within their economies. Secondly there has been a huge increase in the production of US oil. The US does not export crude oil; however it now imports a lot less oil, which means that there is a lot more spare oil on the market. In addition, the world's biggest consumer of energy – China, has seen economic growth slowing, with the latest growth target being cut to 7%. If this figure remains at 7%, it will

be the slowest growth in China in over two decades (The Economist, 2015). Other factors in China are also reducing demand for oil, with new energy saving technologies and policies being implemented to reduce pollution.

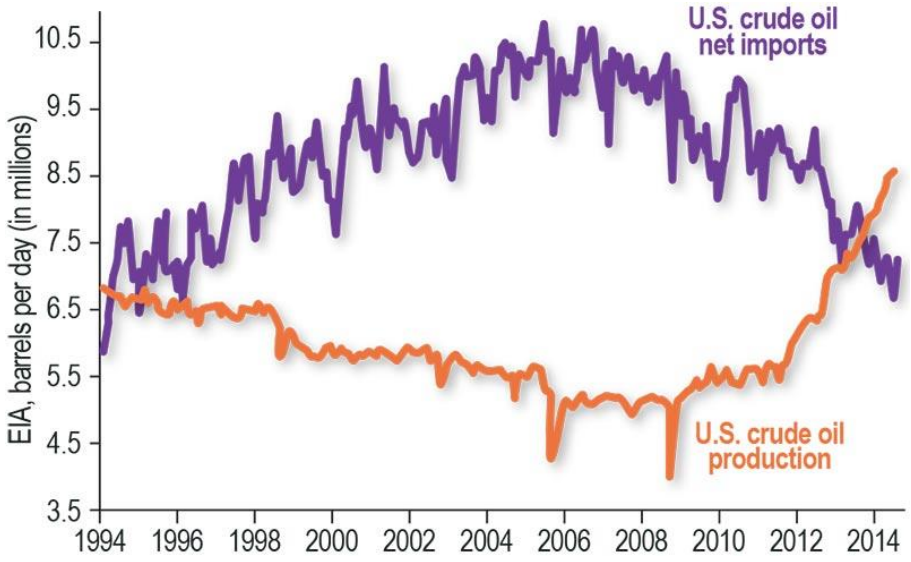

Figure 2. US Crude oil imports vs Production. Source: U.S. Bank, 2014

Figure 2 displays the difference between US imports of crude oil, compared to the production. In 2005, the US reached its peak in imports, importing 10.7 million barrels per day; however since then there has been a decline in imports, with production in 2014 reaching 8.5 million barrels a day, while imports have decreased to 7.5 million barrels a day. (U.S. Bank, 2014)

Lastly Saudi Arabia and the rest of the OPEC members have decided not to cut production to increase prices in oil. The reason for this is that they do not want to lose market share to other countries. Saudi Arabia could easily cut production, but the two countries that would benefit the most from this would be Russia and Iran, which are not political allies of Saudi Arabia. In addition, Saudi Arabia has $900 billion in financial reserves and has very little costs involved in extracting oil at between $5-6 per barrel of oil (The Economist, 2015). This means that Saudi Arabia can afford to keep prices at their current levels.

The impact of this decrease in the price of a barrel of oil can be very much felt with maturing oil fields and deep water extraction, which rely on high prices of oil to balance the cost of extraction. This would include North Sea oil. However, the current oil price is

causing the biggest problems to economies that are heavily dependent on the price of oil to balance their books, such as Russia among many others.

2.2 Scottish oil

Currently oil tax revenues are given to a certain economic region, which is assigned by the UK government. This policy is called the UK Continental shelf (Brocklehurst, S, 2013). This has been a point of much debate, as it means that revenue is not simply given to Scotland, but instead to a chosen region. However the SNP promised to change this policy if they were successful in their campaign for independence.

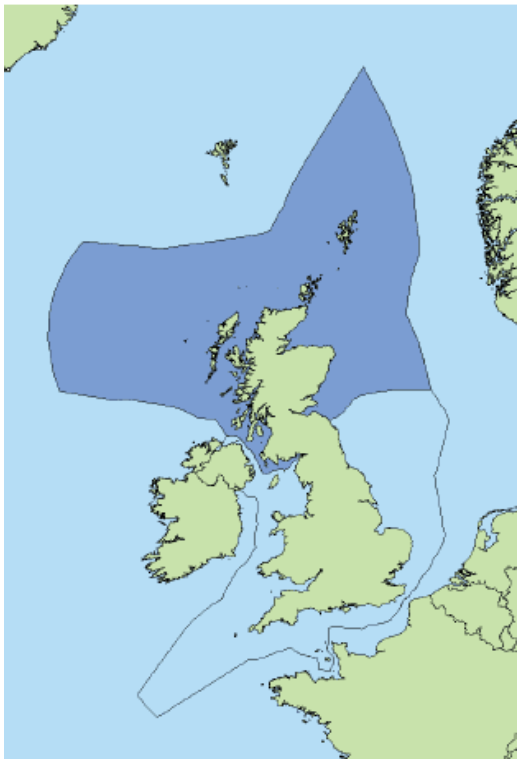

Figure 3. The Scottish government's claim. Source: Brocklehurst, S. 2013

The question has remained though, what would an independent Scotland's share of the oil revenue be? The answer to this question is not a simple one and first it is important to establish the actual borders with the rest of the United Kingdom. Figure 3 displays the area of control according to the principle of the 'median line' method.

This essentially means dividing a line between Scotland and the remaining parts of the United Kingdom. According to Professor Alex Kemp from the University of Aberdeen, this is the obvious method to use. After researching the exact reason for this proposal, it

became clear that the ‘median line’ principle method was used also when dividing the North Sea between the UK and other countries in the 1960s. By far the most important of these agreements, where this principle was used, was between Norway and the United Kingdom. However after this agreement with Norway was proposed, due to the number of oil fields discovered in Norway’s territory, there were many politicians who claimed that the United Kingdom had been too generous in their agreement. This same principle was used in agreeing the different boundaries for fisheries between the United Kingdom and Scotland in 1999. It remains to be seen if the United Kingdom this time would try another principle, because they would be set to lose a substantial amount of oil fields if the agreement was reached on the boundaries in Figure 3. According to the median line principle, 90% of the United Kingdom’s North Sea oil fields would become part of Scotland’s territory (BBC, 2014). Professor Kemp has conducted further research on the matter, and claims in the year 2010; Scotland’s total share of oil production was over 95%, while gas stood at 58%. Professor David Scheffer from Northwestern University in the United States believes this could be a very powerful bargaining tool for Scotland, especially with many questions being raised regarding the currency of an independent Scotland. (BBC, 2014)

After careful research on the matter, it was very surprising that discussions between the British and Scottish government had not taken place regarding the United Kingdom’s oil revenues, if Scotland had been successful in their referendum. This is a very important area for debate and would certainly need to be discussed. A report from Government Expenditure and Revenue Scotland showed that between 2011 and 2012, the British Government received £11.25 billion in oil revenues from the North Sea. This was one of the largest figures made, which was put down to two factors, the high price of oil at the time and the increase in the tax rate charged (The Scottish Government, 2014). Using the same median line principle, if Scotland had been independent in 2011 to 2012, the Scottish government would have received £10.57 billion of the total £11.25 billion, as 94% of this oil revenue came from Scotland’s proposed territory in Figure 3. Hence, the reason for discussion between the governments is very important to both parties.

2.3 Oil Revenue

The North Sea oil was a key point to the Scottish pro-independence argument. The recent drop in oil prices could have had a big impact on an independent Scotland's economy. According to the *Financial Times*, this drop in oil prices would have cost the Scottish government £8.7bn in lost revenues. These revenues were calculated over a 3 year period. A large part of the Scottish economy was depending on this revenue to balance the books. Predictions could see the price of oil fall even further. The *Scottish National Party* originally based their figures on oil being priced at $110 per barrel of oil; however this figure has fallen to $50 per barrel of oil in January 2015. Alex Salmond, the leader of the Scottish National Party, repeatedly claimed that the UK government was incorrect when they showed how dependent an independent Scottish economy was on fluctuations in oil prices (Dickie, 2014).

According to *The Office for Budget Responsibility*, the North Sea revenues only account for 2% of the total UK government's revenue. This figure increases though in the case of an independent Scotland, it would account for 20% of Scotland's total revenue. *The Institute for Fiscal Studies* recently concluded that the revenue generated by the North Sea was too volatile, with differences of up to 30% in the price of oil in a year. They concluded that strong fiscal tightening would be needed to stabilise finances, to avoid being placed in a similar situation as Russia is with the oil prices.

The Office for Budget Responsibility in the summer of 2014 revised the total estimated revenue for North Sea oil and gas to £61.6 billion from an original figure of £82.2 billion, using the low price scenario, as can be seen in Appendix 1, which is a letter from the *Office of Budget Responsibility* to the Scottish Parliament, warning of the dangers of forecasting oil revenue. In addition the letter states that oil production has been in decline since 1999, averaging around 7.8% a year. Beyond 2018-19, the forecasting on production falls to 5% a year, which is less than the 7.8% declines, but still could be seen as a large decline. If these projections remain correct, then total revenue would decrease by £12.9 billion. However if investment in production managed to keep production at a flat rate, before then decreasing by 5% a year, total revenues would be £14.9 billion higher. Predictions in future prices of oil, using the 'High price' scenario could mean oil prices rise to $138 a barrel of oil in 2015 and by 2040 will rise to $350. However, using the 'Low Price' scenario, this figure decreases dramatically to $77 and by 2040 will increase to only $120. This is very interesting, as it appears to show that no one, including *The Office*

for Budget Responsibility can be certain in forecasting the future of the price of oil. The letter concludes stating that North Sea Oil remains *'a valuable fiscal resource for many years to come'.* However, it warns the Scottish parliament of forecasting revenues, with such a highly volatile resource.

Many articles that can be found online predicting the future price in oil vary widely and even *The Office for Budget Responsibility* could not have predicted that the oil price would fall below $50 a barrel.

After *The Office for Budget Responsibility* sent the Scottish parliament the letter warning about the dangers of oil revenue, Alex Salmond replied on 10th July 2014 (See appendix 2). It stated in the letter that while The Office for Budget Responsibility has forecasted that there is only 10 billion barrels of oil and gas left in the North Sea oil fields, other experts such as Oil and Gas UK have predicted that this figure could be up to 24 billion barrels. In addition there is a report conducted by Sir Ian Wood to support this claim. There have been even larger estimates made by Professor John Howell, based at Aberdeen University, who has claimed that there could be 35 billion barrels of oil still left to extract (Howell, 2008). Alex Salmond again insists that oil prices will remain staple at $110, while comparing his figures to that of the Department of Energy and Climate Change (DECC), which predicted that oil figures by 2018 would increase to $128 per barrel of oil. The interesting part to this letter is that Alex Salmond acknowledges that North Sea oil is 'a bonus and not the basis of an independent Scotland's economy, and is a fantastic asset which will be around for many decades to come.' This is very contrary to the English media, as they had citied that Alex Salmond was using the oil as a base for Scotland's revenue to fund the independent economy. Lastly the Alex Salmond letter refers to the oil and gas industry under the British government and how it had been neglected and poorly run. This is an important part of the argument and will be carefully analysed later in this thesis.

2.4 Barnett Arrangement

The Barnett formula means that for every change in spending, for example £1 per person in England, would lead to £1 per person change in Scotland, Wales and Northern Ireland. The government of one of these nations is free to choose how this change in spending should be allocated. Currently with the Barnett arrangement, Scotland spends per capita £1200 above other parts of the United Kingdom. Annually this totals £5 billion in aggregate. According to economist Professor Ronald MacDonald from the University of Glasgow, had the referendum swayed in favour of independence, oil revenue would have most likely been used to pay for this extra spending. However due to the fall in oil prices, then government spending would have decreased or taxes would need to be raised to cover the difference. If we put oil revenue at £2.8 billion for a year due to the fall in prices, it means that spending would need to be cut by £600 per person (MacDonald, 2015). Government Expenditure and Revenue Scotland's figures in 2012-13 showed *"Scotland had a fiscal deficit of 8.3% of GDP, including a geographic share of oil, but a fiscal deficit of 14% of GDP without oil"* (The Scottish Government, 2014). This argument tries to show how important oil is to an independent Scotland, and thus changes in oil price will affect their fiscal position.

However, according to the *Institute of Fiscal Studies*, 2010-11 actual GDP per capita without North Sea oil stood at £23,242 for the United Kingdom and £22,816 for Scotland, but when using the geographic basis for the North Sea oil, Scotland's GDP increased to £27,732 per capita. Using a different method, such as a very controversial population method, means that with the North Sea oil revenue included, Scotland's figure decreased to £23,311 GDP per capita, while the United Kingdom's GDP per capita figure increases to £23,732 (Institute of Fiscal Studies. 2014). This shows the differences that could exist, depending on how the North Sea oil is allocated, if Scotland were to become independent.

There are two methods that have been discussed so far in this research. Geographical share is based on the geography of the country. The population share is based on the population size in a country.

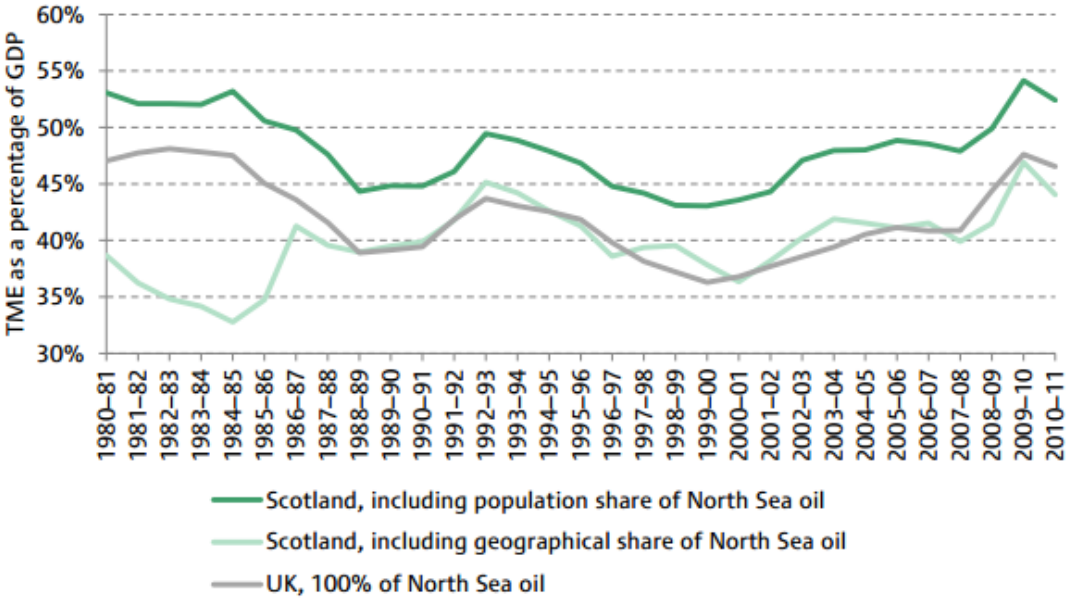

Figure 4. Total managed expenditure (TME) as a percentage of GDP: UK and Scotland. Source: Institute for Fiscal Studies, 2014

Figure 4 above displays if the controversial population method were to be introduced, then it would mean Scotland has been spending more, when compared to its GDP, than the remaining parts of the United Kingdom. In contrast, if Scotland's oil share was taken via the geographical method, Scotland would have far lower expenditures compared to its GDP, against the rest of the United Kingdom. However it is important to understand that especially in the early 1980s, the performance of non-oil GDP was poor.

Thus to conclude on GDP - using GERS allocations, in Scotland spending per capital is higher when compared to the rest of the United Kingdom. Public spending is also higher in proportion to its GDP without North Sea oil revenue included, compared to that of the remaining United Kingdom. This changes though, when North Sea oil is added to the equation, meaning it is an important part of Scotland's economy.

2.5 New Oil

The studies conducted in 2014 by *The Office for Budget Responsibility* suggest that by 2017-2018, taxes from oil will amount to £3.4 billion (The Office for Budget Responsibility, 2014) however the *Scottish Government* has argued that this figure is likely to be far higher. This statement is strongly supported by the recent discovery of oil fields by GDF Suez and BP. These new oil fields could generate a maximum rate of 5,350 barrels of oil per day (BP, 2014). This discovery is not on the same scale as the discoveries made in 1970s to the early 1980s, but in the maturing states of oil extraction in the North Sea, this can be seen as a positive discovery. The North Sea can be seen as maturing, as it has been producing oil for more than 40 years. According to *BP*, the extractable amounts to this discovery could amount up to 50 million barrels. If this proves to be true, this would provide a strong boost to any economy. The Scottish Statesman among many other newspapers have labelled this new discovery at being worth up to £157 million. However in reality this figure is not easy to forecast, due to oil prices and the level of investment. In addition there appears to be no strong base for these predictions (Scottish Statesman, 2014).

The investment required is a substantial amount to extract the oil successfully, with BP and other co-ventures investing £10 billion, with the prediction of the first £7 billion being spent within the first 5 years (BP, 2014). These new investments in the UK will bring new jobs and help create economic growth. When we look back at economic theory, John Maynard Keynes saw the importance of investment and the key role it played in determining the level of spending in an economy. Investment is an important part of Aggregate Demand: by increasing investments, it will increase Aggregate Demand, which will in turn lead to economic growth. However, it must be stated that if the economy is near full capacity, then this increase in Aggregate Demand will be limited to just causing inflation and not impact real GDP in any positive way. Although the importance of these new oil fields cannot be played down, it remains a very large question as to why the announcement of these oil fields was perfectly timed to take place after the referendum. Obviously there have been many theories as to why this is, but there is no proof either way to argue if it was a coincidence or something more sinister.

2.6 The waste of oil

The North Sea over the last 35 years has generated a large amount of revenue. Table 1 below displays the revenue generated in terms, based on 2011 pounds equivalent. This section will analyse the use of oil revenues and where exactly the money was spent in the past 35 years. It has been well documented in books such as “Fools Gold” by Christopher Harvie, that oil revenue was not invested wisely by the UK Government.

Table 1. Total North Sea Revenue: UK 1980-81 to 2010-11 in real terms (£2011). Source: McLean, 2013

Year	Million (£)	Year	Million (£)	Year	Million (£)	Year	Million (£)
1980-81	12,616	1988-89	6,835	1996-97	4,957	2004-05	6,234
1981-82	18,654	1989-90	4,810	1997-98	4,754	2005-06	11,042
1982-83	21,780	1990-91	4,118	1998-99	3,489	2006-07	10,055
1983-84	23,098	1991-92	1,712	1999-00	3,500	2007-08	8,083
1984-85	30,971	1992-93	2,195	2000-01	5,909	2008-09	13,866
1985-86	26,687	1993-94	2,038	2001-02	7,147	2009-10	6,801
1986-87	10,780	1994-95	2,617	2002-03	6,522	2010-11	8,786
1987-88	10,471	1995-96	3,548	2003-04	5,332		
Total	**155,057**		**27,873**		**41,610**		**64,867**
Grand total	**289,407**						

In Norway, the Government established a Statens pensjonsfond Utland (SPU), which translates as The Government Pension Fund Global. However this fund is not derived from pension contributions, but instead is funded from the surplus of wealth generated by oil revenue. This fund is more commonly known as Oljefondet, which means the Oil Fund. The latest figures from the fund, as September 2014, show this fund to be worth $857.1 billion (Sovereign Wealth Fund Institute, 2014). According to Norges Bank Investment Management 2014, this fund has 1% of the global equity market. This fund was established to invest in the future, to counter the effects of the future decline in oil revenue as well as the unpredictable differences in oil prices. Det Kongelige Finansdepartement (Norwegian Ministry of Finance) in the National budget of 2011 predicted that this Oil Fund could increase to $1.3 trillion by 2030 in the best case scenario. The size of fund though has proven to be controversial in Norway, as many politicians and voters believe that the funds should be used on the budget rather than for the future. In addition, 60% of the fund is invested in the stock market (Det Kongelige, 2008). As with petrol prices, this can fluctuate a lot.

Table 2. Sovereign Wealth Funds. Source: Sovereign Wealth Fund Institute, 2014

Rank	Country	Sovereign Wealth Fund Name	Assets $Billion	Inception	Origin
1	Norway	Government Pension Fund - Global	857	1990	Oil
2	UAE - Abu Dhabi	Abu Dhabi Investment Authority	773	1976	Oil
3	Saudi Arabia	SAMA Foreign Holdings	757	n/a	Oil
4	China	China Investment Corporation	653	2007	Other
5	China	SAFE Investment Company	568	1997	Other
6	Kuwait	Kuwait Investment Authority	548	1953	Oil and Gas
7	China - Hong Kong	Hong Kong Monetary Authority Investment Portfolio	400	1993	Oil
8	Singapore	Government of Singapore Investment	320	1981	Oil
9	Qatar	Qatar Investment Authority	256	2005	Oil
10	China	National Social Security Fund	202	2000	Oil and Gas
		Total	**5,334**		

The figures for Table 2 below are from the Sovereign Wealth Fund Institute and display the different funds that have been set up by various countries. This table only displays the top 10 funds, but in total there are 82 funds from various countries.

As can be seen from Table 2, Norway has the largest of all the funds with $857.1 billion, while in second place is the United Arab Emirates. However the United Kingdom is no-where to be found on this list of countries that own these 82 funds. Table 1 shows that oil revenue peaked in the 1980s with the total £155,027,000 and in numerous articles writers have questioned the use of this revenue. During this period Margaret Thatcher was the Prime Minister of the United Kingdom. Tony Blair is quoted as saying in 1987, that the North Sea oil was *"essential to Mrs Thatcher's electoral success"*. (Rentoul, 2013).

According to Denis Healey in 2013:

> *I think we did underplay the value of the oil to the country because of the threat of nationalism but that was mainly down to Thatcher. Thatcher wouldn't have been able to carry out any of her policies without that additional 5% on GDP from oil (Rhodes, 2013).*

It would appear instead of using the money with the view to the long-term future of the United Kingdom, the money was instead used to fund large tax cuts, to assist in the enormous industrial restructuring and balance the payment deficit. In various books, £75 billion is mentioned relating to the cost of balancing the payments deficits alone (Harvie, C. 1997). The reason that this period is the most significant is because oil had reached $93 per barrel in today's prices (*New Statesman*, 2013), so the revenue was very high. However it can be argued that not all the revenue could have been put away, especially as the United Kingdom had a large trade deficit at the time. According to the *Guardian newspaper*, Alistair Darling, Neil Kinnock and David Steel have all admitted in interviews that it was irresponsible that the United Kingdom has still not established an oil fund, especially when the times were good.

According to Jim Gallagher and the Scottish Government, had the United Kingdom invested just 10% of the annual oil revenues into a fund similar to Norway's, from 1980 onwards, then depending on the investments, the fund could be worth anywhere in-between £24 to £47 billion (Scottish Government, 2014). These figures have been widely debated, as there would have been fiscal consequences if this money had been instead used for an oil fund. However in one part it can be argued, that it was a very short term policy to use the tax revenue gained from oil, as a windfall to use against expenditure. Oil can be seen in financial terms as capital stock, by taxing and spending this money gained to balance the payments is to deplete the overall stock.

The Norwegians have placed strict rules to limit withdraws from this trust to a maximum of 4% of the total fund's capital per year. At the current value of $857.1 billion, it means they are not allowed to withdraw more than $34 billion. According to the Telegraph's reporter Andrew Wilson, this figure is more than the UK raises in capital gains tax, stamp duty and inheritance tax combined, with plenty of money left over. Last year the total sum of interest for this fund was around $21.8 billion, which is around £14.3 billion (Wilson, 2013). According to the *HM Revenue & Customs*, oil revenue in 2013-14 was £4.7 billion

(HM Revenue & Customs, 2014). This means that the interest earned from the Norwegian fund is worth substantially more than the total oil revenue for a single year from the North Sea. If the oil reserves were to dry up in Norway, the fund would provide a strong back up against the loss in revenue.

3 The cost of extraction

Aberdeen has received the nickname of the Capital of United Kingdom's oil and gas industry. Construction work for new hotels and shops continues in Aberdeen, which has seen continued economic prosperity in recent years, despite recessions which have ravaged other European cities. This has mainly been down to the fact of the decades of oil and gas that are extracted from the North Sea.

The North Sea is a place of dangerously strong winds and torrential rain, which has caused drilling for oil to be very hazardous. This danger has claimed many lives in the pursuit of oil. In addition, to claiming lives, it has caused the extraction of oil to be very costly. As previously highlighted in this thesis, the price of oil has fallen significantly by about 60% to below $50 for a barrel of Brent crude according to Figure 2 above.

This is not the first time that oil has fallen in price; in 1986 a barrel of crude oil fell as low as $10 (Naske, C & Slotnick, H. 1987). However, the international companies appear to be more concerned about the price of oil this time around. According to *Oil & Gas UK*, production peaked in 1999 and ever since this year, it has been in slow decline until 2010, when production nosedived. Unfortunately the cost of extracting oil from the North Sea has risen steadily from 2004 until 2013 and continues to rise today.

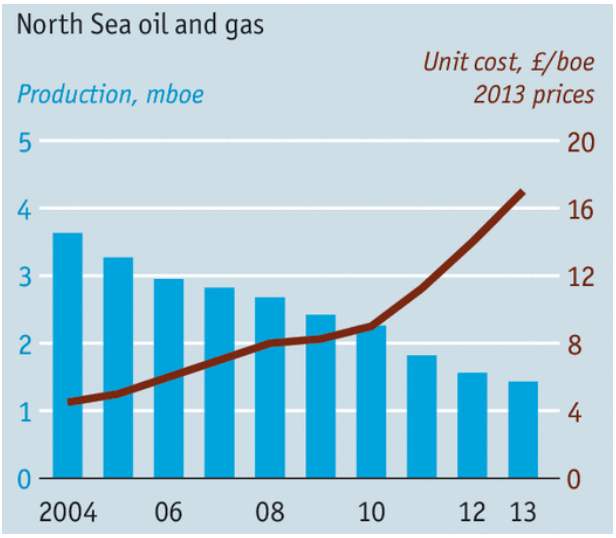

Figure 5. Production versus the cost per unit in the North Sea. Source: DECC, Oil & Gas UK

This increase in the cost can be seen in Figure 5. The North Sea is now home to the most expensive offshore oil extraction fields in the world. Around £14 billion was invested in these fields in 2013, to increase production, but conduct maintenance and various

repairs costs added another £9 billion to this figure which totals around £23 billion. (*Economist*, 2015)

There is fear within the industry that if the price stays as low as it is or falls further, many of the current oil fields could be shut down prematurely, which would cut the oil life line from the revenue that the government receives as well as cutting short the overall life of the North Sea oil fields. In a recent interview regarding the North Sea Oil with Ayman Asfari, the CEO of Petrofac said *"The industry is in for a very hard time unless we address the high cost structure immediately"* (The Economist, 2015). In the interview Ayman Asfari highlighted that the North Sea Oil was maturing, added to the fact that the platforms were aging and the pipelines were requiring more and more maintenance. This is leading to the fact that North Sea oil is costing more to extract than in other places. In addition, the industry became "fat and happy" during the times when costs were low and profits were high. This can be supported by the fact that the average salary of an oil worker in the North Sea is £64,000, compared to the UK's average salary of £27,200. There are also benefits included in the salaries which allow workers to work for 2 weeks and receive 3 weeks holiday. Previously it was the norm that workers would work for 2 weeks and receive 2 weeks holiday (The Economist, 2015).

The Independent recently published an article, stating due to the low price of oil per barrel that the North Sea oil fields are on the verge of making a loss on every barrel of oil they produce. Oil and Gas UK (OGUK) echoed these claims by predicting that if the price of oil per barrel fell below $40, then only BP and Shell could survive with such low levels of profit. (Lynch, R. 2014)

This price fall has increased the rate of cost cutting in the industry, to be far leaner and therefore efficient. *Petrofac* has been reducing the amount of contract staff by 10% since October (Petrofac, 2015), and according to their latest news on their website, as of January 2015 - they will again review all contract workers to low costs this month. BP has been forced to sell off a number of its smaller oil fields due to a number of reasons, which include the infamous Deepwater Horizon oil spill, as well as the rising costs of the North Sea oil extraction. During the peak of BP's operations in the North Sea, BP was producing around 900,000 barrels a day of oil. However this figure has fallen to 160,000 barrels a day, at the end of 2014 (BP, 2014). Aberdeen, the oil and gas capital of the UK has taken a hit with these drops in production with the latest announcement from BP quoting the loss of 300 jobs from their headquarters there.

3.1 Need for change

With the cuts being made, the UK Government is being put under increasing pressure to lower the tax rate on oil companies working in the North Sea. The hope would be that if the rates were lowered, it could encourage an increase in investment in production, as well as an increase in the search for new oil fields. This could lead to the extension of the life of North Sea oil, which all parties would benefit from. The head of the Oil & Gas UK group, Ed Davey, is quoted as saying in a recent interview with the Guardian newspaper that *"Some companies are paying 80% as the highest tax rate on fields in the North Sea. We would like to see 30% as the top tax rate and our industry treated the same as any other. We now have a situation where one-third of UK offshore fields are in negative cash flow that means approaching 100 fields. If we have sub-$50 oil price per barrel for a couple of years it is inevitable that some will be closed and decommissioned."* (The Guardian, 2015). Ed Davey believes that the UK government has ignored the problem for too long, and is only now starting to notice the problem, when the North Sea oil companies are at a crisis point. The closure of maturing oil fields could put an end to more profitable fields due to the fact that the pipelines are interconnected.

Trevor Garlick, who is the president of BP's North Sea operations, has said that BP is fully committed to North Sea oil extraction, but are reviewing various procedures to ensure that the business remains competitive within the oil industry (BP, 2015). In the latest budget for 2015, George Osborne who is the UK Chancellor has said that the industry is very important to the UK and that they are facing very challenging times. This is why that this month there will be tax cuts introduced, with further support for investment in the 2015 budget. The announcements that are expected in this budget include removing 30% supplementary corporate tax which is currently in place for oil companies operating in the North Sea. In addition, a 30% basic rate will be put in place for the oil industry in general, which is seen as only a temporary move (Business Insider, 2015). However the politicians including Jim Murphy are calling for more to be done, while Pat Rafferty who is the Scottish secretary of the Unite Union, has accused the UK Government of acting too slowly with the fall in oil prices. The investment needed to avert a crisis could be up to £450 million according to *Sir Ian Wood* who conducted a review for the future of the North Sea oil industry. (Business Insider, 2015)

The Fraser of Allander Institute, based in the University of Strathclyde's Department of Economics, recently conducted a poll on the current prospects of business activity in the

UK continental shelf in 2015. These results were presented to industry leaders in Aberdeen on 25th November 2014. Business confidence in the UK continental shelf (UKCS) is at its lowest point since 2008.

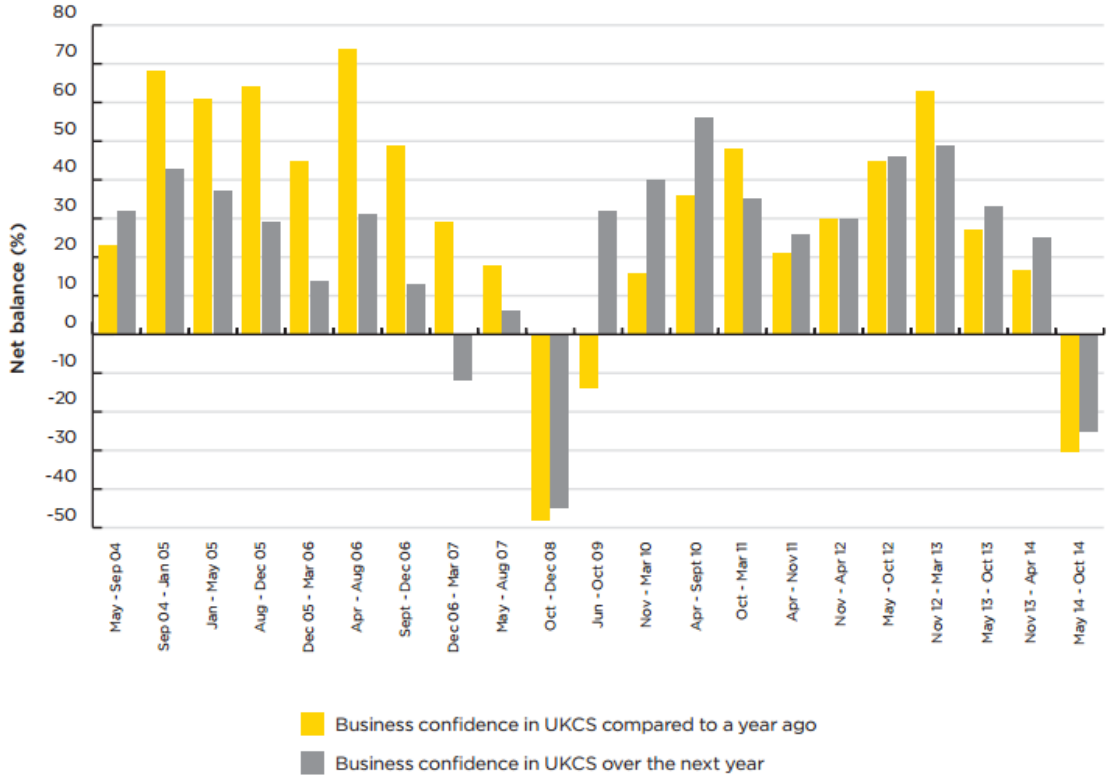

Figure 6 - Business confidence in the UK continental shelf. Source: Fraser of Allander Institute and Department of Economics

This decline in business confidence can be seen in Figure 6. A large part of this decline has been pointed towards the low oil prices. Taking the Wood Review into account, respondents of this poll called for Government intervention, as the number 1 priority to reform the current fiscal policy to encourage extraction and exploration. (University of Strathclyde, 2015).

This article is very relevant, because when there is fear in the market, it usually has a knock on effect. Business confidence appears to rest on the government changing their fiscal policy.

The oil industry in the North Sea has created a large number of jobs. As discussed above, the impact of the falling oil price is having repercussions off the Scottish coast. Bill Jamieson, who is the founder of Scot-Buzz, puts the total figure of those employed through-

out the entire UK's oil industry at around 450,000, with around half this figure from Scotland. Sir Ian Wood believes that about 10% of all jobs related to North Sea oil will be lost in 5 years, due to the low oil price (Settle, 2014). Scottish economist George Kerevan believes that North Sea oil still has an important part to play in terms of employment for the future. *"There's clearly substantial amounts of oil left in the North Sea and demand for oil is not going to go down"* (Soussi, 2015).

3.2 Effect on the future

Professor Alexander Kemp from the University of Aberdeen has conducted research into the future long term effects of this downturn in the price of oil. He believes that when the oil price is below $70 a barrel it damages the future prospects of an independent Scotland's oil extraction. Oil fields would be more than halved over the next 35 years under his predictions, from 188 to only 85. This would impact oil revenues for Scotland's Scottish generations. (Kemp & Stephen, 2011).

The Office for Budget Responsibility has conducted simulations in with this fall in the price of oil, lower investment and the ramifications it would have had on a future independent Scotland. In 2016, Scotland would have become officially an independent country had the referendum in 2014 supported the Yes campaign. The damage done with the low price would have meant that for the year 2016/2017, oil revenue would be £1.25 billion. This is a very large difference to the £6.9 billion that the Scottish government were expecting. Scotland would be facing a deficit of 6% of their national income, which can be compared to the remaining parts of the United Kingdom, who would have only 2.1% deficit. This figure unfortunately does not improve under this simulation, with oil revenues from 2014 to 2015 and 2018 to 2019 totalling £8 billion (Office for Budget Responsibility, 2014). This could prove a significant amount if this simulation would be proven to be correct, as it would mean that it was only a quarter of the Scottish government's forecasted amount of £34 billion that they had predicted over the same period (Scottish Government, 2014). During this thesis we have already shown that Scotland is more dependent on oil revenues that the United Kingdom, but this has also been confirmed by the director of Institute for Fiscal Studies, who has been quoted as saying that the Office for Budget Responsibility's simulation showed *"the uncertainty and volatility of oil prices and their impact on Scotland, which is far more dependent on oil revenues than the rest of the UK"* (The Financial Times, 2015).

For every £1 billion Scotland loses in oil revenue, public borrowing increases by 0.6%. The Office for Budget Responsibility believes that Scotland would have been faced borrowing of close to 6% of their national income, using this simulation. According to *National Institute of Economic and Social Research*, a newly independent Scotland would have found it very difficult to raise £5 billion of debt, due to oil prices.

Angus Armstrong, from the National Institute of Economic and Social Research is quoted as saying:

> *The volatility absolutely kills you. Having to raise an additional £5bn of debt just because the oil price drops in the past five months would have been very serious. It is very hard to see how Scotland could have raised those levels of debts in year one of independence (The Financial Times, 2014).*

The interesting point to note is that the Office for Budget Responsibility's simulation on oil revenue ends in a positive outcome for the United Kingdom. They believe that the lower price of oil will benefit the long term public finances, as it will encourage consumer spending, which will encourage growth and lead to higher tax revenues. This will be more important than those revenues lost due to the low price of oil.

Brian Ashcroft from the University of Strathclyde believes that the future economic success of Scotland is tied to the oil price. He points to the fact that although others argue that the low oil price is only temporary, previously Saudi Arabia had great influence on oil prices, but this has changed due to 'diminishing share of world oil production'. *Brian Ashcroft* says that structure change has occurred in the oil and gas world, which is mainly down to the US shale. This factor alone makes it far less certain that the price of oil will increase in the near future. The following consequences of these oil prices for the future have been predicted:

1. The British economy should benefit, as there will be an improved trade balance, with lower costs. This in turn should lead to growth. This boost to the British economy will benefit Scotland. However it is highlighted that as the economy exports oil, growth will be impacted by the low price in oil. Income and domestic demand within Scotland will fall, directly related to the fact that the demand for oil is relatively price inelastic. Investment and exploration in the North Sea oil will decline. All this will impact Scotland's economic performance compared to that of the United Kingdom's.

2. The renewable energy is more important to the Scottish economy, than to the United Kingdom's as a whole. In the short to medium term, this is predicted to become less competitive.

3. The public finances in the United Kingdom as a whole will be impacted. Brian Ashcroft's research has led him to believe that short term finances will be hit negatively due to the loss in oil revenues. There will be a long term prospect of growth, therefore bringing net revenue to the United Kingdom's tax revenues.

4. This is probably the most important prediction. Brian Ashcroft believes that as an independent Scotland, they would suffer very badly from a sustained low price in oil. *'Lower economic growth, lower tax revenues and a much worse structural fiscal deficit. It would bring the whole economics of independence into question'* (Ashcroft, 2014). He believes in the long term that oil is not a reliable source of income, as the North Sea has declining oil production. Instead, other sources of income through production and tax revenues, should be researched and developed. However Ashcroft believes it could prove very challenging if Scotland is funding its borrowing through international financial markets.

5. Lastly, Ashcroft believes that Scotland is sheltered from the low prices of oil and declining oil production, through being part of the United Kingdom. This statement still remains true, even if the Barnett formula remains in place, after the latest proposals from the Smith Commission. The Scottish economy needs to adjust to this low price of oil, and Ashcroft points to investing and developing Scotland's exporting industry, with particular attention to the manufacturing sector, to provide a future source of revenue (Ashcroft, 2014).

This is very relevant, as Ashcroft is a very well respected economist, both within Scotland and in the United Kingdom. His predictions for Scotland although at first glance appear bleak, but do offer hope. He has highlighted the need not to rely on oil revenues to fund an independent Scotland and provided alternatives that could provide a better option. Scotland's exporting industry is one area that could be developed. According to *BBC*, every second that passes, 40 bottles of whiskey have been exported from Scotland. The whisky industry contributes £5 billion to the UK economy and employs over 40,000 people. The direct economic impact of this whisky has increased by 21% from 2008, and

now worth £3.3 billion (BBC, 2015). Whisky is the most well-known export, but electronics such as IBM and Hewlett-Packard have existed in Scotland since the 1950s. The textile industry has been a large industry in Scotland for a very long time, with names such as Pringle providing Scottish knitwear to an international market. These are just examples of Scotland's current manufacturing industry, but through further investment, there is hope for the future for alternative sources of revenues, other than oil through investment in different industries.

4 Back to Barnett

During this thesis we have discussed oil and the part it will play in an independent Scottish economy. We have discussed alternatives to oil revenue, such as the manufacturing industry. However one cannot ignore many other factors that will play an important role in any economy.

Table 3. The population proportions for 2011-14 as a percentage of the population of England. Source: The British Government. 2013

For example: If the Department for Transport received an additional £100 million

Comparability factor	Population proportion	Consequential	
	How much of what the Department for Transport does is done by the devolved administration?	Percentage of the population of England	Amount received
Scottish government	91.50%	10.08%	£9.22 million
Welsh Assembly	68.30%	5.84%	£3.99 million
Northern Ireland Executive	94.00%	3.43%	£3.22 million

The Barnett Formula firstly has been discussed already, but currently how it affects Scotland? The answer to this question can be found in the population proportions from 2011-2014. This formula gives the relevant administration a share of the spending, based on their population compared to that of the United Kingdoms. As can be seen from Table 3, Scotland has the highest percentage of the 3 devolved administrations. In addition it means that the HM Treasury is actually paying a total of £116.43 million (The British Government. 2013).

There are two important parts to note about this Barnett formula. While it benefits Scotland the most, while times are good due to their large population, than the other administrations, it can also have a negative impact if spending cuts take place. If the Department for Transport's budget is cut by £100 million, it means Scotland's share would be reduced by £9.22 million. Secondly, 'Territorially identifiable spending' is very different, as it means the spending is considered to benefit the entire United Kingdom, rather than a certain area. This 'Territorially identifiable spending' can include foreign affairs, defence and different types of international development (The British Government. 2013).

Lastly it is important to note that there are differences between Scotland and the other devolved administrations. The Scottish government has the power to vary the basic rate of income tax by a total of 3 percent. In addition, by 2016, as part of the Scotland Act 2012, it will have new borrowing powers and be able to create its own variable rate of income tax (The British Government, 2013).

The Barnett formula has been brought up often by Scottish politicians, as it does not allow them the right to control their economy. If Scotland experiences economic success, it remains in the full control of Westminster as to the spending. Professor David Heald from the University of Aberdeen has said that many people in other parts of the United Kingdom believe that Scotland receives too much money. Any review on this system could mean *"cutting Scotland's public expenditure"* (BBC, 2014). This would have a negative effect on Scotland's economy.

The Office for National Statistics have stated that an independent Scotland would generate over £20,000 in gross value added (GVA) per person, compared to Wales which would contribute £15,000 in gross value added (GVA) per person (The Office for National Statistics, 2014). They have highlighted that Edinburgh, the new capital and Aberdeen, an oil hub, would see wages increase quickly. However they are very critical of the long-term economic prospects, with demography listed as a potential reason for economic failure. The Office for National Statistics believes that not enough people work, and this imbalance will increase over time. In 2012 the figure stood at 3 employed to 2 unemployed, but by 2037 this figure has been predicted to decrease to 2 employed to 6 unemployed (The Office for National Statistics, 2014). In addition to the Economist, the Institute for Fiscal Studies, led by Michael Amior, Rowena Crawford and Gemma Tetlow carefully examined different factors such as age, birth rate and migration. Through these studies, they concluded that over the next 50 years, the Scottish workforce will decrease, while the rest of United Kingdom will continue to grow.

5 An independent nation

Scotland can be compared in size to independent countries such as Finland and Norway. Both have similar population sizes to that of Scotland. According to the *Official Statistics of Finland* the current population of Finland is around 5.439 million (Official Statistics of Finland, 2015), while Norway's population is around 5.142 million (Population Pyramid, 2015).

Both countries have experienced economic success in the years that followed their independence. Finland does not have any oil, however Norway is easily comparable as they do have oil and as previously stated they have their own oil fund which has flourished over the years. Norway has used the oil to transform their country from a once poor nation, into one of the richest countries in the world. Finland has experienced both the highs and lows as an independent nation. For a long time after the end of World War Two, Finland was almost entirely dependent on the Soviet Union for trading. Under this, Finland thrived. However, in the late 1980s to early 1990s it experienced financial hardship, which was linked to the collapse of the Soviet Union. Finland deregulated its banking sector and was forced to look for new trading partners. Finland recovered after this period, but it was a truly testing time for them.

Through analysing both the Finnish and Norwegian economy, the models they use are very clear. Wages are very high as well as productivity. The money generated through different taxes is then used to support public services. This has resulted in a good stable economy, with high employment, a good tax system and very good public services. Both economies have focused on producing high technology. Finland has a large amount of expertise in health technology and in 2013 this was worth €1.66 billion (FiHTA, 2014). These two countries would be a good example for Scotland to aspire to. The Scottish National Party have highlighted this as a main objective; however transforming the economy from heavy nationalised industry to an economy focused on high technology remains very problematic. Attempts in the past have proven unsuccessful, with them being labelled as screwdriver operations, with the assembling kit being built somewhere else and once the technology disappears, so does the jobs. Later in this thesis we will discuss inward investment and indigenous sources of growth. (UK Parliament, 2014)

6 The Finance sector

6.1 The current finance situation

The finance sector remains a very important industry in Scotland. In 2010, the finance sector contributed £8.8 billion to the Scottish economy. This figure represents over 8% of onshore economic activity according to a British Government report. It also employs a very large number of people in Scotland, 85,000 directly and a further 100,000 indirectly. This industry has developed for over 300 years; Scottish Ministers' Widows Fund established in 1748 and was the first company to provide complete life insurance. The Scottish finance sector has a very good reputation and many of their employees are from the top Scottish universities (HM Government, 2013).

The British government argues that Scotland benefits through its finance sector, with being part of the United Kingdom. The United Kingdom provides stability and greater management of risk. The report by the British government states that the banking industry is very large in Scotland, compared to the size of the Scottish economy. This makes it far more vulnerable to financial crises. As part of the United Kingdom these risks are manageable, with the report quoting:

> *"The assets of the UK banking sector (including Scotland's banks) are around 492 per cent of total UK GDP. Scottish banks have assets totalling around 1254 per cent of an independent Scotland's GDP."* (HM Government, 2013).

These figures are very relevant, as the Icelandic banks had total assets worth 880% GPD (Economic Survey of Iceland, 2009). The financial crisis in Iceland had a devastating effect on the country, especially on the banking industry. Another example is that of Cyprus, with banking assets worth 700% of GDP. (Deutsche Bank Research, 2011).

These figures raise an important question: if the United Kingdom was hit very hard with the financial crisis, how would they survive. Would an independent Scotland need to restructure its financial sector to reduce the impact of a future crisis? After carefully researching the matter, the two largest banks in an independent Scotland would be the Bank of Scotland and the Royal Bank of Scotland. In 2008, £45 billion was spent recap-

italising the Royal Bank of Scotland. This was paid to protect savings and small businesses that were most at risk. UK Government's Asset Protection Scheme provided £275 billion in guarantees. These two sums added together come to £320 billion. In the year 2008, this figure would have accounted for 211% of Scottish GDP. (HM Government, 2013).

6.2 Finance in the future

Let us now look to the future. There will be many aspects that would need to be addressed in the finance sector of an independent Scotland. We will review few of the most important to the Scottish public. Scotland would need to restructure to reduce any risks, and set up a very similar Asset Protection Scheme such as in the United Kingdom. This would then provide more assurance to businesses, that if there is a bad situation, Scotland's finance sector will survive intact. Another financial issue that would need to be addressed is pensions. According to the latest product sales data by the Financial Services Authority (FSA) of the UK, just over 70% of all pension schemes in Scotland, are from companies based in the remaining parts of the United Kingdom. Institute of Chartered Accountants Scotland have said that if Scotland become independent, there will be a large impact on the funding requirements from the employers that use these schemes (Institute of Chartered Accountants Scotland, 2014). Scotland would therefore need to establish a Pension Protection Fund as well, as the Asset Protection Scheme.

ISA stands for an individual savings account. It is available to all residents in the United Kingdom. This scheme was introduced in 1999. The account holder of a cash ISA can only pay a limited amount into the account each year and from the researcher's own knowledge, this figure is £15,000 as of 1st July 2014. The cash ISA account is exempt from income tax or capital gains tax, on the returns. There is also stocks and shares ISA available.

According to *HM Revenue and Customs's* report, 45.6% of Scottish adults have an ISA account (HM Revenue and Customs, 2013). Scotland would need to decide once if became independent, if the ISA accounts would continue.

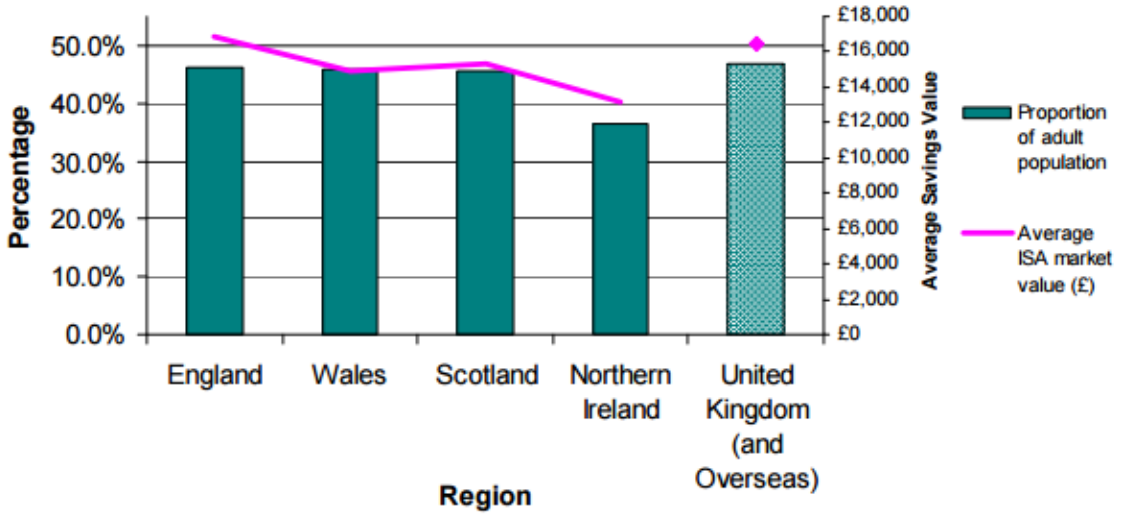

Figure 7. Share of the population by UK region owning ISAs (£) between 2011-12. Source: HM Revenue and Customs, 2013

Figure 7 shows how Scotland compares with saving rates among other regions in the United Kingdom. While Scotland's proportion of adults with an ISA was 45.6%, England had 46.3%, Wales 45.9% and Northern Ireland with 36.5%. This was a little surprising, as Scotland has traditionally had a strong culture of saving money, which has led to them having a strong financially sector. A higher percentage of savings were expected, compared to the rest of the United Kingdom. In addition to ISA accounts, insurance and mortgages would need to be addressed, especially with cross border issues with taxes and possible different legal systems.

6.3 International trade

The latest economic study from the *University of Strathclyde* puts Scotland's international trade position as very weak, when oil is taken out of the picture.

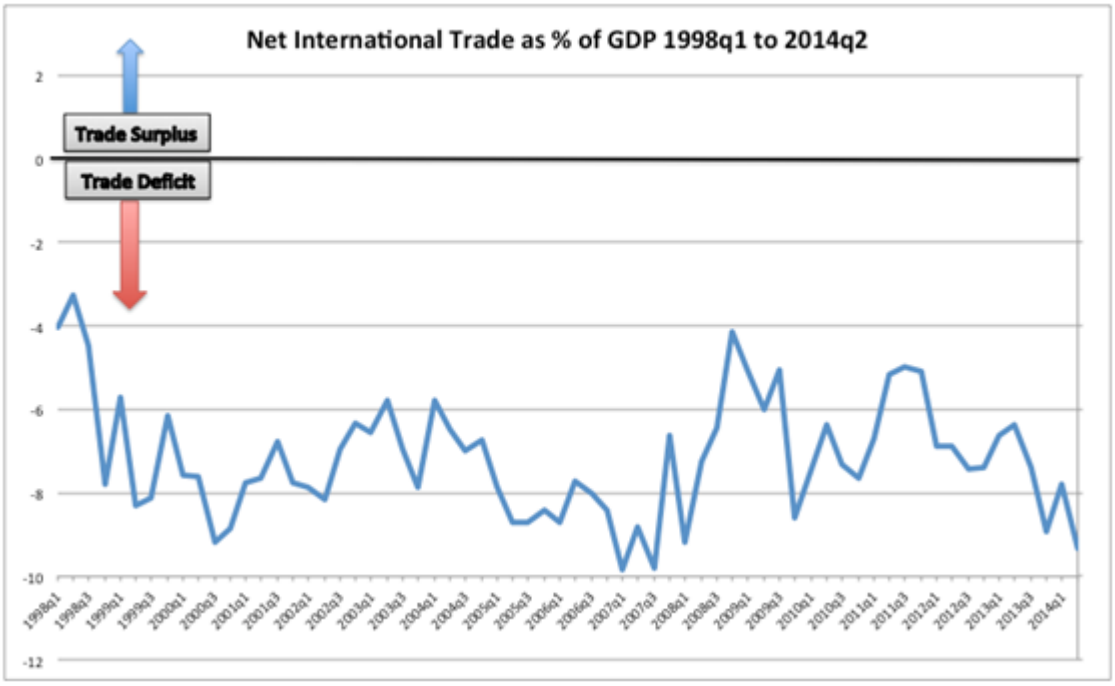

Figure 8. Net International Trade as % of GDP 1998q1 to 20014q2. Source: University of Strathclyde, 2014

Figure 8 above shows Scotland's international trade from the first quarter of 1998 to the first quarter of 2014. According to Figure 8, the trade deficit averages over 7% of GDP. As part of the United Kingdom, Scotland receives fiscal flow to compensate for this difference. This graph above would be very different for an independent Scotland, as oil revenue would be added to the trade account. The University of Strathclyde predicts that this revenue could balance the fiscal deficit. However it warns that oil sales and tax revenues are declining and thus Scotland would struggle to borrow to meet the losses of the oil revenue, and in the long term this would prove unsustainable. The only viable option would be to cut public spending and increase taxes. The University of Strathclyde sees the long term solution would be to boost the export performance dramatically. By only boosting domestic consumption, imports would increase and therefore slow economic growth.

The University of Strathclyde have stressed that this problem does not simply disappear while remaining part of the United Kingdom, as some news outlets have suggested. Even

though new devolution arrangements are currently being put into place for the future of Scotland, oil revenue is not one of them. However Scotland will still be hit by the impact of the lower oil revenue through indirect efforts on Scottish income, which will yield lower income taxes. University of Strathclyde highlights that there will be increased pressure with decrease in oil revenue to abolish the Barnett formula, and replace it with an increase in fiscal autonomy (University of Strathclyde, 2014).

The Scottish Government recently released the 'One Scotland' report, which provided a plan for Scotland from 2014 to 2015. They believe increasing international focus is the key to rebalancing Scotland's economy. The increase target set for non-oil and gas exports is 50% by the year 2017 (One Scotland - Scottish Government, 2014). This target is very high and according to the *University of Strathclyde*, without any firm strategy of achieving this target, the likelihood of it actually happening is very low in 10 years' time, if not impossible in 2 years' time.

7 Foreign direct investment

7.1 Current and future foreign direct investment

Scotland has been very successful in attracting foreign direct investment (FDI) in the past. There could be possibilities for changing policies further to increase this. Since 1945, Scotland has successfully managed to attract foreign direct investment, with around 30% of Scotland's employment and half the turnover generated in Scotland is from foreign multinational companies. The research and development spent by these multinational companies' accounts for 65% of the total spent in Scotland (Young, Ross, & MacKay, 2014). In 2013, FDI projects rose by 49% to 76%, while compared to 3% rise from the UK as a whole. This has led to Scotland increasing its overall market share of all the UK's foreign direct investment projects by 3.5%, to a total of 10.9% (BBC, 2013). On face value, this would appear to suggest that this would be an important factor for economic success. These figures suggest that Scotland has been very successful in the past at attracting FDI, but if it was to become independent, would investors still see Scotland as a wise investment? The Scottish Government has purposed that if Scotland had become independent, lowering the corporate tax rate by 3% (Scottish Government, 2014) would be one of their first moves, as well as providing support for certain industries. One potential area of growth is renewable technologies, which would be seen as a reindustrialization opportunity. This could benefit Scotland in the long term and provide a good source of income (Young, Ross, & MacKay, 2014).

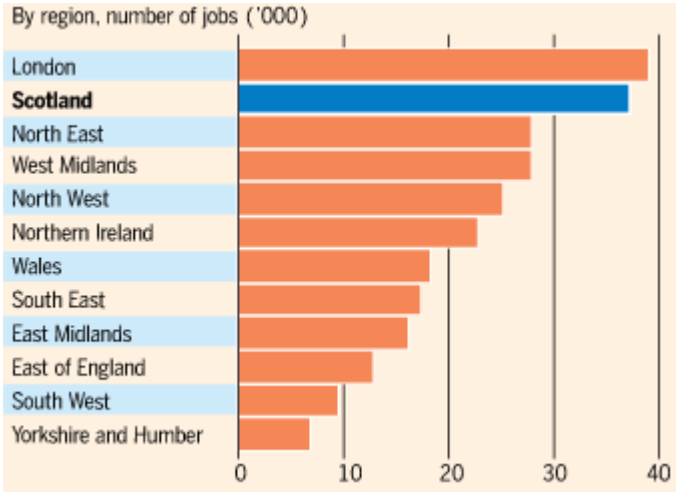

Figure 9. Jobs dependent on foreign direct investment from 2004 to 2013
Source: Young, Ross, & MacKay, 2014

One issue that has come to light is the reliance on employment through foreign direct investment in Scotland. As can be seen from Figure 9, only the city of London is more dependent on foreign direct investment for jobs.

The Royal Bank of Scotland has said that if Scotland became independent, it will move their headquarters to London. The British Treasury was accused of leaking this information during the referendum campaign. It must be remembered though that the Royal Bank of Scotland is approximately 80% owned by the British tax payers and does not have a very solid foundation. The Chief executive of Asda recently said that if Scotland were to become independent, Asda would need to create a separate business, which again has sent shock waves through Scotland as Asda employs 22,000 people there. In addition Lloyds Banking Group, Tesco Bank, Clydesdale Bank and TSB have been planning on their next steps and setting out contingency plans for an independent Scotland (BBC, 2014). If these large corporations left Scotland, it would make a substantial amount of people unemployed. It obviously remains to be seen if these large corporations would actually leave or if this was to scare the Scottish voters, as job security can play an important role in deciding votes. However if these large corporations were to leave, it could leave a gap in the market for future businesses to develop and expand.

7.2 The quality of foreign direct investments

One of the proposals from the Scottish Government, as to a way of increasing foreign direct investment for an independent Scotland, was to provide support for certain industries. This can produce very positive results if managed well. However it is important to review previous attempts at this and learn from mistakes.

Skoal Bandits is a well known case that occurred in Scotland in 1980s. Skoal Bandits was a manufacturer of chewing tobacco from the US. They opened a factory in East Kilbride, with nearly £1 million of Government aid. Shortly after the factory was opened, the Government banned tobacco sachets, due to the public opposition on the matter regarding health issues. The factory was forced to close with the loss of 20 jobs. US Tobacco company had said that only 29 days before the closure of the factory, they had made an agreement with the UK Government that these tobacco sachets would be sold in a similar fashion to cigarettes (Herald Scotland, 1987). This shows a clear mistake was made with this investment and that had research been conducted prior to this £1 million being paid, it could have prevented this costly mistake.

7.2.1 Scottish Enterprise

Scottish Enterprise, formally known as the Scottish Development Agency (SDA), encourages economic development and investments. It was originally created in 1975, but formally succeeded the SDA in 1991. Scottish Enterprise is mainly funded by the Scottish Government, however it does raise other funding from different sources. It has been accused of overspending its budget that is received from the Scottish Government. In 2005 to 2006, it overspent its budget by £34 million. In addition, the results that it produces have been questioned with sources saying that it is a promoter and subsidiser of inward FDI rather than a partner of indigenous business. (Danson, M. 1996). Although the advantages have been well documented for foreign direct investment, indigenous businesses can lack the attention they need to develop and prosper. In some examples in Singapore it forced the indigenous business to become more cost efficient and competitive, while others could not compete against these large foreign corporations and were forced to close (Coxhead, I. 2015).

According to the University of Strathclyde's *Fraser of Allander Quarterly Economic Commentary* dated 4th March 2006 – the introduction of resource accounting and budgeting, also known as RAB, is considered quite problematic, with regards to the water charges in Scotland. The research suggests that considerably more capital investment is being funded to the water industry, from the current charges than it should have ever been. Due to this reason, it is claimed that it is damaging the competitiveness of Scottish businesses. In addition, it points to the fact that these water charges have allowed the Scottish Enterprise to transfer public expenditure away from water, thus creating a new form of taxation. (Ashcroft, 2006). This report appears to suggest that the Scottish Executives have been accused of damaging Scottish businesses rather than actually helping them. This could be an area that could be reviewed and improved if Scotland were to become more independent.

7.2.2 The German system

During the first half of 2014, the Scottish economy generated economic growth, in the build up to the referendum. According to the Fraser of Allander Institute, this growth has slowed ever since. The reasons highlighted for this decline in growth are 'Slowing demand, falling real wages, rising levels of household debt, weak international trade'. Questions are being raised if this decline is only a slow period, with sustainable growth or

leading to a possible recession. Brian Ashcroft, who is a professor at the University of Strathclyde teaching economics believes that the Scottish economy is on a knife's edge and could tip either way. The University of Strathclyde's forecasts have put growth at 2.5% up to the period of June 2015, while 2015 in general receives steady growth at 2.2%. However, they have revised down their figures for 2016, from 2.4% to 2.1% (University of Strathclyde, 2015). They highlighted the fact that the International Monetary Fund had requested international governments to invest in public infrastructure, which would be funding through borrowing to simulate growth without the need to increase the public debts. Let us now refer to another country and see how they have managed investments.

Scotland could use Germany's model, to support local businesses achieve international success. The German Government provides various types of support for businesses in Germany, at different stages of the investment processes to help the businesses develop. These incentives aim for economic growth with approximately €17 billion being available for 2014, this is co-financed in cooperation with EU. Another major focus area for financial support is in research and development with approximately €70 billion spent each year. In addition, Germany's "High-Tech Strategy", which commits €5 billion annually, with the aim of developing the latest cutting edge technology. (Germany, Trade and Invest, 2014). These sums are very high; however these investments in German businesses have led to German companies being branded 'the most innovative in Europe' (Mattes, 2010).

7.3 The cost of privatisation

Privatisation is a controversial subject and one that will be very briefly covered in this thesis, as it's important to understand the history of it, and thus suggest an appropriate method for Scotland to address the issue. The decision made will impact the economy for better or worse. There is no way of telling how the Scottish Government will act, however the reader of this thesis can only show the benefits and mistakes made in the past and make suggestions for the future of an independent Scotland.

Many publications have criticised the privatisation of British Gas, British Steel, British Railways, National Coal Board and National Bus Company, among many other companies by the British Government, as damaging to the British economy. In 1976, they accounted for 9.6% of GNP and 6.9% of employment within the United Kingdom before

privatisation (Dickerson, 2009). Privatisation encouraged labour-shedding to cut costs, but continues to cost more than it did when controlled by the Government. For example, Government subsidies paid to the rail industry have actually increased from an average of just over £1 billion during the 1980s, to over £6 billion during the year 2006-2007. According to Christian Wolmar, the level of subsidy today is in real terms five times that of British Rail's last year of operations (Wolmar, C. 2005)

The ticket price for a train has seen a sharp rise, which is costing customers substantial amounts. Since privatisation, standard fares have increased by around 208%. This increase is over 3 times the rate of inflation. (Castella, 2013). UBS Bank is quoted as saying that "train travel in the UK was the most expensive in the world". The most recent of the privatisations was Royal Mail, when the Business sectary Vince Cable allowed the price of shares to be placed at 330p, however within hours this had risen to 455p, an increase of 38%. The price continued to rise in the days that followed to over 600p. The valuation placed on Royal Mail was £3.3 billion, but the National Audit Office believes that this figure should have been close to £5.5 billion. (National Audit Office, 2014). This money could have been used to invest in the future of the country, but instead due to mismanagement, only a number of investors benefited majorly from this sale.

Not all privatisation has had a negative impact on the economy and customers, according to *Ofwat* – the water and sewage regulator, the privatisation of the regional water companies has led to investments in the industry and reduced the risk of low water pressure by 99% (Ofwat, 2003). In addition, BT is another example, according to their website installation in the 1980s used to having a waiting period of on average 6 months; this figure has been reduced to 15 days since privatisation (BT, 2014).

The Scottish Government would need to carefully review the costs and benefits to privatisation, and consider which strategy they wish to undertake. Alex Salmond prior to the referendum pledged that Scotland would not privatise the NHS. However other experts have suggested since devolution of 1999, which the Scottish Government has been in full control of decisions on spending regarding the NHS. For Scotland the issue remains, will they need to subsidise these companies that have been privatised such as the rail companies. If the answer proves yes, it could cost them a large amount of money.

8 The future of the pound

The pound has been widely discussed up to the referendum. Alex Salmond insisted that Scotland would continue to use the pound if Scotland were to become independent. However the three main political parties in Westminster argued that this was not possible. If Scotland were to become independent many issues would arise including the share of the UK's assets and different Government bonds according to *Jack Allen* from *Capital Economics*. He believes that lengthy negotiations need to take place between the UK and Scottish Governments. The UK's debt highlighted another big talking point and one we will discuss in detail later in this thesis. Let us analyse the three possible outcomes of the currency debate and its effects on a future Scotland.

8.1 Outcome 1 - Currency Union

The Scottish National Party has stated they believe the best option for an independent Scotland is to retain a currency union with the United Kingdom. This would mean that they would continue to use the sterling and keep the Bank of England. The reason for this, is it that the Bank of England could lend money to Scotland in case of an economic emergency. Despite opposition from Mark Carney, the current Governor of the Bank of England, and the three leaders of the main political parties in the United Kingdom, there is hope still. Professor Joseph Stiglitz, who is a very well respected economist from Columbia University, believes that the UK and Scottish are very interlinked. Professor Stiglitz was an advisor for Alex Salmond up to the referendum. There is a large amount of cross border trade as well as capital and the movement of labour. He believes that a currency union would therefore be in the best interests of both Governments.

This statement by Professor Stiglitz appears to be supported by a British Government report dated September 2013. According to the report in 2011 Scotland exported £36 billion in goods and services to the rest of the United Kingdom. The trade is not one way either, as Scotland imported £49 billion from the rest of the United Kingdom. The movement of labour is important and numerous threats from both sides were made up to the referendum as to the consequences for independence. However the facts are as follows; in the year 2011, 33,000 workers moved from other parts of the United Kingdom to Scotland, while 35,000 moved from Scotland to other parts of the United Kingdom. According to the report over half a million people that were either born in England, Wales or Northern Ireland now live in Scotland. While over 700,000 people who were born in Scotland

now live in different parts of the United Kingdom (HM Government, 2013). An argument for currency union with Scotland is strengthened, as it states that Scotland's output per worker is almost identical to that of other parts of the United Kingdom. *'Scotland has the third highest economic output per person of all parts of the UK, behind only London and the South East of England'* (HM Government, 2013). This report provides also a very strong argument for not only currency union, but also independence, as it highlights that since 1963, economic growth output has increased per person by on average 2.0% in Scotland, while slightly less in the United Kingdom overall at 1.9%. In addition, at the time of this report, the employment rate in Scotland was higher at 71.9%, when compared with the United Kingdom overall at 71.4%. When compared to independent nations, Scotland has performed slightly better using economic output per person that Finland and Denmark (HM Government, 2013).

Professor Anton Muscatelli from the University of Glasgow believes the currency union is the only option that is viable for Scotland. He states the same facts as Professor Joseph Stiglitz regarding the highly integrated economies, with imports and exports key. However Professor Anton Muscatelli also adds that without a currency union, there would be transaction costs, which for the United Kingdom could equal up to the sum of £2.5billion. Professor Anton Muscatelli believes that the threat of oil prices is exaggerated, but still poses a threat (Financial Times, 2014). With a monetary union, both Governments could counter the threat posed by oil prices through strong fiscal policy and by establishing an oil fund to weather the possible storm.

These arguments present a strong case for currency union and why it is in the best interests of the remaining parts of the United Kingdom and Scotland to keep the sterling. Scotland could use the United Kingdom's debt as leverage for negotiating and there is the share of oil fields which could again help develop a solution, as we previously discussed in this thesis. The Scottish Government has said it would reject Scotland's share of the United Kingdom's debt if the British government refused a currency union, although there is no evidence to suggest that this would actually happen.

Professor Ronald MacDonald from University of Glasgow has a different opinion. He believes that if Scotland gains a substantial geographic share of oil, it will become *"net exporter of hydrocarbons and its non-oil sector will suffer the classic "Dutch disease"*. Financial Times, 2014) This will lead to loss of competitiveness, in relation to the United Kingdom, which in turn would lead to higher unemployment and price cuts. This would

not be sustainable in the long term and would create a currency crisis that would affect Scotland and the remaining parts of the United Kingdom.

8.2 Outcome 2 – Use the pound, but no currency union

The second possible outcome would be to continue using the pound without a currency union with the remaining parts of the Union Kingdom. Research has lead the reader to believe that this could present a few problems. The best example of this is with Kosovo. Kosovo is not a member of the EU and therefore not a member of the Eurozone, but the country uses the Euro. Kosovo has no agreements with European Central Bank or any other EU countries. In case of an economic disaster with their currency, they are in theory on their own, although it could be debated there are other countries that have interests in Kosovo and would not let this happen. Scotland would be in the same situation, as the Bank of England would be under no obligation to lend money to Scotland without a currency union. Scotland has a large financial sector and this lack of security would cause a lot of problems with businesses. Fear in the market is very dangerous.

However on the other side of the argument the *Adam Smith Institute* states that an independent Scotland could still prevail and create economic success by still using the pound, without a formal currency union. They have highlighted Panama and also other Latin American countries as good examples, where using the dollar without a currency union has left them with a good economic system (Adam Smith Institute, 2014). However former EU commissioner for monetary union Olli Rehn in an interview with the Guardian newspaper has said it would not be possible to use the pound without the a currency union and then try to join the EU as an independent nation, without a strong central bank to support it.

Professor Anton Muscatelli from *University of Glasgow* believes that without a currency union, using the sterling poses many risks and in the long run it is not a viable option. In case of an emergency, Scotland would not be supported by the Bank of England. Scotland is larger in proportion than countries such as Panama. Professor Anton Muscatelli from the University of Glasgow argues that even having 10% of its money supply used in the United Kingdom, would present economic instability in the United Kingdom. In the short term though, it could provide another option, while Scotland negotiates with the United Kingdom, Europe or develops its own currency.

8.3 Outcome 3 – The Euro

Alex Salmond initially stated that joining the pound would be more of a short term option for an independent Scotland, with the long term hope of switching to the euro currency at a later stage. The euro currency is not the most popular option in Scotland at the moment, especially with the current Greece situation and the impact that the global crisis had on the euro. The Eurozone is having problems with low inflation and in some countries deflation is a problem. The other problem is actually whether Scotland could join the EU straightaway. Financial and legal experts are much divided on whether Scotland would need to reapply to the European Union (EU) for membership. According to the *Scottish National Party*, EU membership would automatically be given once independence is won. However EU leaders, which includes the EU Commissioner Jose Manuel Barroso and EU Council president Herman van Rompuy have said that an independent Scotland would need to reapply for membership, as a new EU state. Roland Vaubel describes how he believes that the EU leaders are being biased against Scotland, in terms of EU secession. European Union chief Jean-Claude Juncker recently said that there would be no further EU members for 5 years. In addition, there are many questions as to whether Scotland's fiscal deficit and inflation rate would impact its chances of membership (MacNab, S. 2014).

Many countries will have an interest in Scotland's votes, especially countries such as Spain, who have Catalonia wanting independence. It would be in Spain's best interests to make EU membership as difficult as possible for Scotland, thus to attempt to persuade Catalonia of the dangers of independence (Morris, P 2013). EU membership for Scotland would provide a safety net in terms of finance and help greatly with trade, as free trade exists within the EU. International trade is a major issue and without trade agreements with the EU, this would impact an independent Scottish economy through exports and could lead to a large trade deficit. However it would await to be seen that if Scotland had become independent, would the EU have changed their stance on membership. It has been well reported that Scotland wishes to remain part of the EU, whereas other parts of the United Kingdom wish to leave, with the UKIP party gaining voters with their anti-EU campaign outside of Scotland.

According to *Sam Bowman* from the *Adam Smith Institute*, he believes that joining the euro currency would be an unpopular option, not just for Scotland but within other countries that use the euro. The Scottish economy is more reliant on oil, as has previously

been proven than the rest of the United Kingdom, and when if placed in the euro, other countries may fear this, with the recent drop in oil prices.

Professor Anton Muscatelli from the *University of Glasgow* believes that the euro is the worst option for Scotland, as the Eurozone is experiencing such economic difficulties. *Professor Anton Muscatelli* is quoted as saying *"poor macroeconomic governance and its economies have less trade integration and less labour and capital mobility than Scotland and the UK."* (Financial Times, 2014)

8.4 Outcome 4 – New currency

This outcome would be seen as by far the riskiest option. According to *JP Morgan*'s recent report, this would give Scotland greater control over its monetary policy. However the downside is that there would be high transaction costs with other countries especially Scotland's largest trading partner, the United Kingdom. In addition, the initial costs of setting up an entirely new currency would be very high.

Professor Anton Muscatelli from the *University of Glasgow* believes Scotland would have the freedom of managing their own exchange rate. Shadowing the pound in a similar fashion as Denmark does with the euro would be the best option for Scotland, with trade with the United Kingdom very important to the economy. The debt sharing agreement with the United Kingdom will be very important in deciding Scotland's macroeconomic strategy as well as their exchange rate strategy according to *Professor Anton Muscatelli*. He states that transitions to a new currency would need to be planned and managed very well for it to be a success. The debt sharing will be covered later in this thesis, as it's an important issue for an independent Scotland.

8.5 The way forward with the currency situation

In conclusion of this topic, after researching the difference outcomes, it could clearly be seen that the currency union is the best outcome for both the United Kingdom and Scotland. Scotland could allow more room for negotiations regarding debt sharing and oil territories in exchange for a currency union which would provide greater security. Joining the euro or keeping the pound without a currency union presents huge risks and creating their own currency could prove costly.

9 The share of debt

An increase in government spending, such as investments in infrastructure, would create jobs. The income generated from these new jobs, would then be reinvested back into the Scottish economy through individual spending. The Scottish National Party originally promised possible tax cuts, which again would boost aggregate demand, but it is uncertain whether Scotland would actually be able to afford tax cuts and large investments into infrastructure. The calculation below shows the possible debt Scotland would inherit if they were to go independent. Scotland will inherit a debt, and this figure has been debated a number of times. The facts are that as at the end of 2013, the UKs debt was £1,254.3 billion, according to *The Office for National Statistics* - 2014. The figure can be represented as 75.7% of GDP. The latest population figures from The Office for National Statistics – 2014, put the UK's population around 62.2 million and Scotland's population at 5.1 million. If this debt was shared among the population evenly (5.2/62.2 * 100 = 8.35%. £1,254.3 billion x 8.35% = £105,734), this would mean the debt that Scotland would inherit would be £105 billion.

The calculations are supported by the Scottish Government. If Scotland's share of the debt is around 100 billion, it would be roughly the equal to 55% of Scottish GDP. However it must be stated that other methods have been suggested such as historic contribution, which according to the Scottish Government could lead to a debt share of £130 billion, which would be roughly 75% of GDP (The Scottish Government, 2014). It can be argued that whichever method is used to divide the debt, Scotland's share as a percentage of GDP will still be lower than that of the remaining parts of the United Kingdom. As stated previously, the debt share could be used to negotiate other issues such as the currency.

10 Conclusion

10.1 Evaluation of the current situation

Global oil prices have created vast uncertainty in the world market. Analysts have no idea how long these prices will remain low. The experts forecast as shown in this paper have proven inaccurate. In the long term, if prices remain below or just above $70 it will force maturing oil fields to close early, to very low revenue but high investment costs. Professor Alexander Kemp highlighted in section 3.3 that oil fields in the North Sea would more than halve in the next 35 years (Kemp, AG. & Stephen, L. 2011), and this research was carried out before the current drop in the oil price. The worrying factor is that the latest estimates are quoting that 10% of all jobs related to North Sea oil could be lost due to the increasing cost and declining revenue. The North Sea employs an estimated 450,000 people direct or indirect, with around half this figure from Scotland.

Using the median line method, Scotland's share of the oil fields would be around 94%, which is very high and means that it puts them in a strong position for further negotiations on different issues. The future oil revenues are very volatile and thus very hard to forecast. Scotland would be more reliant on oil revenue than the rest of the United Kingdom, at around 20% of Scotland's total revenue compared to 2% of the United Kingdom's total revenue (The Office for Budget Responsibility, 2014). This means that they are more susceptible to any decline in oil revenue than the United Kingdom. Many experts in this report have said that Scotland spends on average £1200 per capita more than other parts in the United Kingdom. With the decline in oil revenue, an independent Scotland would have been forced to decrease government spending or taxes would need to be raised to cover the difference. If oil revenue was put at £2.8 billion in their first year of independence, spending would need to be cut by £600 per person (MacDonald, R. 2015). These figures can be disputed, as it is close to impossible to predict the real revenue of oil, if the referendum had swayed in favour of independence, their first year of independence would have been 2016, which is a long way away when concerning forecasts on oil.

Undoubtedly oil revenue could have been invested more wisely by the British Government and Norway has led the example with the latest estimates placing the value of their oil fund at $1.3 trillion by 2030 (Regjeringen.no. 2014). Research has shown that if the British Government had invested only 10% of the annual oil revenue from 1980s until

today, depending on the investments, then the fund could be worth anywhere in-between £24 to £47 billion (Scottish Government, 2014). Scotland is sheltered from the low prices of oil and declining oil production, through being part of the United Kingdom. Investment and exploration in the North Sea oil will decline. Using the current forecasting from the University of Strathclyde, an independent Scotland's economic performance would have been more affected negatively than that of the United Kingdom's (Ashcroft, B. 2014).

All of the factors above have led to the conclusion that an independent Scotland could not solely rely on oil to bring economic success, as the decline in the value of oil would have had a big economic impact, with a gap in the revenue. Despite as this research paper has shown in the 1980's, when the times were good, the oil revenue was very high and could have been used in many different ways. This means that we must turn our attention to other important factors that will play an important part.

The finance sector in Scotland is very important to possible economic success. As previously stated in 2010, it was worth £8.8 billion to the Scottish economy. It employs 85,000 directly and a further 100,000 indirectly (HM Government, 2013). However there are question marks whether it could survive another financial crisis if Scotland were an independent country. The latest figures place banking industry at 1254 per cent of an independent Scotland's GDP, compared to the remaining parts of the United Kingdom at 492% GDP (HM Government, 2013).

International trade is another important element that could lead to economic success. The University of Strathclyde conducted research which stated Scotland's trade deficit on average was over 7% of GDP between 1998 and 2014 (University of Strathclyde, 2014). An independent Scotland would need to reduce the trade deficit, as the possible losses in oil revenue could lead to increased borrowing and in the long term this would not be sustainable. The increased target set for non-oil and gas exports is 50% by the year 2017 by the Scottish Government is not realistic (Scottish Government, 2014); however it is a step in the right direction, as exports will need to increase.

Supporting local businesses is important and as shown in the German system, has led to success. Foreign direct investment has had a mixed history in Scotland, but 30% of Scotland's employment and half the turnover generated in Scotland is from foreign multinational companies (Young, S, Ross, D, & MacKay, B 2014). This figure is very high and shows how important foreign direct investment has been in the past and remains for

the future. Despite some large corporations threatening to leave Scotland, the research indicates that with a smooth transition to independence, with certainty over the long term currency, it is unlikely that this would be the case.

An independent Scotland's EU membership is not guaranteed to take place immediately, with another EU member such as Spain having their own interests in the matter. European Union chief Jean-Claude Juncker recently said that there would be no further EU members for the next 5 years, but if Scotland became independent, this could change. Trade agreements with the EU are very important and Scotland would need to secure membership, as it would provide a lot more security.

In reality, after reviewing the different currency options, currency union with the United Kingdom is by far the safest option, as the economies are so closely linked, it would provide the smoothest transition to independence and a security net in the worst case scenario if Scotland experiences a future financial crisis. Without a currency union, there would be large transaction costs for both the United Kingdom and Scotland. These transaction costs for the United Kingdom alone could equal to £2.5billion (Financial Times, 2014).

Unfortunately an independent Scotland would not begin its independence debt free with estimates calculated from £105 billion to £130 billion, depending on which method is used. Despite the promise of tax cuts and investments by the Scottish Government, questions remain as to how much of this could actually be delivered. However, as previous stated, which ever method is used to calculate Scotland's debt, if you compare the debt share as a percentage of GDP, it will still be lower than that of the remaining parts of the United Kingdom.

10.2 Recommendations for the future

For this section, we will now assume Scotland has become independent and will now recommend what policies and methods they should use to have the best possible chance of economic success, based on the research carried out in this research paper.

1. Scotland must insist on the use of the median line method for dividing the oil fields with the remaining parts of the United Kingdom. This will give them a share of over 90% of the oil fields. They can argue that this method has been used on

a regular basis in the past in numerous other occasions and provides them with the fairest option. This will provide them with a powerful tool to use for other negotiations.

2. Start an oil fund, investing roughly 10% of the annual revenue into it every year. The value of Norway's oil fund has increased in the last year, despite the drop in the oil prices. This oil fund would provide Scotland with a greater amount of security, so that when times are tough, they have money to keep them financially stable. There must be the restriction on withdrawing balances from this oil fund though, as there are many in Norway that would like to increase spending, which would be solely funded by the oil fund.

3. If oil revenue is very low in the short term, borrowing and tax increases would be the only option. It will not be a popular option, but it would counter the effect of the low revenue from oil. In the long term this is not a sustainable option, and the oil fund would provide some security, but cannot be depleted to this extent. Other sources of income are needed.

4. Scotland could use part of the revenue from the oil to invest in local businesses and follow a similar method as Germany. This support in local businesses could increase exports and lower the trade deficit. This would provide a good source of sustainable income to bridge any gap left for oil revenue.

5. Related to exports is the issue with EU membership. This is where the negotiations start and they start closer to home. If an independent Scotland can gain the support of the United Kingdom, they could already be half way there. The United Kingdom still holds a large amount of power in the EU and could persuade other EU members to support Scotland's EU membership. In return Scotland could give a larger share of the oil fields to the United Kingdom.

6. The Scottish financial sector would need to be restructured, so that it can survive any financial crisis, but still remain a strong asset to an independent Scotland. This will provide a good source of revenue to Scotland.

7. The currency union is essential and therefore it must be in place by the time Scotland become independent. In return for the currency union, Scotland would

need to agree to take a large share of the debt from the United Kingdom. This currency union would provide greater financial security and lower transaction costs for both parties.

The price of oil is not intrinsic to an independent Scotland's economic success if the above changes are made, but oil revenue is a very important asset to Scotland. Other countries such as Finland have enjoyed economic successful without having any oil themselves. Scotland has this benefit and although the first few years will prove to be very challenging, there is strong encouragement that Scotland can be economically successful as an independent nation, but the initial years after independence will be very tough and decisive. Countries such as Finland and Norway are good examples for Scotland to aspire to and learn any lessons learnt from them, which they gained through independence.

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Appendix 1 – Letter to the Scottish Parliament - Forecast and Projections of Oil and Gas receipts

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Chairman

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Mr Kenneth Gibson MSP
Convenor
Finance Committee
The Scottish Parliament
Edinburgh
EH99 1SP

10 July 2014

RE: FORECASTS AND PROJECTIONS FOR OIL AND GAS RECEIPTS

As you know, we are today publishing our annual *Fiscal sustainability report*, which looks at the health of the UK public sector balance sheet and at the long-term outlook for the public finances. It includes long-term projections for oil and gas receipts. The relevant section of the report can be found between pages 109 and 121 here: http://budgetresponsibility.org.uk/pubs/2014-FSR_OBR_web.pdf. But given the interest that the Committee has shown in this topic, I thought it might also be helpful to highlight the key points in a letter to you:

- The OBR was created in 2010 to provide independent and authoritative analysis of the UK public finances, free from partisan political influence. (For the avoidance of doubt, we take no position either way on the upcoming referendum on Scottish independence and we have made it very clear that we would not participate in the UK Treasury's efforts to make the case for a 'no' vote.)

- Each year we produce two medium-term forecasts for the public finances (at the time of the UK Budget and Autumn Statement) and one set of long-term projections (in the FSR). All include estimates of future oil and gas receipts, comprising Ring Fence Corporation Tax (including the Supplementary Charge) and Petroleum Revenue Tax.

- Oil and gas receipts are one of the most volatile streams of revenue coming into the Exchequer, which also makes them one of the most difficult to forecast. This reflects the number and the nature of the factors that determine these revenues: the levels of oil and gas production, global dollar prices, the sterling/dollar exchange rate, the scale of tax-deductible capital and operating expenditure, and the history of past profits and losses for each company in the industry that determine if and when they will pay tax on newly generated profits. Most of these individual determinants are difficult to predict in their own right, even over a very short time horizon.

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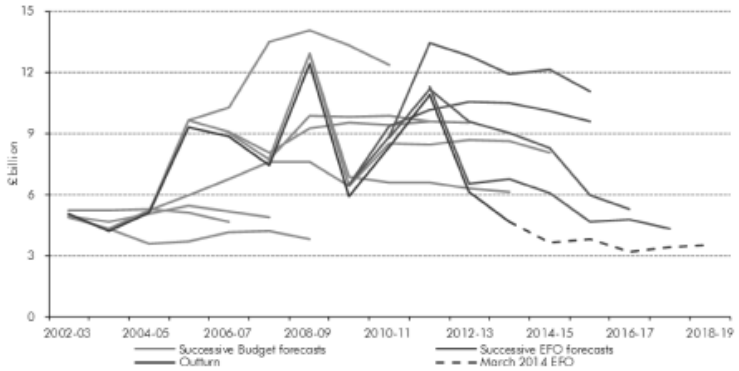
- The chart below illustrates the volatility of oil and gas receipts and how hard they are to forecast. The average absolute percentage change in receipts from one year to the next over the period shown has been nearly 35 per cent – compared to just 5 per cent for income tax or 7 per cent for VAT. In recent years, this volatility has reflected changes in production and expenditure. At the end of the last decade, it was price movements that explained most of the volatility.

Oil and gas receipts: outturns and forecasts



Source: HM Treasury, OBR, HMRC

- The forecast lines are distributed both above and below the outturn path of receipts, which demonstrates that they have been neither systematically too optimistic nor systematically too pessimistic over the period as a whole. Towards the end of the period, the OBR's four Budget forecasts have tended to be too optimistic, as receipts grew by less than we expected in 2010-11 and 2011-12 and then more than halved over the subsequent two years. Indeed, the £4.7 billion raised in 2013-14 was less than had been predicted in all six previous Budget forecasts that had included a forecast for that year.

- Looking forward, our long-term projections start from the five-year forecast that we published in our March *Economic and fiscal outlook*. This showed revenues falling from £6.1 billion in 2012-13 to £3.5 billion in 2018-19. Our forecast for 2017-18 was almost £1 billion down on a year earlier, largely reflecting lower-than-expected production in 2013 that pushed down the forecast in subsequent years: oil production is forecast to be around 11 per cent lower and gas production around 8 per cent lower by 2017-18 than we forecast last year. Our forecast for the dollar oil price in 2017-18 was slightly higher than it had been a year earlier, but the appreciation of the pound meant that the forecast sterling price was slightly lower.

- Over the medium term forecast, we assume that oil and gas prices move in line with futures markets over the first two years and are constant thereafter. As the International Monetary Fund has noted: 'Futures price based forecasts are hard to beat' over a two year horizon, but 'the relative forecasting ability of futures prices

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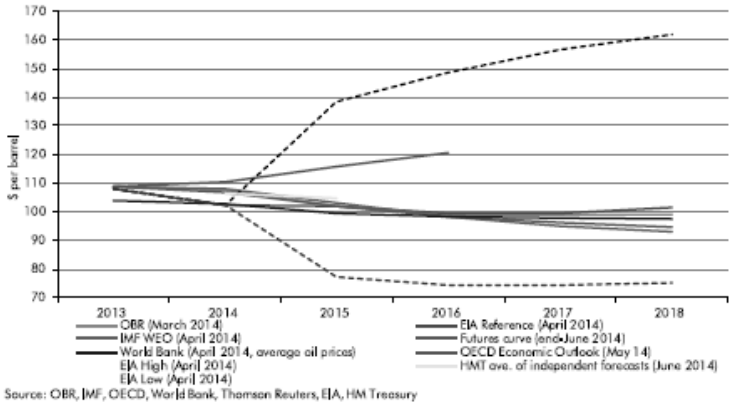
deteriorates the longer the forecast horizon, which likely reflects lower liquidity at the back end of futures curves',[1]

- The chart below compares our March medium term forecast for the dollar oil price to recent forecasts from the International Monetary Fund, the World Bank, the Organisation for Economic Cooperation & Development (OECD) and the US Energy Information Administration (EIA), as well as to the five-year path of future prices.

Oil price forecasts and futures prices



Source: OBR, IMF, OECD, World Bank, Thomson Reuters, EIA, HM Treasury

- Most of the forecasts are broadly similar, reflecting assessments of demand and supply and the fact that futures prices have not moved a great deal since March. (The OECD simply assumes that oil prices will rise by $5 per barrel per year.) But the enormous uncertainty around these forecasts is highlighted by the EIA's 'high price' and 'low price' scenarios: the former assumes higher costs of supply from non-conventional sources; the latter assumes lower costs of production and lower demand from China and the Middle East. Meanwhile the World Bank argues that in the longer term 'prices are expected to fall due to growing supplies of unconventional oil, efficiency gains, and (less so) substitution away from oil',[2]

- Our medium term forecast for oil and gas production is based on projections by the Department for Energy and Climate Change (DECC). These are compiled using field-level data from the operators of each field. DECC adjusts these estimates, for example to take account of project slippage and the industry's past over-optimism.

- North Sea production has now been falling consistently since 1999, by an average of 7.8 per cent a year. But we have accepted DECC's judgement that production is likely to flatten off over the next few years, reflecting recent very high levels of capital investment. (Oil and Gas UK, the industry trade association, forecasts that production will

Do commodity futures help forecast spot prices? IMF Working Paper No: 11/254,
World Bank (2014), Commodity Markets Outlook, April 2014.

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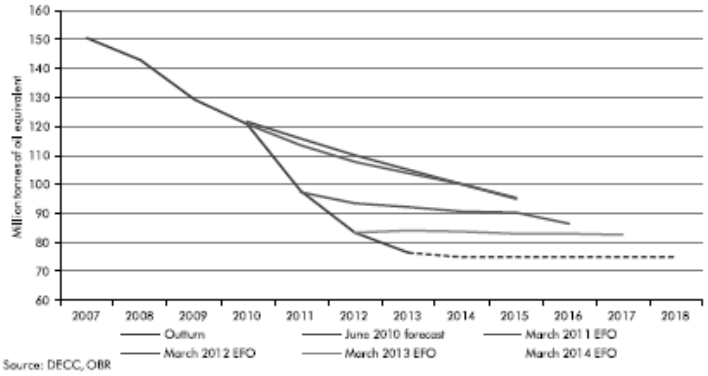
rise by about 20 per cent over the same period, which would only take it back to the average level recorded in 2011 and 2012.)

- We believe that this is a reasonable central judgement. But – as the chart below illustrates – we have assumed in each of in our last four spring/summer forecasts that the ongoing fall in production was about to slow or stabilise. Instead it has continued apace.

North Sea production: outturns and OBR spring forecasts



Source: DECC, OBR

- To generate our long-term projections, we commission HMRC to run their oil and gas revenue model to extend the medium-term forecast to 2040-41. The model estimates revenues at an individual field level, based on data provided by operators. The data are augmented to allow for extra production from new incremental projects in existing fields, development of technical reserves and new exploration.

- Beyond the medium-term forecast, we assume that:
  - oil and gas prices rise in line with our long-term assumption for whole economy inflation (2.2 per cent a year);
  - production falls by 5 per cent a year, significantly slower than the 7.8 per cent a year average fall since 1999;
  - real operating and capital expenditure move in line with production, and;
  - decommissioning expenditure is as reported by operators.

- Under these assumptions, we project that receipts will average around 0,06 per cent of UK GDP between 2019-20 and 2040-41, around a fifth of the level recorded in 2013-14. Expected revenues over this period total £39.3 billion, down £12.6 billion from our estimate last year. Of this downward revision:

  - around £9 billion reflects a downward revision to expected production. As noted above, unexpectedly weak production in 2013 has prompted us to revise down our medium-term forecast. This knocks through to the long-term projections;

  - around £1 billion reflects effect of lower sterling oil prices, which reduce receipts, partly offset by higher gas prices, which increase them, and;

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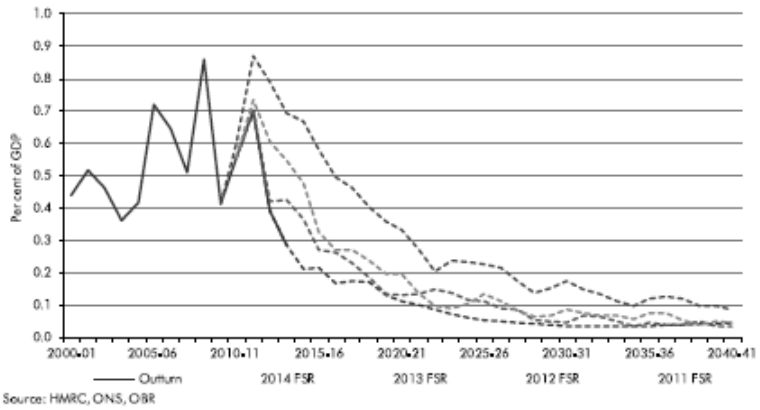
- around £6 billion reflects updated information across a number of elements of the projections. The individual elements cannot be quantified precisely, but they include:
  - new data on field ownership and the group structure of operating companies, This has reduced projected receipts for two main reasons: first, because more production is expected to come from firms that have losses to carry forward and set off against future tax liabilities; and second, because more operating and capital expenditure is expected to be undertaken by firms that have sufficient profits to set it off against;
  - HMRC have updated the information used to model the ring fence expenditure supplement in the projections. As the supplement raises the amount of profit that can be offset with a given amount of past losses, the change interacts with the updating of field level information described above; and
  - an increase in the number of firms expected to have losses to set off against future tax liabilities at the beginning of the long-term projection period, This reflects the downward revision to production over the medium term in our March forecast.
- these downward revisions are offset by a boost to receipts of around £4 billion due to lower expected expenditure, which is tax deductible, We have revised down the capital expenditure projections in our medium-term forecast (which knocks through to the long term), because of updated information from operators. This is partly offset by upward revisions to expected operating expenditure,

Oil and gas receipts: outturns and OBR projections



Source: HMRC, ONS, OBR

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- Taking the March medium term forecast and today's long-term projections together, we have reduced our central projection for total oil and gas receipts between 2013-14 and 2040-41 by £20.6 billion since last year's FSR, from £82.2 billion to £61.6 billion.

- Needless to say, there are big uncertainties around many of the determinants of the post-2019 projections. So we test the sensitivity of our central projection to a number of judgements, among them:

    - **Prices:** In our central scenario oil prices rise from $102 a barrel in 2015 to $160 dollars a barrel in 2040. Under the EIA 'high price' scenario shown above, oil prices rise from $138 a barrel in 2015 to $350 a barrel in 2040, delivering £71.8 billion more revenue than our central projection. Under the EIA 'low price' scenario, oil prices drop to $77 a barrel in 2015 and then rise only to $120 a barrel in 2040, delivering £23.0 billion less revenue than in our central projection. But it should be noted that these alternative price paths would also have a significant impact on the wider economic and fiscal forecast.

    - **Production:** Our central projection assumes that production falls by 5 per cent a year beyond 2018-19, significantly less than the 7.8 per cent a year decline we have seen over the past decade. If production was to fall by 7.5 per cent a year, more in line with the recent past, revenues would be reduced by £12.9 billion from our central projection. But if the strength of recent investment kept production flat for a further five years beyond the medium term forecast, before then falling by 5 per cent a year, revenues would be £14.9 billion higher than in the central projection. Much the same would be true if output rose 20 per cent over the next five years (as the industry expects), then fell 5 per cent a year.

To conclude, our projections suggest that North Sea oil and gas receipts will remain a valuable fiscal resource for many years to come. But they are highly volatile from year to year, which makes near-term forecasting very difficult. And while it is clear that the long-term trend in receipts is downward, the pace of that decline – and the amount that can be collected as it happens – is highly uncertain and very sensitive to the path of production and prices. Whichever government receives these receipts needs to plan on that basis.

I hope this is helpful and of interest.

Robert Chote
Chairman

Appendix 2 – Letter from the First Minister to Danny Alexander MP

Dear Danny,

Thank you for your letter of the 10 July.

The Office for Budget Responsibility's (OBR) long term forecasts rest on estimates of future production which are well below those used by the industry and leading independent experts.

The OBR assume that 10 billion barrels of oil and gas will be extracted over the next 28 years. In comparison, Oil and Gas UK estimate that up to 24 billion barrels could still be recovered. The same estimate has been cited by Sir Ian Wood, in his review of the oil and gas industry, by Professor Alex Kemp, and in your own government's Oil and Gas Industrial Strategy. Professor John Howell, Chair of Geology and Petroleum Geology at Aberdeen University, has estimated that there are upwards of 35 billion barrels of oil equivalent remaining in the North Sea and surrounding waters.

As you will be aware, the Scottish Government has published detailed forecasts for North Sea tax revenues in future years. These projections are based on robust assumptions. They use industry expectations of future North Sea production and investment and the assumption that oil prices remain constant at $110 in cash terms, $18 per barrel lower than the central projection for 2018 used by DECC – a department of the Government of which you are a member. As Sir Donald Mackay, Economic Adviser to the Secretary of State for Scotland for 25 years has concluded "there is no hole in the Scottish government's oil predictions". Moreover, Sir Donald has highlighted that "there is a mountain of black gold missing" from your own figures. Given that Sir Donald quite literally wrote the book on the political economy of North Sea oil, when you were but three years old, perhaps you should acknowledge his expertise and authority in such matters rather than cite the OBR's ability to forecast the next three decades when they have patently failed to forecast accurately the last three years.

North Sea oil is a bonus, not the basis, of an independent Scotland's economy, and is a fantastic asset which will be around for many decades to come. In an independent Scotland our oil and gas industry will be properly supported, and not neglected and undermined as it has been by successive Westminster Governments. Your letter states that the UK Government is committed to supporting investment in the oil and gas industry. However, this is not reflected in your record at the HM Treasury. For example, in 2011 the UK Government sharply increased the supplementary charge paid by North Sea operators on their profits. It was widely reported that it was your idea to impose this tax hike on the industry – and indeed that you "boasted" to business leaders that this deeply damaging tax grab was your own idea!

Sir Ian Wood's Final Report emphasised that "fiscal instability has been a significant factor in basin underperformance" – a factor which you have directly contributed to. Malcolm Webb, of Oil & Gas UK, also reiterated this February that the industry is still "scarred" by the experience.

That is something for which you should apologise, just as you should apologise to Professor Patrick Dunleavy of the London School of Economics, whose work the Treasury recently misused in order to present a false picture of the finances of an independent Scotland – something that Professor Dunleavy has now described as your "dodgy dossier".

In terms of the future of the North Sea industry, the UK Government, unlike their counterparts in Norway, has repeatedly missed the point – formulating policy based on short-term gain rather than maximising long-term returns still threatens long-term damage to the sector. Oil and Gas UK calculated at the time of your 2011 tax raid that it was one of 16 different tax changes in the

previous decade. By contrast, fiscal and regulatory stability will be at the heart of an independent Scotland's approach to the North Sea oil and gas industry.

Finally, as emphasised in your letter, it is important that the electorate has all the facts prior to the referendum. I am therefore disappointed that you have failed to address any of the questions raised in my letter of the 2 July about the scale of the cuts that Scotland faces in the event of a no vote. Your previous correspondence clearly implied that there will be a further £25 billion in cuts after the next UK General Election regardless of which party forms the next UK Government. I would be so grateful if you would reply to outstanding correspondence before sending any further letters. Indeed I may have to introduce a new rule – I will give you the courtesy of comprehensive replies to your correspondence when you offer any reply whatsoever to the key points made in mine.