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Executive Master of Business Administration

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TITTEL:

Payout behaviours and CAPEX spend of major international oil and gas companies during oil price fluctuations

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Abstract

The purpose of this study is to investigate if the major international oil and gas companies alter their payout behaviours with changing oil price. Secondary, the study analyses trends in CAPEX spend, with the aim to identify countercyclical behaviours, that could cater for competitive advantages in contracting of field development activities. Utilising published financial data from the last 20 years, payout ratios and CAPEX spend is analysed, based on oil price fluctuations. Clear evidence of alterations in payout ratios have been found in this work, with a general trend of increasing spread in payout ratios as the oil price drops. This is in line with existing research, and is driven by reduced net income, in some cases net losses, in combination with sustained cash dividends. No significant evidence of countercyclical CAPEX spend has been found. The development of a common framework for studies involving negative payout ratios, that retains the necessary data granularity, would cater for significant developments in this research domain.

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Preface

This thesis is written as the conclusive element of the Executive Master of Business Administration (EMBA) study at the University of Stavanger. I have attended this part time study programme from September 2016 to May 2019.

The choice of topic for this thesis was triggered by an interest in the financial scene and stock markets, and a wish to better understand payout policies. The fact that some companies go to the extreme of even borrowing money to issue cash dividends, was one of the things that made me curious to learn more about this.

I would like to thank my supervisor, Kjell Jørgensen, for his support in this work. His interest in the topic, availability for discussions and “go for it” attitude has helped make this work both insightful and a developing task.

Thesis introduction and argument

If history has taught us one thing about the oil market, it is that the only thing we can assume is certain, is its uncertainty. The volatility of the oil price has caused a number of headaches for investors, executives and employees over the years, with little sign of stability being just around the corner. In the second quarter of 2019, the Brent oil prices both plummeted 30%, and recovered, over the last six months. Naturally, the earnings of the oil and gas companies of the world are heavily affected by this.

With the net income heavily affected by the volatility of the oil price, how much of the surplus cash should be retained in the company, and how much should be distributed to shareholders? Can the company afford to pay a dividend even in times where the outlook of the oil price is low? The companies' corporate payout policy dictate all this, and this study will analyse how oil and gas companies have altered their payouts during the upturns and downturns of the oil price.

In its simplest form, payout policy can be described as the decision of how much of the profit should be distributed to the shareholders, and in what way. Figure 1 illustrates how a company may opt to retain residual cash in the company, either by investing in profitable projects or by increasing the cash reserves. Should the company decide to pay out some of this cash, the options would be either to issue a cash dividend per share outstanding, or to repurchase own shares in the market, thus lowering the number of shares outstanding.

Corporate payout policy, and the nuances associated with it, will be further discussed in the following chapter, but already we can see that a company that generates income that is heavily affected by the oil price, will have some significant thinking to do, when setting its payout policy.

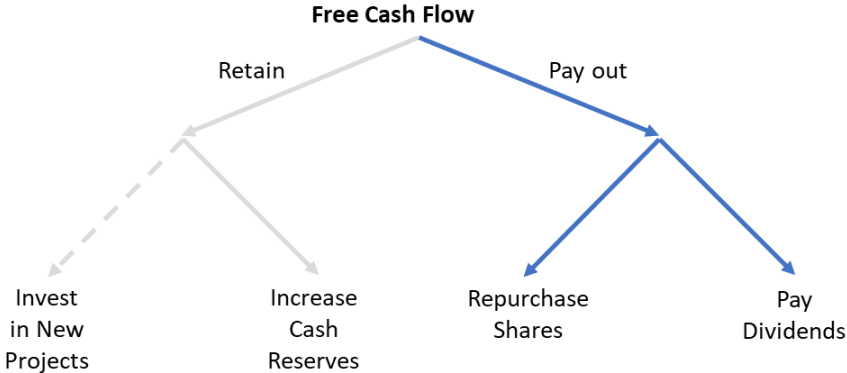


Figure 1: Payout Policy (Berk & DeMarzo, 2017)

From Figure 1, one would think that during sudden and severe drops in the oil price, with profits eradicated or even resulting in net losses for oil and gas companies, dividends would be cut back immediately, as there would be no free cash flow to distribute. Yet, the behaviour of these companies differs substantially from that rather rational assumption. Chevron, as an example, is currently on its 32nd consecutive year with increased annual dividends (Chevron, 2019).

How can that be, that during 32 years of oil price crises and recessions, the annual dividend has constantly been increased? Do all major oil and gas companies exhibit this somewhat counterintuitive behaviour? Does this correlate to behaviours and trends in the financial market as a whole, or is this sector specific to oil and gas? Is this something that is only seen with US based companies, like Chevron, or does this behaviour span companies globally as well?

Whilst causing a lot of interest and opinions, something that a Google news search for *dividend*, and the millions of search results clearly demonstrates, very little structured data is available for how major oil and gas companies behave over time.

As will be described in a later section of this report, structured and complete data to answer the questions above is not even available in one of the major databases for historical share and financial data, Refinitiv (former Thompson Reuters) Eikon. This lack of quality data on share repurchases is echoed in a significant book on corporate payout policy, where DeAngelo, DeAngelo, and Skinner (2009) list the lack of granularity of share repurchase data as one of seven promising avenues for further research.

Clearly more data and analysis are needed to shed light on this. This thesis will offer that, by exploring major oil and gas companies' payout behaviours in varying oil price markets, with the aim to answer the following research question:

- 1) *In what way do major oil and gas companies alter their payout ratios in high and low oil price scenarios?*

As Figure 1 illustrated, an alternative to pay out surplus cash, is to simply retain the capital in the company to fund investments in profitable projects. For oil and gas companies, one such investment could be exploration cost with the aim to discover new oil reserves, a cost that is heavily affected by the drill rig rates. The volatility in the oil market does not stop with the oil price, as can be seen in Figure 2, the cost of hiring a drill rig on the Norwegian Continental Shelf (NCS) increased by 600% in just over 3 years from Q4 2003. The timing of when to make such investments is clearly a driver for the overall development cost of new oil and gas fields.

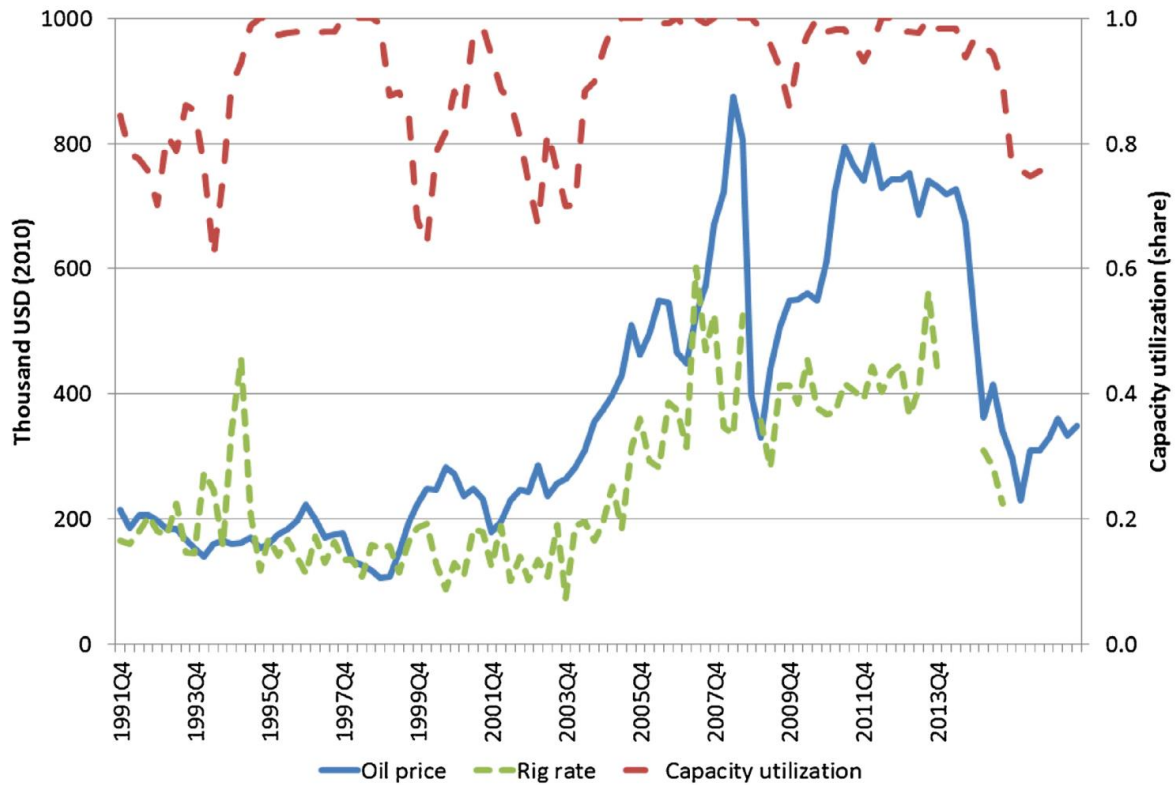


Figure 2: Rig rates and capacity utilisation for the Norwegian Continental Shelf (Skjerpen, Storrøsten, Rosendahl, & Osmundsen, 2018)

Companies that get this above-mentioned timing right may achieve lowered field development costs, which in turn would positively affect their financial results. What if oil and gas companies lowered, or refrained from issuing at all, dividends in oil price downturns and rather re-invested that capital in profitable projects? That way more investments would be done in times where rig rates and other field development costs typically are at low points, due to overcapacity in the market. Or is this something that is already done? Do any of the major oil and gas companies increase their Capital Expenditure (CAPEX) spend ahead of their peers coming out of downturns, and that way enable contracting at improved rates? If so, is this something that this company has done on a regular basis? And if that is the case, does this correlate to increased overall shareholder return, over the time frame investigated in this work?

A clear answer to the above would be of interest for both investors and oil and gas companies as a whole, as it would help identify value creating behaviours in a very competitive market. To investigate this, the following secondary research question will be answered:

- 2) *Do any of the oil and gas companies in this study exhibit countercyclical behaviours by increasing their CAPEX levels in oil price downturns, enabling exploitation of lower market rates for high cost investment activities?*

Payout policy, and dividends in specific, have been subject to a substantial research effort over the last decades, but a large portion of this research aim to identify the correlation between dividend yield, which is the issued dividend expressed as a percentage of the share price, and future earnings. No published research has been found to answer the two research questions set out in this thesis.

Theory

In the previous section, we discussed how Figure 1 illustrate companies' options with regards to handling of surplus cash. The capital can be distributed to shareholders through cash dividends or repurchase of own shares, alternatively it can be retained in the company for investments or increased cash reserve. What companies actually decide on is driven by their payout policy. In this section we will review payout policy theory and literature that is relevant for the analytical work described in the next chapter.

While the simple description of payout policy as how much capital, and in what way, companies should distribute to shareholders sounds very straight forward, the practical applications of this topic are far from simple. It has intrigued financial professionals, as well as researchers, for several decades, and is not yet fully understood. A famous quote by Fischer Black (1976) summarises the state of understanding of the topic in the 70s:

*The harder we look at the dividend picture, the more it seems like a puzzle,
with pieces that just don't fit together.*

In a significant, and much more recent study, DeAngelo et al. (2009) render an improved state of the understanding of payout policy. In their assessment, the theory does a reasonable job of explaining the broad-brush features of corporate payout policy, but they make it clear that important gaps remain.

The famous dividend irrelevance theory presented by Miller and Modigliani (1961) states that in perfect and frictionless markets, the dividend policy is irrelevant for the valuation of a company. In other words, whether a company decides to retain or distribute surplus cash to shareholders, does not matter to the investors. Yet, we see significant interest in companies' payout policy from investors, and the market is by no means frictionless. Taxes, agency cost and information asymmetry between managers and investors all play their role in this.

Brav, Graham, Harvey, and Michaely (2005) conducted a survey interviewing 384 financial executives, to assess if the findings from a significant and similar study done half a century earlier by Lintner (1956) still were relevant. They found that managers view the importance of maintaining the set cash dividend level on par with the importance of investments, and that some managers are willing to give up profitable investments to be able to maintain the dividend level. They also found that while cash dividends are more stable, the repurchase of own shares is often driven by the level of residual cash, post investments. Farre-Mensa, Michaely, and

Schmalz (2014) reiterate the latter by stating that dividends tend to be sticky and smoothed over time, while repurchases on the other hand are much more cyclical.

Significant research effort has gone into explaining the main drivers in how companies set their payout policy. In the following, the three most referred-to explanations will be listed.

Dividend signalling

The information asymmetry between managers of a company and investors is captured by signalling models that see dividend increase or decrease as a way for managers to communicate their view of the company's future earning to the markets (Booth & Zhou, 2017).

Agency cost

Having too much cash in the company may cause managers to utilise this capital ineffectively, both on investments and compensation (Berk & DeMarzo, 2017). In other words, less capital in the company induce a stronger financial discipline amongst the company managers.

Taxes

This is a significant market imperfection, and one that plays a big role in separating reality from Miller and Modigliani (1961) and their dividend irrelevance theory. If cash dividends are taxed at lower rate than capital gains, as was the case in the US until 2003, investors will naturally prefer cash dividends (Berk & DeMarzo, 2017).

Various support for the three phenomenon listed above can be found in the corporate payout policy literature, e.g. on agency cost, where La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000), in a cross-sectional analysis of 4000 companies from 33 countries, conclude that minority shareholders pressure managers to distribute surplus cash, to prevent wasteful cash management and opportunistic management behaviours.

With historical variances in the tax levels for dividends and capital gains, a lot of the research literature naturally focus on taxes as a driver in the choice between dividends and repurchases. Farre-Mensa et al. (2014) report however, that studies now conclude that taxes only have a second-order impact on setting the payout policy, and that none of the three traditional explanations listed above can account for the behaviours seen in the last 30 years. The authors point to other payout motivations, such as changes in compensation practices and management incentives as better explanations for the recent trends. The general trend, especially in the US, has been a shift from cash dividend domination over share repurchases, to the complete opposite in 2000, with a recent moderate return of cash dividends.

In addition to the above, there is substantial support in the corporate finance literature for the accounting earnings being a key determinant of payout policy. In fact, recent work point to the need to distribute free cash flow as the main driver for the payout policy (DeAngelo et al., 2009).

Sticky cash dividends – Managers' reluctance to cut back

In the introduction of this report, the 32 years of increased cash dividends by Chevron exemplified how companies are doing their utmost not to cut dividends. We will in this section drill deeper into why managers are so protective of dividends.

In a significant survey, it was found that 94% of managers interviewed, strongly or very strongly agreed that they try to avoid reducing dividends. In fact, this was the strongest response result of any of the questions in this survey on payout policy (Brav et al., 2005).

One obvious reason for managers to behave this way is that cash dividend cuts are generally followed by share price drops. This is evident from numerous studies that have analysed the immediate effect on share price from dividend initiations, increases and cut backs. DeAngelo et al. (2009) summarise this work by concluding that, on average, dividend initiations and increases result in 3% and 1% increase in share price respectively, while cut in dividend levels typically results in a more substantial 6-10% drop in share price.

Not even replacing cash dividends with share repurchases is enough to please investors when dividends are cut. Huie (2001), as reported by DeAngelo et al. (2009), document that companies that have announced a dividend cut, and simultaneously announced share repurchase plans, experienced a share price drop of 3.3%, just at the announcement itself. It is thus clear that the market does not consider repurchase plans an equal alternative to cash dividends.

Even cutting cash dividends with the rationale that the funds are needed to fund profitable investments, is generally not embraced by the investors. In a study analysing 49 instances where companies cut back dividends to fund profitable investments, substantiable share price drop, regardless of this rather prosperous reasoning for the dividends cut, were found (Ghosh & Woolridge, 1989).

While managers are indeed reluctant to cut cash dividends, they do so when in significant financial trouble. A study of German companies found that 80% of the companies with consecutive years of profits and dividend paying track record cut their dividend when they experienced a loss (Goergen, Renneboog, & Da Silva, 2005). Similar evidence is provided in a

study of NYSE listed firms, where companies with reported losses have a 51% chance of a dividend cut, as compared to a 1% chance of dividend cuts for the firms without losses reported (DeAngelo, DeAngelo, & Skinner, 1992).

In trying to conclude on why managers are so reluctant to cut dividends, DeAngelo et al. (2009) list two possible explanations. The first reason points to signalling, as discussed earlier, and how managers view their dividend payments as a message to the market that their financial position is strong. The second explanation is that shareholders view dividend cuts as a violation of the expectations they had when they contributed capital, and that this in turn makes it more difficult for the company to raise capital when necessary in the future.

If managers over time ignore investors' demand for distribution of surplus cash, the share price rational investors are willing to pay will fall to trivial levels. Also, the firm would have to rely almost solely on debt, should they need to raise external capital. Such under-valuated companies, with substantial free cash flow and rare cash distribution, also become sitting-ducks for hostile take-overs (DeAngelo et al., 2009). The authors summarise:

(...) corporate access to equity capital at nontrivial valuations — and the resultant ability to finance attractive investments at an acceptable cost — depends critically on investors' belief that managers will follow through and deliver large payouts on an ongoing basis.

The practical implications of this renders today's corporate payout policy often as follows; permanent earnings fund cash dividends, while transitory earnings tend to fund share repurchases. This way, the companies do not set expectations with shareholders that they are not able to deliver on, over time. In support of this, reports document that many of the announced share repurchase plans are not fulfilled. Also, the number of cash dividend increases vastly exceeds the number of cuts (DeAngelo et al., 2009). In other words, share repurchase can be seen as a vehicle for managers to make payments to investors with no strings attached, whereas a similar payment as cash dividends would create precedence for that payment to sustain in the coming years.

Incentives to choose one form of payment over the other

Looking at it from an investors point of view, indications are that smaller investors tend to prefer cash dividends as this ensure equal pay for all shareholders (Brennan & Thakor, 1990).

With share repurchase, smaller, and often less informed shareholders, will have to gauge if the price is under or above the fair value of the company. In this way they need to assess if selling their shares back to the company or not, is the best way to maximise their wealth. If the company repurchase own shares at a too high price, the loyal shareholders suffers, while the opposite is true if the company sells at too low prices. In volatile share price environments, this could significantly influence the shareholder's return on the investment.

Looking at managers' own incentive for cash dividends versus share repurchase, the picture is quite different. The remuneration of executives is often linked to share price performance and key indicators like Earnings Per Share (EPS) (Grey, Stathopoulos, & Walker, 2013). If managers opt to distribute cash through repurchasing of own shares, the total number of shares outstanding is reduced, which in turn results in a pumped-up EPS, as there are fewer shares to split the earnings on. This reveals an own interest for managers to increase the level of share repurchase. Studies have documented the correlation between increase in executives' share options and increasing levels of repurchases. In a study of more than 1,100 companies, a strong negative relationship between cash dividends and management share options was documented, as well as a positive relationship between share repurchases and management share options. For many managers, an element of this can also be the desire to cancel out any dilution effects from employee share options and pension plans, in their own executive share options (Fenn & Liang, 2001).

In sum, it is clear that this is something that at least is in the mix of things to influence payout decisions, as Brav et al. (2005) report that 75% of surveyed financial executive list increasing EPS as an important factor influencing their share repurchase decisions.

The following list from DeAngelo et al. (2009) give further insight into managers' potential motivation for choosing share repurchases over cash dividends, where number six and seven have been covered in more detail above.

- (1) capture personal tax savings*
- (2) preserve financial flexibility because repurchases carry no implied promise to continue payouts of equal or greater dollar magnitude*
- (3) correct stock market undervaluation and/or exploit outside investors by buying shares when the market price of the firm's shares is below inside-managers' assessment of intrinsic value*

- (4) remove “low valuation” investors from the stockholder population, and thereby reduce the likelihood of an unwanted takeover*
- (5) increase the percent of voting rights held by managers and/or remove a stake held by a threatening large block stockholder*
- (6) bolster reported earnings per share (EPS)*
- (7) avoid the losses caused by dividend payments for holders of managerial stock options, whose exercise prices are rarely adjusted to offset ex-dividend day share price declines*
- (8) economize on transaction costs by removing “odd lot” holders from the stockholder population and/or by providing liquidity to investors who want to sell shares.*

How much of a company’s profit should be distributed to shareholders?

While it may be intuitive to assume that all companies have a specific proportion in mind when assessing what level of capital should be distributed and what should be retained, the literature tells a different story. In the aforementioned survey by Brav et al. (2005), only 28% of the managers confirmed that they had such a specific target. Of the companies involved in this study, some refer in their annual reports to approximate targets for payout ratios over time, while others do not. (For a definition of payout ratio, see page 16.)

In a large and recent study on US companies, Floyd, Li, and Skinner (2015) studied payout ratios during the financial crisis of 2007/2008. They found that for companies that pay both cash dividends and repurchase own shares, the median payout ratio has been between 57% and 93% during the latter 20 years of the study. Of companies that only paid dividends they report mean cash dividend payout ratios between 24% and 48%. The highest payout ratios were seen during the financial crisis. These findings correlate well with what has been discussed earlier, about managers being reluctant to cut dividends, even when net income plummet.

Farre-Mensa et al. (2014) report findings of lower payout ratios than the above study, with total payout ratios of the same period as above, ranging from approximately 16% to 28%, as per Figure 3. It is worth noting that Farre-Mensa et al. (2014) report an equal-weighted average, while Floyd et al. (2015) report median figures. It is also worth noting that Floyd et al. (2015) calculate values based solely on dividend paying companies, higher resulting ratios are therefore to be expected. The compositions of the studies are both US companies, excluding

financials, but with some discrepancy in what characteristics renders specific companies to be included and excluded from the study populations. Both exclude companies that experience net losses, and thus any potential negative payout ratios. The findings of this study will be discussed against both of these studies.

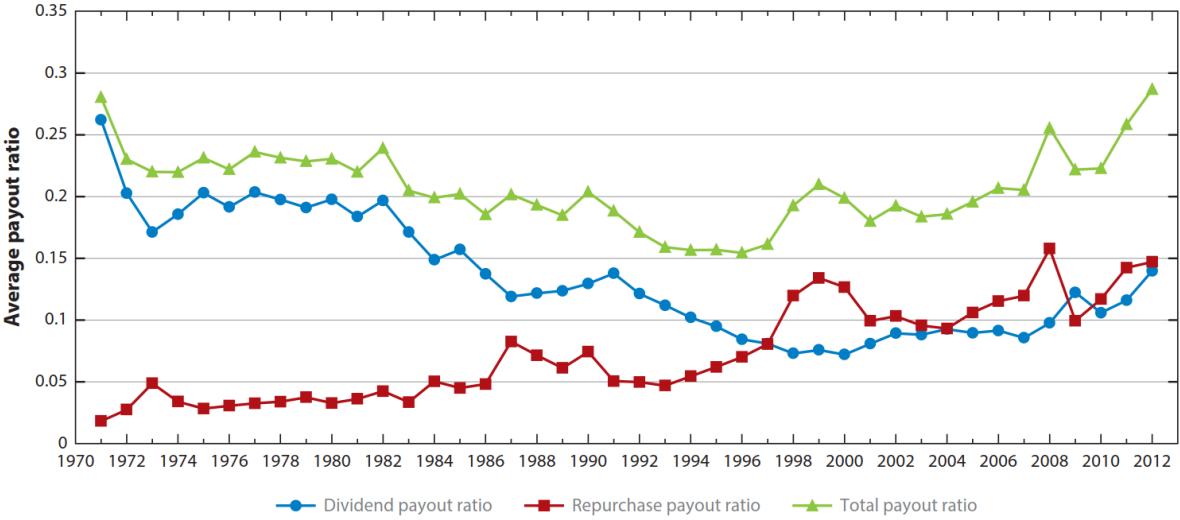


Figure 3: Results from Farre-Mensa et al. (2014)

Many factors affect this, but one that is rather dominant is the maturity of the company. While young start-ups generally do not pay any dividends at all, as they need to retain as much cash as possible for investments and growth, mature companies have generally less profitable investment opportunities, and will typically distribute a higher portion of their net income to their shareholders (DeAngelo et al., 2009).

Method

In this section, the methodology for the analysis will be described. Starting with the design of the analysis, the data collection, a data sample and the method utilised for data analysis will be presented. Results and findings will be discussed in the next chapter.

Design

In order to understand what portions of the residual cash companies opt to distribute to shareholders, a relevant parameter to analyse is the payout ratio. This ratio is defined as the total dividends paid divided by net income.

$$\text{Total payout ratio} = \frac{\text{Total dividends paid (cash and share repurchase)}}{\text{Net income}}$$

$$\text{Cash dividend payout ratio} = \frac{\text{Cash dividends paid}}{\text{Net income}}$$

$$\text{Share repurchase payout ratio} = \frac{\text{Aggregate share repurchase spend}}{\text{Net income}}$$

The ratio of cash that is not distributed to shareholders can be expressed as the retention ratio, which is defined by the cash retained divided by net income.

$$\text{Retention ratio} = \frac{\text{Surplus cash retained}}{\text{Net income}}$$

A comprehensive study of payout ratios was recently done by Farre-Mensa et al. (2014). In this study the authors examined how US based companies over time have opted to retain or distribute surplus cash. Whilst Farre-Mensa et al. (2014) demonstrated an impressive depth in their data set, the study only analyse the US market. To add to this picture, this thesis will utilise similar methodology and divert the research in two specific ways. Where Farre-Mensa et al. (2014) looked at a single market, this study will look at global players, and where Farre-Mensa et al. (2014) looked at the market as a whole, this study will isolate one specific sector. The sector for this study will be oil and gas, and specifically the major international operating companies. Thus, similar data can be compared to previous work, but with a honed in focus on a single sector with a global footprint.

To accomplish this, the six major international oil and gas companies will all be included in the data set. These are ExxonMobil, Chevron, ConocoPhillips, Total, Royal Dutch Shell and Eni. The first three are US based, and the latter three are based in Europe. However, the operations

of these companies span the world, and have done so over time. In addition, the main Norwegian player in this segment, Equinor (former Statoil), will be included. Other Norwegian candidates, such as DNO and Aker BP do not have sufficient time series of data available to provide full data sets, and have thus been excluded.

To ensure sector isolation, only oil and gas producing companies are included, and not oil and gas service companies. Schlumberger and GE Baker Hughes are both large international examples of the latter.

A time frame of 20 years has been selected for this work, to ensure that several upturns and downturns of the oil price is captured. This will also ensure sufficient overlap with previous studies, to allow comparison of results.

Data collection

The primary source of data chosen for this study was the Refinitiv (former Thomson Reuters) Eikon database. This is a large database that contains fundamental financial data from 167 stock exchanges in 123 countries. Data is extracted from this database by installing an Eikon script in Microsoft Excel, and access data utilising the Excel formula building interface, as shown in Figure 4 below. This interface allows specification of what financial variables should be collected from what companies, and from what time frame. Single point data and time series are available. The formula used to extract data for this study can be found in Appendix A.

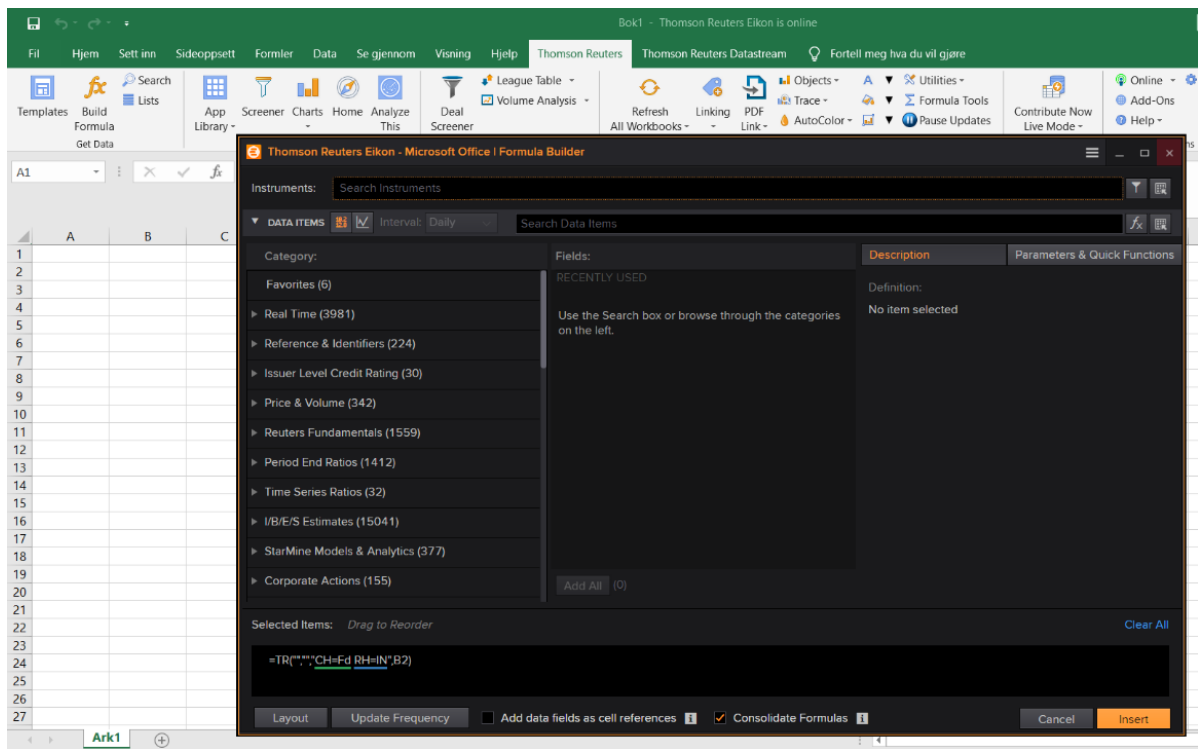


Figure 4: Refinitiv (former Thomson Reuters) Eikon excel formula builder interface

However, initial analysis rendered this data to be of unsatisfactorily quality. For some of the data parameters, e.g. share repurchase and CAPEX, the data granularity was insufficient for the purpose of this study. Gaps in the time series of data were also observed. After pursuing this with the global support team from Refinitiv Eikon, it was indeed confirmed that the required granularity of data was not available through their extensive database.

To ensure both correct and complete data series, the decision was made to manually construct these data sets from relevant data sources. This would also ensure full control over the data quality, rather than the black box approach of utilising raw data from a database.

The data sources for this manual work were the respective companies' annual reports from the last 20 years. For the US based companies, the annual filings on the 10-K format were utilised, whilst for the European based companies the traditional annual reports, mostly on the 20-F format, were utilised. The reports were primarily accessed from the corporate webpages of the respective companies.

This significant effort to collect 700 plus datapoints manually, from up to 140 annual reports, was necessary to provide a holistic view of this research topic. The lack of readily available data for this research, further underpins the uniqueness of it.

For consistency, the following methodology was applied to all companies. Net income, CAPEX, cash dividends paid on common shares and share repurchase levels were taken directly from the Statement of Cash Flows in the annual reports. An example of such a statement can be seen in Figure 5 below.

Statement of Cash Flows (see Note 19)		\$ million		
	Note	2001	2000	1999
Cash flow provided by operating activities				
Net income		10,852	12,719	8,584
Adjustments to reconcile net income to cash flow provided by operating activities				
Depreciation, depletion and amortisation	10	6,117	7,885	6,520
Profit on sale of assets		(133)	(1,026)	(1,366)
Movements in:				
inventories		1,067	(1,268)	(2,059)
accounts receivable		8,519	(10,007)	(5,049)
accounts payable and accrued liabilities		(7,787)	9,741	3,066
taxes payable		(1,443)	967	1,260
short-term securities		-	(2)	16
Associated companies: dividends more/(less) than net income	6	265	(132)	423
Deferred taxation and other provisions		129	491	(55)
Long-term liabilities and other		(1,005)	(1,053)	(522)
Income applicable to minority interests		352	44	241
Cash flow provided by operating activities		16,933	18,359	11,059
Cash flow used in investing activities				
Capital expenditure (including capitalised leases)	10	(9,626)	(6,209)	(7,409)
Proceeds from sale of assets		1,265	3,852	5,026
New investments in associated companies	6	(1,074)	(1,161)	(1,024)
Disposals of investments in associated companies		507	2,283	549
Movement in other investments		(180)	(336)	(165)
Cash flow used in investing activities		(9,108)	(1,571)	(3,023)
Cash flow used in financing activities				
Long-term debt (including short-term part)				
new borrowings		180	945	1,798
repayments		(1,115)	(1,276)	(1,575)
		(935)	(331)	223
Net increase/(decrease) in short-term debt		(794)	(3,271)	(922)
Change in minority interests		(206)	(22)	54
Dividends paid to:				
Parent Companies		(9,406)	(5,239)	(5,446)
minority interests		(221)	(262)	(165)
Cash flow used in financing activities		(11,562)	(9,125)	(6,256)
Parent Companies' shares held by Group companies		(773)	(200)	(411)
Currency translation differences relating to cash and cash equivalents		(251)	(75)	(43)
Increase/(decrease) in cash and cash equivalents		(4,761)	7,388	1,326
Cash and cash equivalents at January 1		11,431	4,043	2,717
Cash and cash equivalents at December 31		6,670	11,431	4,043

Figure 5: Example of Royal Dutch Shell's 2001 Statement of Cash Flows, green markings are made by the author and illustrate figures utilised.

Some discrepancy between the companies, in terminology used in the cash flow statements, exists. As an example, Royal Dutch Shell refer to CAPEX as "Capital expenditure (including capitalised leases)" while Total for the same cash flow statement line item refer to "Intangible assets and property, plant and equipment additions".

Some companies clarify in footnotes or similar, that any repurchase done for e.g. pension or remuneration matters are excluded from the listed numbers in the cash flow statement, while other companies do not specify if this is included or not. E.g. Chevron make it clear in their

2014 annual report that “the “*Net purchases of treasury shares*” represents the cost of common shares acquired less the cost of shares issued for share-based compensation plans” (Chevron, 2014). As not all annual reports are as transparent as this Chevron example, and many are not explicit in other sections of the reports on what was spent on repurchase specifically as part of cash distribution programmes, the line item in the statement of cash flows for share repurchase has been utilised for all companies, to ensure consistency. It is assumed that the portion of the amount that potentially stems from other purposes is neglectable for the purpose of the analysis in this work.

This above-mentioned distinction between gross and net share repurchases is discussed by DeAngelo et al. (2009), where the conclusion is that for the purpose of gauging aggregate payout magnitudes, the distinction between gross and net levels is immaterial. The same conclusion is drawn for this work.

Most companies in this study report all financial results in dollars, however there are a few exceptions. Eni list all results in euro, Total changed from euro to dollar in 2013 and Equinor changed from Norwegian krone to dollar in 2014. For most of the analysis in this work, the currency does not matter, as we are studying the cash distributed to shareholders as function of the net income, rather than comparing absolute values between companies. However, for the CAPEX analysis, we are analysing trends in CAPEX levels over time. It is therefore crucial that the whole time series for a single company is listed in the same currency. Dollars for some companies and euros for others would not affect the results of these analysis, but for clarity and ease of also comparing absolute levels, for the interested reader, all numbers are converted to dollars.

Conversion has been done by accessing historical annual currency exchange rates from the web page of the central bank of Norway (Norges Bank), where an Excel spreadsheet containing dollar and euro to Norwegian krone exchange rates for the last 20 years has been downloaded. Average annual rates have been utilised in the conversion (NorgesBank, 2019).

Sample

Listing all collected data in this report would be impractical, but the data set compiled for ExxonMobil is listed in Table 1 as an example. Similar data sets have been created for all seven companies in the study.

ExxonMobil raw data (\$ Millions)

Year	Net Income	Cash Dividend	Share Repurchase	CAPEX
1999	7910M	5872M	670M	10849M
2000	17720M	6123M	2352M	8446M
2001	15320M	6254M	5721M	9989M
2002	11460M	6217M	4798M	11437M
2003	21510M	6515M	5881M	12859M
2004	25330M	6896M	9951M	11986M
2005	36130M	7185M	18221M	13839M
2006	39500M	7628M	29558M	15462M
2007	40610M	7621M	31822M	15387M
2008	45220M	8058M	35734M	19318M
2009	19658M	8023M	19703M	22491M
2010	31398M	8498M	13093M	26871M
2011	42206M	9020M	22055M	30975M
2012	47681M	10092M	21068M	34271M
2013	33448M	10875M	15998M	33669M
2014	33615M	11568M	13183M	32952M
2015	16551M	12090M	4039M	26490M
2016	8375M	12453M	977M	16163M
2017	19848M	13001M	747M	15402M
2018	21421M	13798M	626M	19574M

Table 1: ExxonMobil sample data from 1999 through 2018

Data analysis

The companies in this study vary significantly in absolute terms, when comparing net income, dividends paid, share repurchase and CAPEX. To overcome this, and allow for meaningful comparison of trends and behaviours between companies, the data parameters were normalised. This allows comparison of data that differ in range by orders of magnitude. This would also remove any currency effect from some companies utilising dollars and some euro, but all values were converted to dollars regardless.

Normalisation, which is essentially rescaling of all values between 0 and 1, per data set, was done as per the following formula.

$$x_{new} = \frac{x - x_{min}}{x_{max} - x_{min}}$$

To illustrate this, Figure 6 lists the ExxonMobil CAPEX data in both absolute and normalised state.

Year	CAPEX	CAPEX Normalised
1999	10,849M	0,09
2000	8,446M	0,00
2001	9,989M	0,06
2002	11,437M	0,12
2003	12,859M	0,17
2004	11,986M	0,14
2005	13,839M	0,21
2006	15,462M	0,27
2007	15,387M	0,27
2008	19,318M	0,42
2009	22,491M	0,54
2010	26,871M	0,71
2011	30,975M	0,87
2012	34,271M	1,00
2013	33,669M	0,98
2014	32,952M	0,95
2015	26,490M	0,70
2016	16,163M	0,30
2017	15,402M	0,27
2018	19,574M	0,43

Figure 6: Example of ExxonMobil CAPEX data in absolute values and normalised. CAPEX in \$ millions.

To ensure that single variable effects are not masked by multi-variable fluctuations, both payout ratios and normalised values for single parameters, such as net income, cash dividend and share repurchase will be presented. Similar to Farre-Mensa et al. (2014), the payout ratios are split in cash dividend payout ratio, share repurchase payout ratio and total payout ratio. The latter ratio is the sum of the first two. Average annual payout ratios for all companies in the study will also be presented and compared with previous findings.

High and low oil price scenarios

In this section, the oil price over the last 20 years will be analysed and split in years with oil price above and below a rolling three-year average. The results will serve as a backdrop for the discussions of the findings and conclusions of this study.

The Brent oil price data that can be seen in Figure 7, have been extracted from the U.S. Energy Information Administration (EIA, 2019) as annual average prices. This granularity is chosen to match the annual financial data utilised in this study. The three-year rolling average is chosen

to ensure that year-over-year changes coming out of oil price downturns are not masking effects that needs highlighting. E.g., if the oil price drops significantly in year 1, and recovers 10% in year 2, this may very well still be a low oil price compared to what has been the norm, and thus what the companies have adopted to, in the prior years. Rather than year 2 then being listed as a year of 10% increase in oil price, year 2 would be sorted as a low oil price year in the model utilised here, as the oil price is still under its three-year rolling average.

Another reason to avoid year-on-year changes, is the fact that companies often make slow adjustments in cash dividends, which has be quantified in relevant literature stating an annual change of a third of the way to the intended long-term level as a typical number (DeAngelo et al., 2009).

As can be seen in Figure 7, over the last 20 years, six fiscal years have had oil prices below a rolling three-year average. These six years are in this study deemed years of a low oil price scenario. These years are 2002, 2009 and 2013-2016. The extent to which these are lower than the rolling average vary significantly, this will be captured in the relevant discussions.

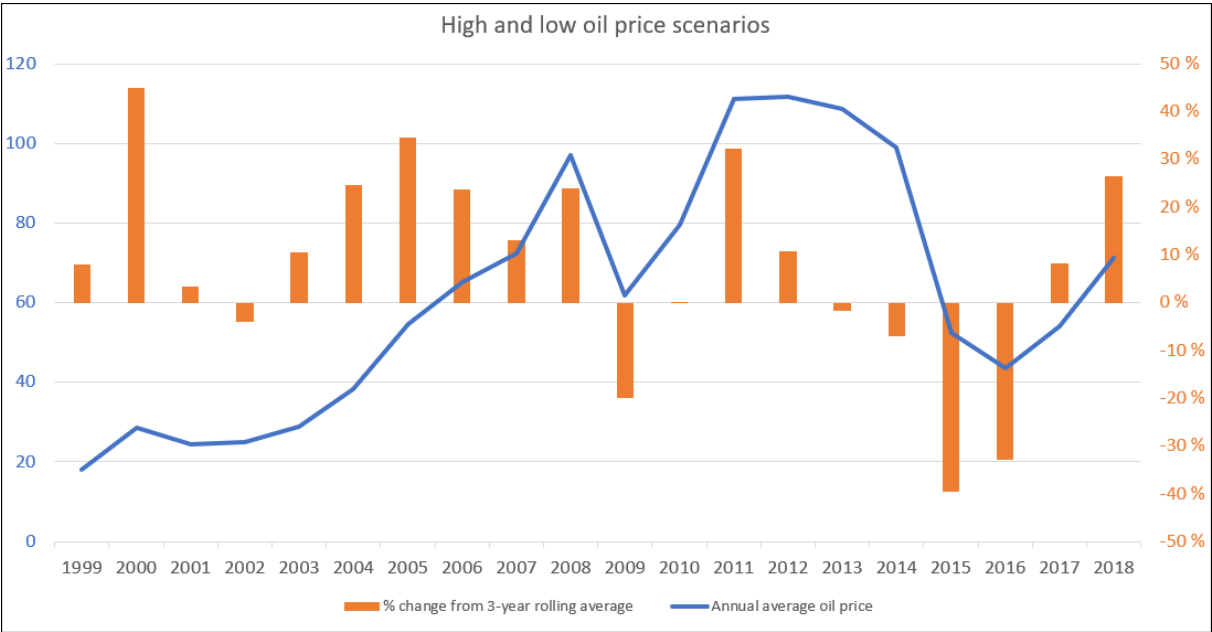


Figure 7: Brent oil price over the last 20 years, including percentage change from a three-year rolling average. For the calculation of the rolling three-year average for 1999, oil price data from 1997 and 1998 have been utilised, though not listed here. Oil price in \$.

Implementation and results

This chapter contains three main parts. First, a single overview plot per company representing all raw data collected is presented, with the exception of CAPEX data. CAPEX will be covered separately in the latter part of this chapter. These initial plots cover all 20 fiscal years analysed, and visually illustrate the levels of cash dividends and share repurchase per year, along with the annual net income. Finally, two sections follow, focusing on the primary and secondary research question, respectively.

Presentation of raw data per company

Chevron (Figure 8) have in all 20 years analysed increased their cash dividend levels. Chevron are currently progressing towards their 32nd year of consecutive increases of cash dividend levels (Chevron, 2019). Repurchase of own shares took place in 11 out of 20 years, where these years also had the 11 highest net incomes of the time series. Ten of these eleven years are in consecutive years leading up to sudden oil price drops, with subsequent stops in share repurchase. Both prior to the significant drop in oil price in 2009 and 2015, this has been the case for Chevron.

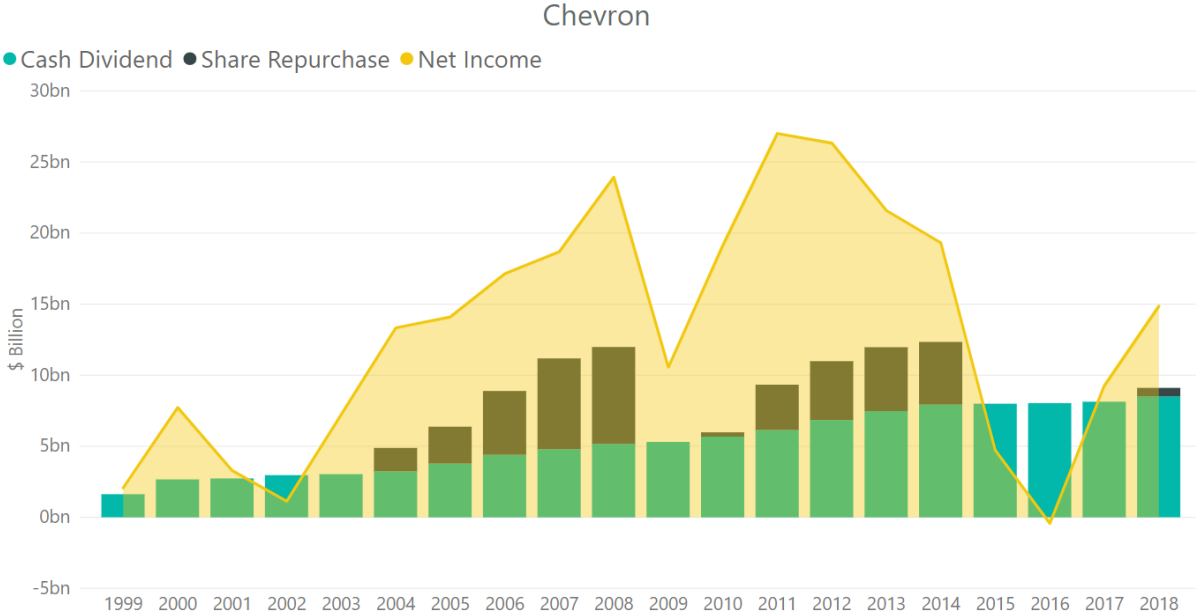


Figure 8: Chevron: Net income, cash dividend and share repurchase. All values in \$ billions.

ConocoPhillips (Figure 9) demonstrate a similar behaviour to Chevron’s, but with a sudden drop in the cash dividend level in 2016. Unlike Chevron, ConocoPhillips have not increased their dividend levels every single year leading up to 2016, but the overall trend has still been a clear increase. ConocoPhillips reported a loss in all three years from 2015 through 2017, as the only company in the study with three consecutive years of losses reported. ConocoPhillips is the only company in the study that reported a net loss in 2017, which is categorised as a high oil price year. The second highest repurchase level in the series by ConocoPhillips came 2008, a year that had the net income significantly affected by the impairment of goodwills. In itself, 2008 was a year with higher revenues than the following two years.

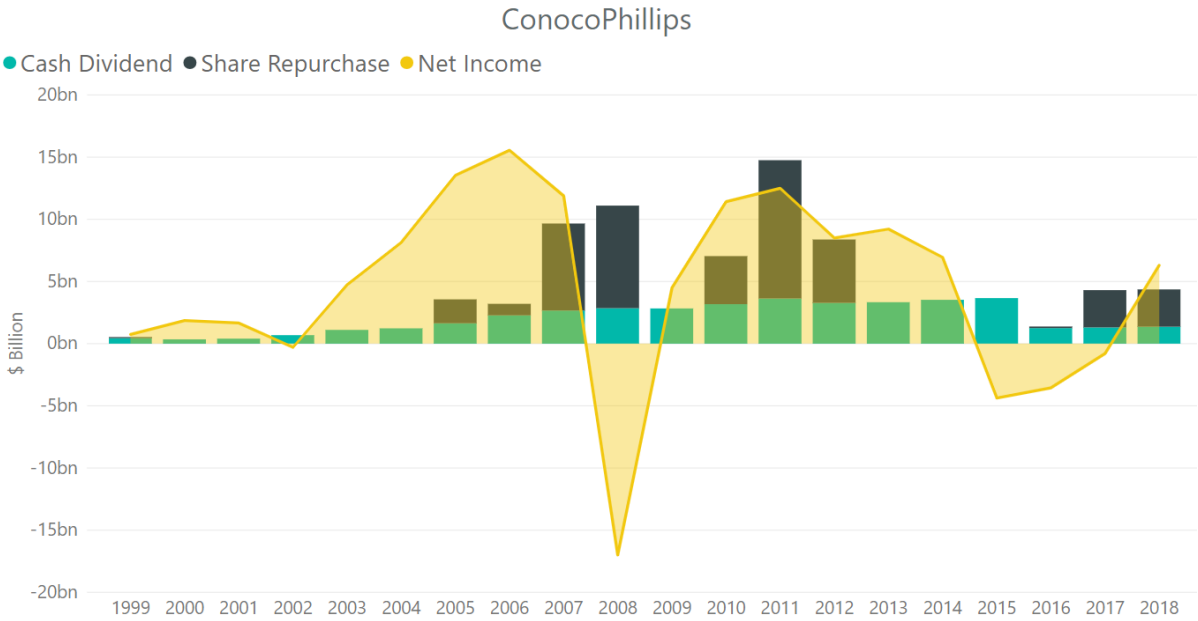


Figure 9: ConocoPhillips: Net income, cash dividend and share repurchase. All values in \$ billions.

Eni (Figure 10) have demonstrated more volatility in their cash dividend levels than several of their peers in this study. Similar to the other companies, Eni maintain a cash dividend during financially troubled years, although the levels are cut back. As with ConocoPhillips and Equinor, Eni reported losses in both 2015 and 2016, whilst maintaining a cash dividend. Eni repurchased own shares in only four out of the 20 years in this study, which puts them second to last of the companies for the number of years with share repurchase executed.

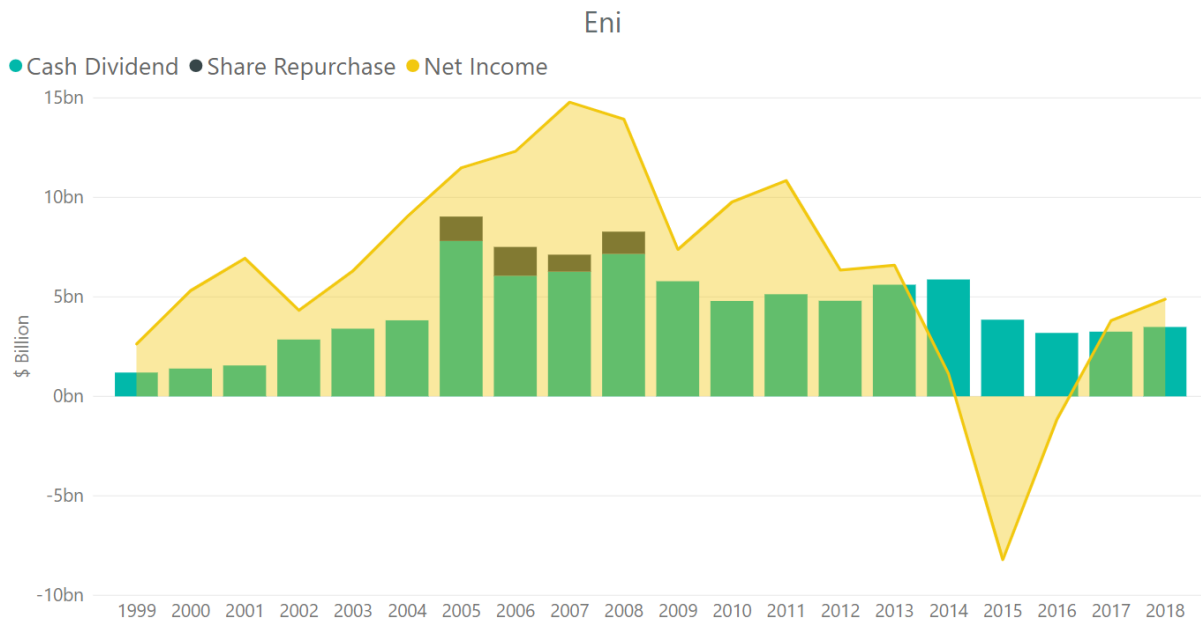


Figure 10: Eni: Net income, cash dividend and share repurchase. All values in \$ billions.

Equinor (Figure 11) have, along with all other companies in this study, maintained a cash dividend in all 20 years studied. The cash dividend levels have been reduced in years with significant drop in net income. However, even in 2015 and 2016 with losses reported, dividends were paid. Equinor have only repurchased own shares in one single year in the last 20 years; the least of any of the companies in the study.

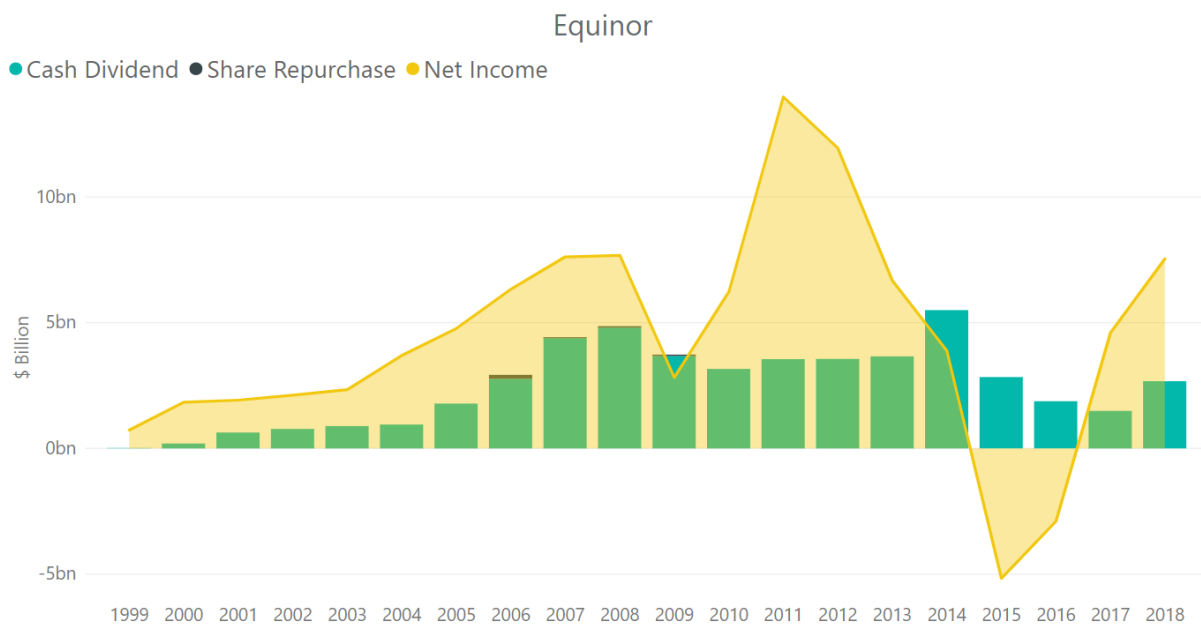


Figure 11: Equinor: Net income, cash dividend and share repurchase. All values in \$ billions.

ExxonMobil (Figure 12) have, along with Chevron, increased their cash dividend levels in all 20 years studied. They have also repurchased shares in all 20 years, something that no other company in the study has done. The amount spent on share repurchases generally follows the trend in the net income reported. ExxonMobil, along with Royal Dutch Shell and Total, are also the only companies in the study not to report a single year of net losses in the 20 years studied.

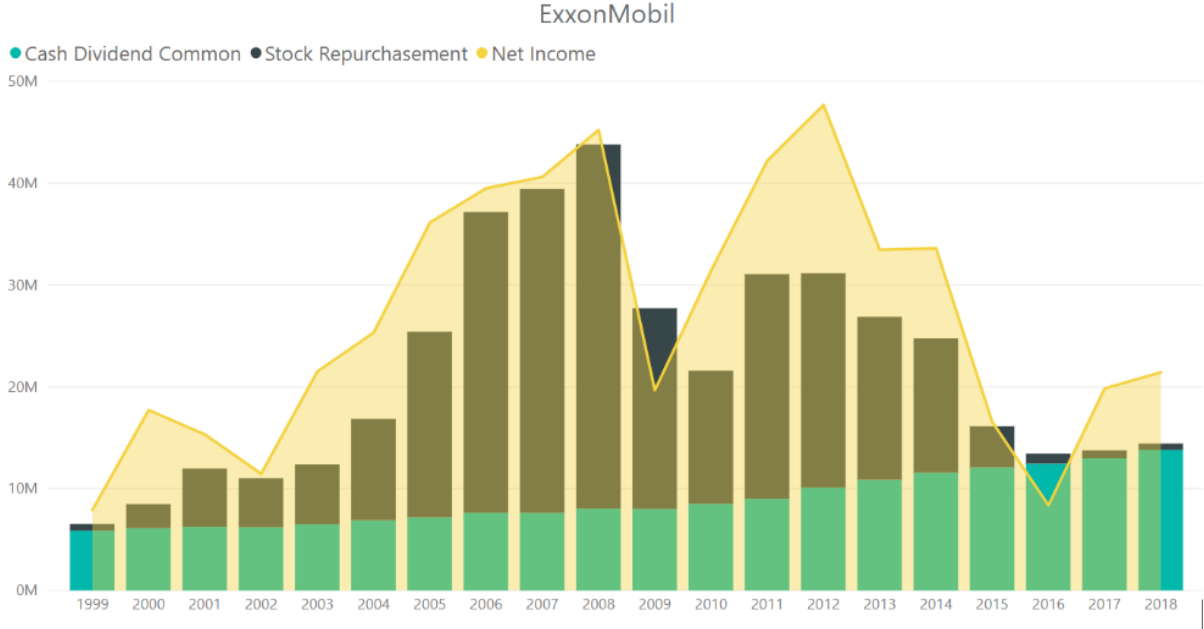


Figure 12: ExxonMobil: Net income, cash dividend and share repurchase. All values in \$ billions.

Royal Dutch Shell (Figure 13) have frequently altered their cash dividend levels in both directions, although the trend has been generally increasing over the 20 years. In financially troubled years, Royal Dutch Shell have paid cash dividends vastly in excess of their net income, similar to their peers in this study. Along with ExxonMobil and Total, Royal Dutch Shell have not reported a net loss in this period. Share repurchase has taken place in 13 out of 20 years analysed, and as with other companies, these have been cut back when the net income has plummeted, however with a certain time lag.

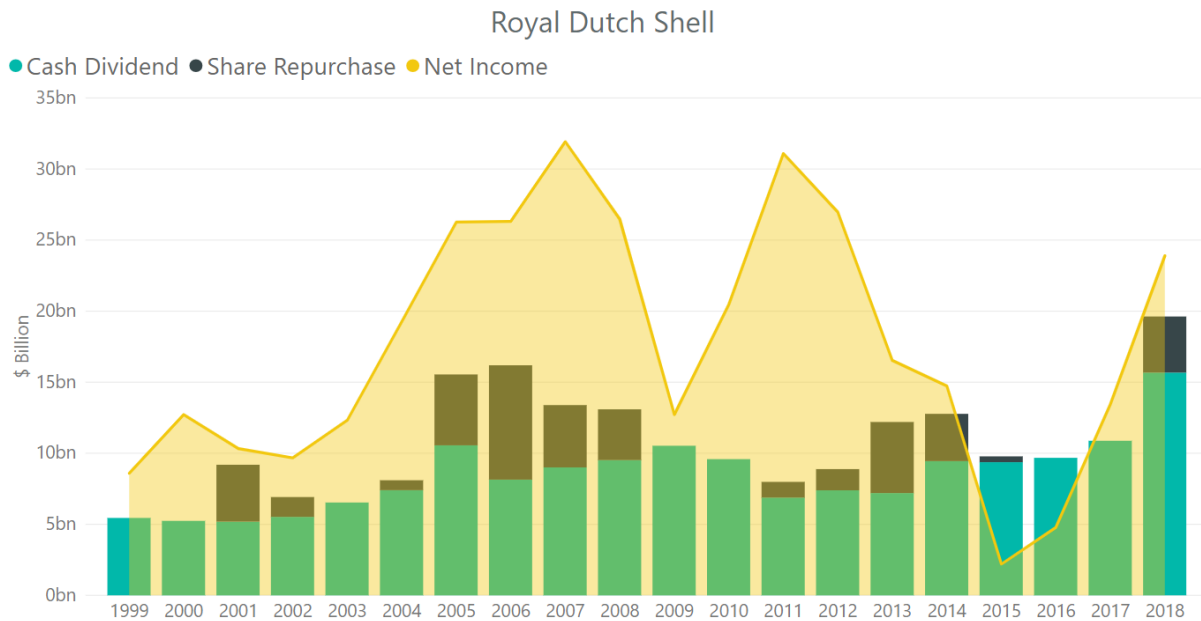


Figure 13: Royal Dutch Shell: Net income, cash dividend and share repurchase. All values in \$ billions.

Total (Figure 14) have both maintained and increased their cash dividend levels during the first two oil price downturns in the analysis. In 2015 however, they cut back significantly for the first time. In the first decade analysed, Total repurchased shares every year but one, whereas in the latter decade the repurchase level has been significantly reduced. The exception to this is the sudden spike in 2018. Total have not reported a single year of net loss in the period.

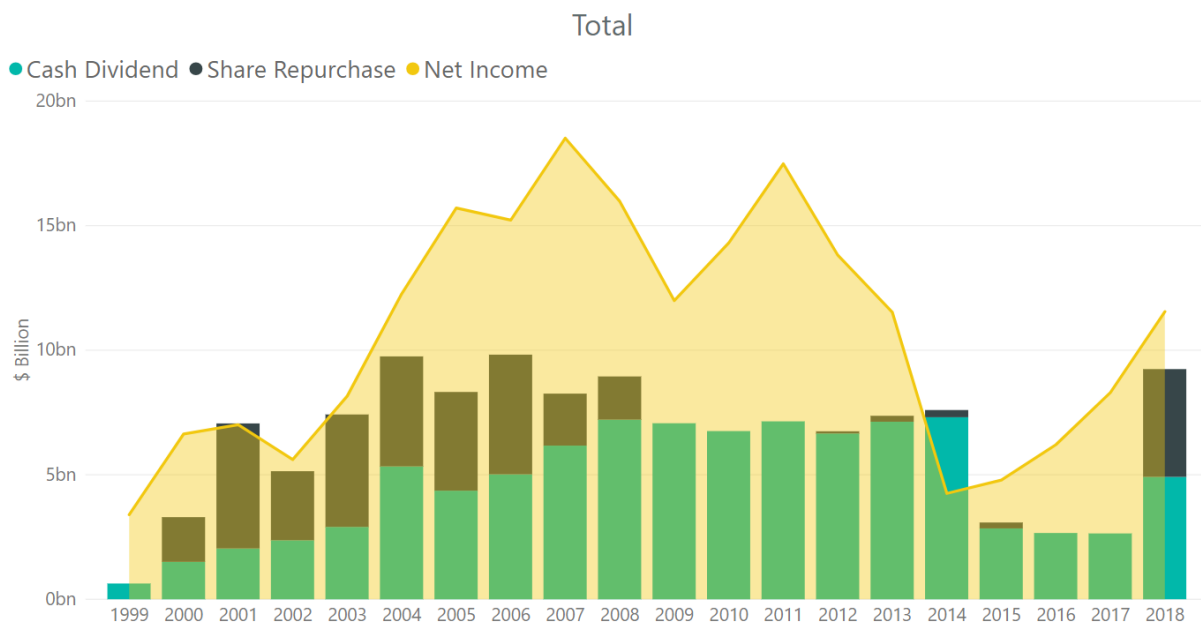


Figure 14: Total: Net income, cash dividend and share repurchase. All values in \$ billions.

Results addressing the primary research question

1) *In what way do major oil and gas companies alter their payout ratios in high and low oil price scenarios?*

To answer this, we analyse what happens to the total payout ratios, as well as the cash dividend payout ratios and share repurchase payout ratios, in the years categorised as above and below average oil prices. Several angles on this data will be presented, as different plots reveal and mask various effects. Comparison of results with similar findings in other relevant studies will be done in the following chapter.

Figure 15 shows the calculated total payout ratios for all companies. This includes both cash dividends and share repurchase. The green band represents payout ratios between zero and one, which in direct terms means paying out anywhere from nothing, all the way up to the entire net income of that year. In the red band above the green, the payout ratio is greater than one, which indicates that more cash was spent on cash dividends and share repurchase, than that of the net income. This payout would then have to be funded by other means than free cash flow. Observations in the red band below the green indicate that the company reported a net loss, still paid a dividend, and potentially also repurchased shares. This renders a negative payout ratio.

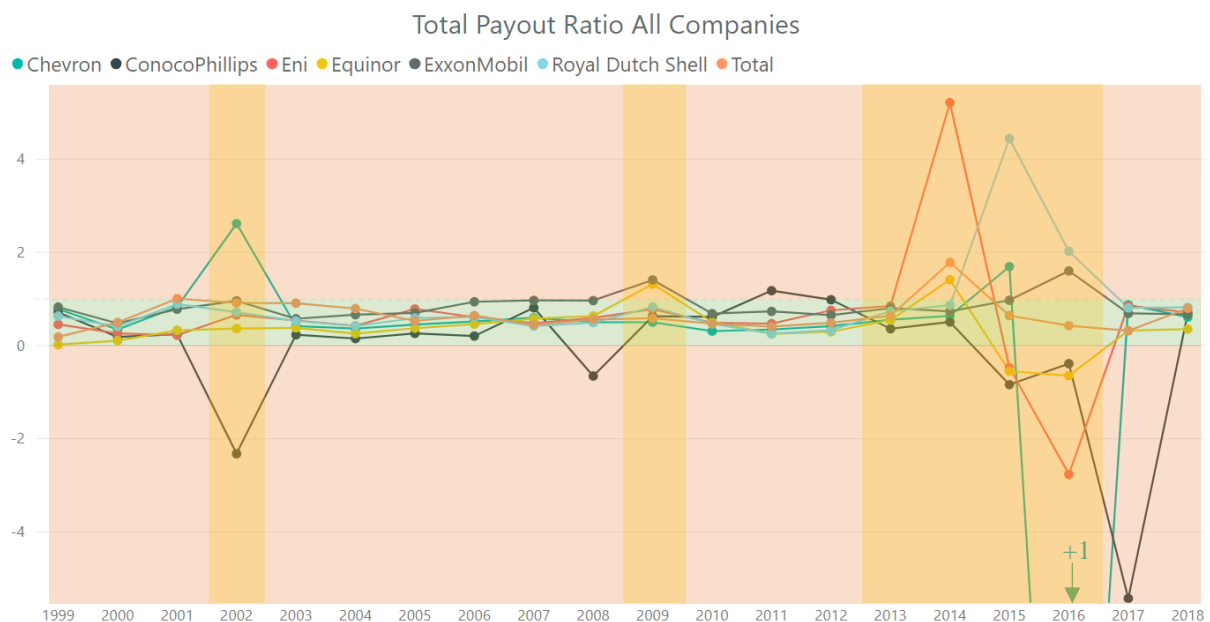


Figure 15: Total payout ratio all companies. The green band indicates payout ratio between zero and one. The red band indicates payout ratios above one, or a negative payout ratio (payout and net loss). In 2016, one observation is out of the scale utilised in the plot, with a significant negative payout ratio.

It is worth noting that even though a negative payout ratio of just below zero is plotted close to the green band, it is financially far away from those observations within the green band. E.g. a company that created a large profit, but only paid a very small dividend, will be plotted in the very bottom of the green band. This is drastically different from a company that experienced a large loss and still paid a small dividend, an observation that would be in the red, just below the green band.

The challenge of negative payout ratios is noted in the literature by several authors, e.g. by Farre-Mensa et al. (2014). Where the observations of negative payout ratios are typically removed from the data sets to avoid unwanted effects, such as a bias during calculations of average payout ratios, where two companies with payout ratios of -4 and plus 6 would get an average of 1. An average payout ratio of 1 in this case, does not tell the truth about how any of these two companies are behaving. In this study, negative payout ratios will not be excluded. Instead, years without negative payout ratios in this study will be compared with relevant work by other authors, and years with negative payout ratios will be discussed rather than compared value to value. As the negative payout ratios are an effect of a behaviour that is key in this study, removing these would mask significant findings. This way, data is compared to previous work where possible, while a holistic view of the behaviours of the studied companies is maintained.

Figure 15 shows how years of low oil price renders total payout ratios of a different spread than those of high oil price. In high oil price years, the observations are generally clustered together within the green band, with total payout ratios between zero and one. Low oil price years increases the level of the highest ratios seen, and introduce negative payout ratios.

With total payout ratio being defined as total payout divided by net income, the driver for the observed spread could theoretically be either because of reduced net income or increased payout levels, either as cash dividend or share repurchase, or a combination of these.

To identify the main driver of the increase in payout ratios in low oil price years, we study the effect of the three above-mentioned potential influencers. We first isolate the net income, as per Figure 16. The general trend is, as one would expect, that in years of low oil price, the net income drop. This could thus be the driver for the abnormal payout ratios, but alterations to the cash dividend and share repurchase levels could also play a role in this, hence we examine these next.

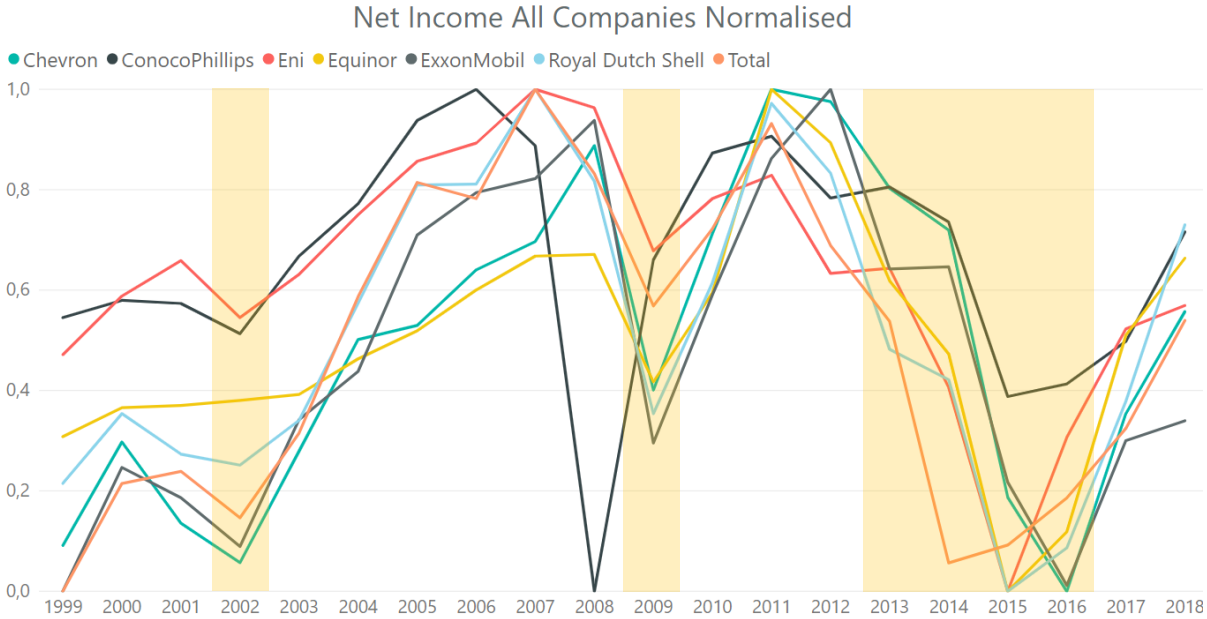


Figure 16: Normalised net income for all companies

We isolate the cash dividends, as seen in Figure 17. There is no general trend of companies cutting their cash dividends during the low oil price years, with the exception of the latter part of the downturn from 2013-2016. In fact, several companies increase their cash dividends through the low oil price years. This was also evident in Figure 8 through Figure 14, where the raw data per company were presented. We saw that the net income plummet, and cash dividends generally maintained. A couple of exceptions are observed, however not of a magnitude that alters the above conclusion. In general, the companies realise payout ratios vastly in exceedance of normal years to maintain cash dividends, and only cut back once the financial troubles are severe and of an extended duration. As Figure 16 demonstrated, the extent to which the net income have dropped in these years ensure that the reduced cash dividends do not lead to reduced payout ratios.

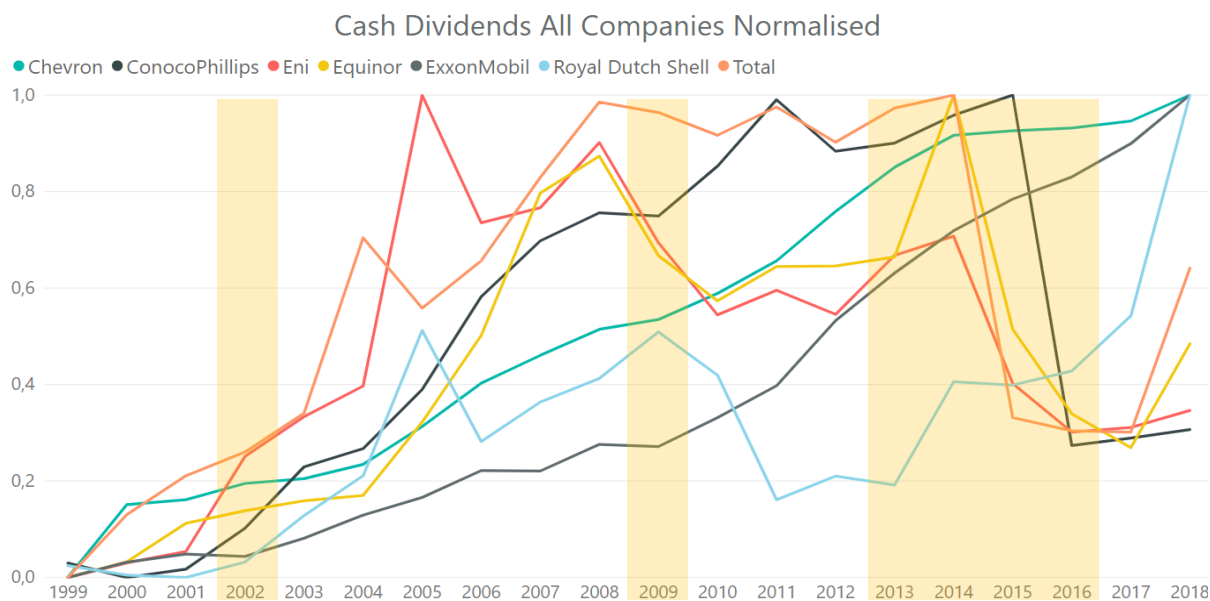


Figure 17: Normalised cash dividends for all companies

Finally, we analyse the effect of low oil price on share repurchase, as can be seen in Figure 18. Share repurchase is generally cut back in years of low oil price, albeit this is not limited to these years, and thus less conclusive. As previously discussed, the nature of share repurchases, as a vehicle for cash distribution over and above what can be maintained long term, makes year-on-year changes an expected behaviour. The levels of profitable investment opportunities and the desire to reduce debt are both examples of elements influencing this, other than just a reduced oil price leading to reduced net income. The reduction in share repurchase in the low oil price years help mitigate some of the magnitude of total payout ratio upsurge.

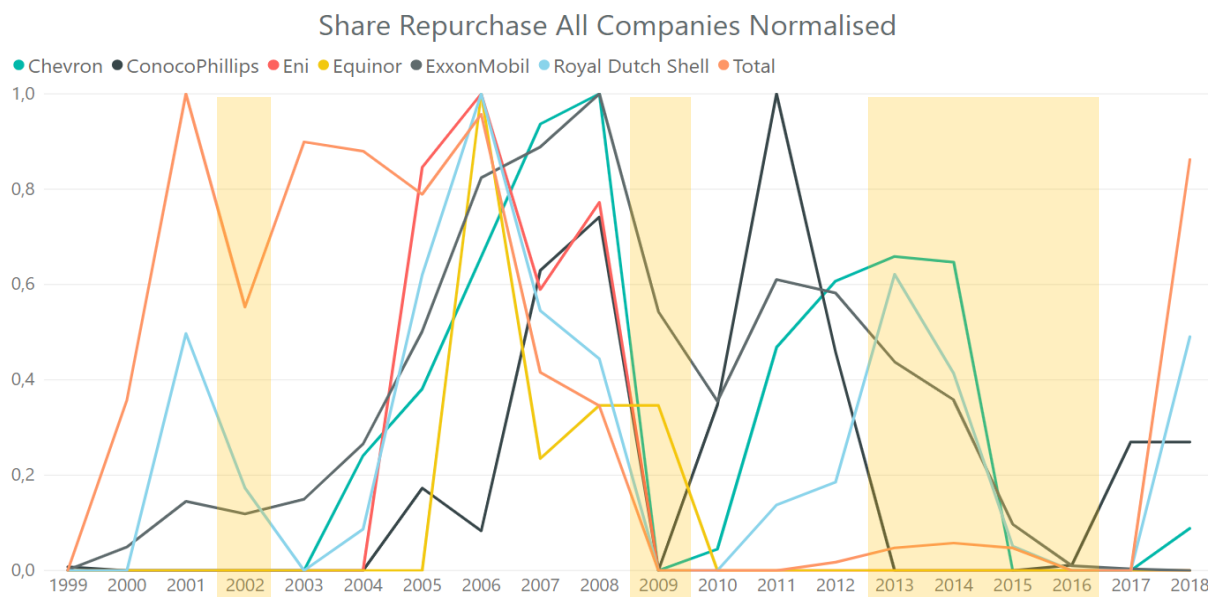


Figure 18: Normalised share repurchases all companies

Another way of identifying this behaviour, is to look at the annual average between the total payout ratios of all companies, as seen in Figure 19. The grey area plots represent the minimum and maximum values observed, and thus the spread of observations per year. It is clear that the spread significantly increases in years of low oil price. The spread increases as some companies yield a high positive payout ratio due to lower net income and sustained/increased cash dividends, while others yield significant negative payout ratios due to net losses, in combination with maintained cash dividends. The spread is plotted for all years, but the average total payout ratio (red line in Figure 19) is not calculated for the low oil price years, due to the bias of negative payout ratios.

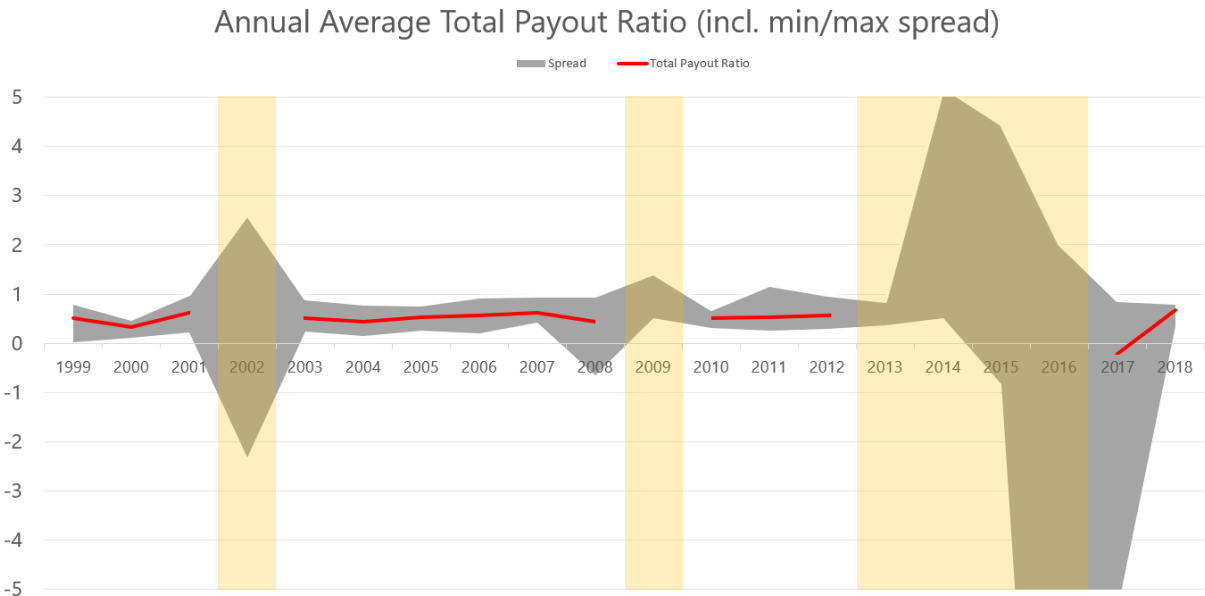


Figure 19: Average and spread of total payout ratios for all companies

As previously mentioned, ConocoPhillips reported significant impairment of goodwill in 2008, in what otherwise was a year of solid financial performance. By removing this data point, as well as their outlier data point in 2017, with a significantly negative payout ratio, in a year where the remaining six companies in the study had gotten back on track with normal payout behaviours after the severe downturn, the image is even clearer, as per Figure 20. We now see that just about all observations in years with oil price above the running three-year running average have total payout ratios between zero and one.

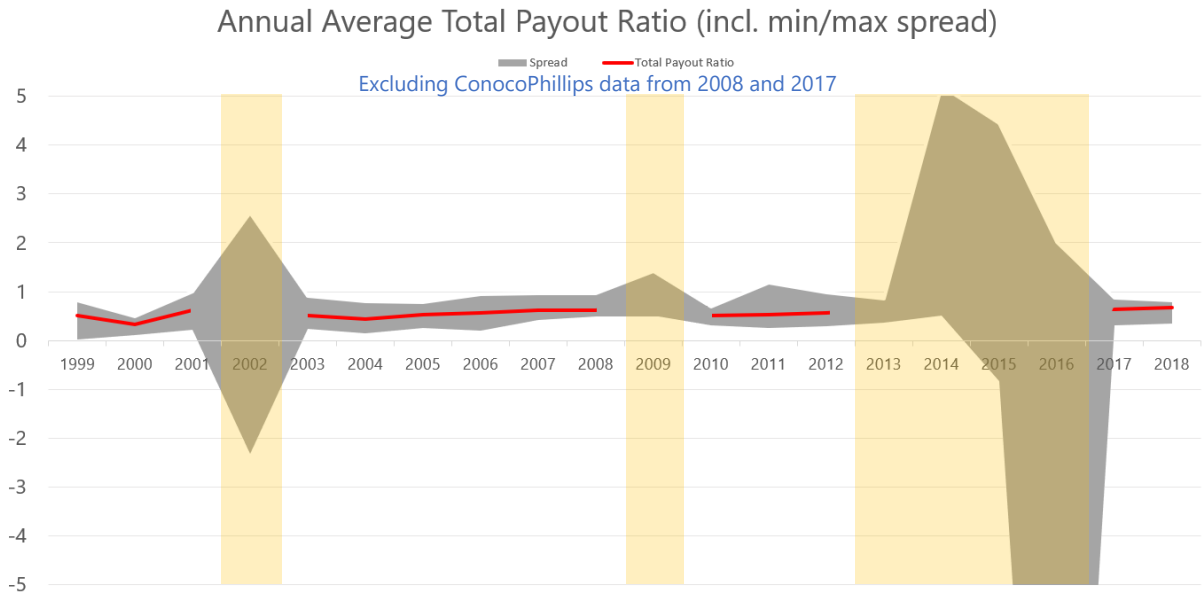


Figure 20: Average and spread of total payout ratios for all companies, excluding ConocoPhillips data from 2008 and 2017

By removing share repurchase data from Figure 19, and thus presenting average annual cash dividend payout ratios, we see similar trends as those for the total payout ratio. This is supportive of share repurchase not being the driver for the change in total payout ratios in low oil price years.

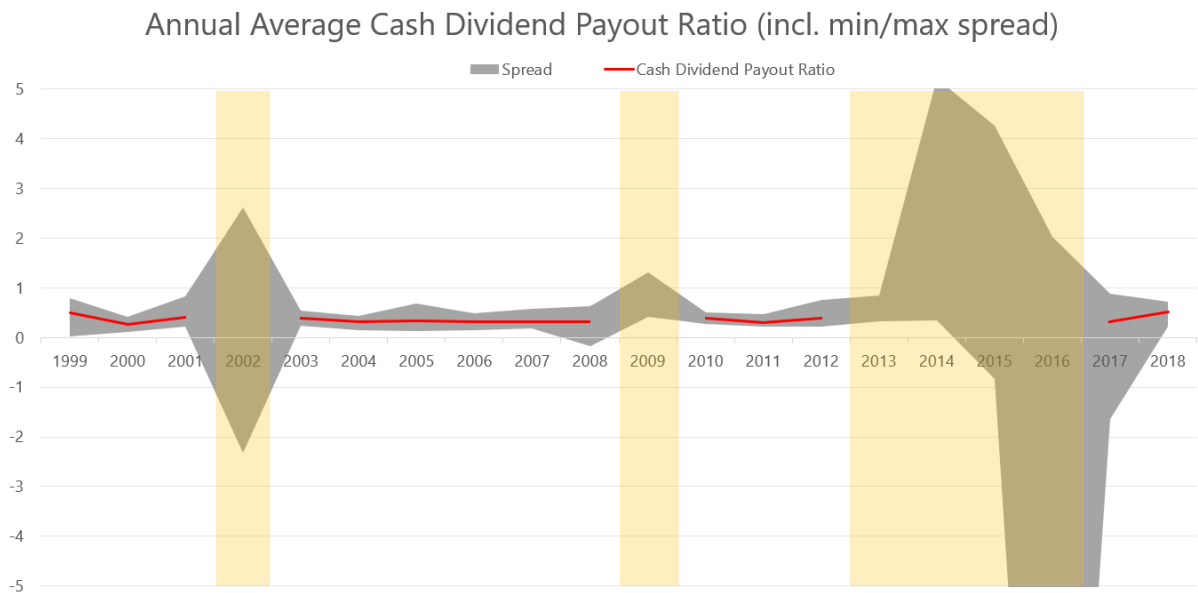


Figure 21: Annual average cash dividend payout ratio (incl. spread)

Figure 22 illustrates the split in annual average payout ratios between cash dividends and share repurchase. Due to the bias of negative payout ratios on calculation of average values, the years of low oil price are not included. 2017 is also significantly biased, by the negative payout ratio of ConocoPhillips, and the values for that year are thus not utilised for calculations of overall average and mean values. Still, the 2017 result is included in the plot, as it is not a year of low oil price.

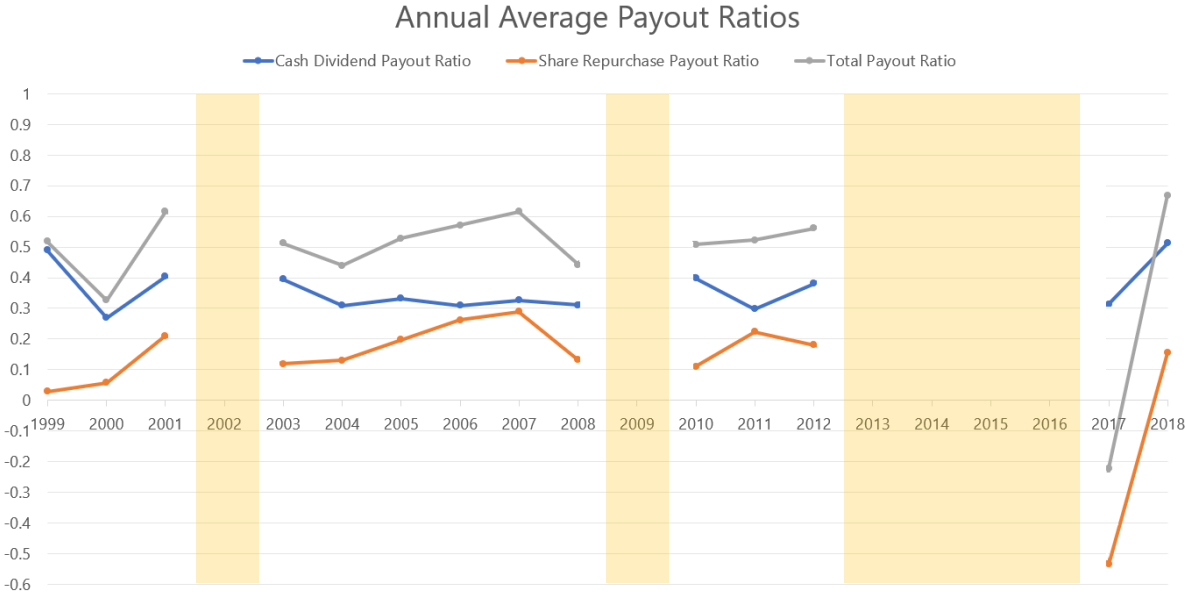


Figure 22: Annual average payout ratios for all companies. Years of low oil price not included, due to bias from negative payout ratios in calculation of average values. 2017 is significantly biased by the negative payout ratio of ConocoPhillips.

These results will be discussed in the following chapter.

Results addressing the secondary research question

- 2) *Do any of the oil and gas companies in this study exhibit countercyclical behaviours by increasing their CAPEX levels in oil price downturns, enabling exploitation of lower market rates for high cost investment activities?*

To answer this, the CAPEX data for all companies have been normalised and plotted in Figure 23. While it is clear that severe oil price drops tend to result in these companies cutting back their CAPEX spend, the aim here is to see if any of these companies act countercyclically compared to their peers. In other words, do they cut back CAPEX spend to a lesser extent, or increase CAPEX spend earlier, then their peers coming out of an oil price downturn. The green marking in Figure 23 indicate instances where Eni have increased more, or reduced less, coming out of oil price downturns. The significance of this result will be discussed in the coming chapter.

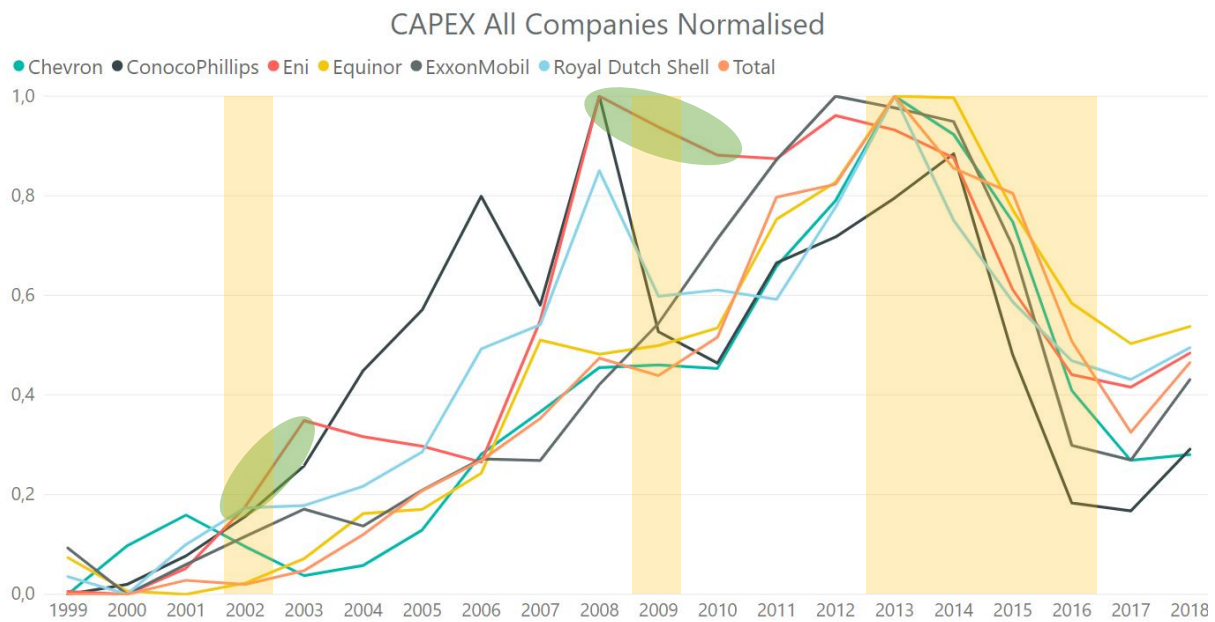


Figure 23: Normalised CAPEX data for all companies. Green markings indicate effects mentioned in analysis.

Interpretation and discussion

In this section, the results and findings will be interpreted, discussed and compared to other relevant research. The discussion will separately address the two research questions.

Alterations to payout policy in low and high oil price scenarios

The payout behaviours observed in this study can be summarised as follows. In years of high oil price, the companies typically pay out a significant portion of their net income, without exceeding this threshold. Annual average total payout ratios between 33% and 67% have been observed for high oil price years, excluding 2017. In years of low oil price, the companies experience sudden drops in net income, but generally retain the cash dividend levels. Share repurchase levels are generally cut back, often without delay. This results in total payout ratios vastly in excess of the current year's cash surplus. After prolonged periods of low oil price, cash dividends are eventually also cut back. However, the significance of the reduction in net income still renders total payout ratios in excess of sustainable levels. Examples of this are 2015 and 2016, where only two and one of the studied companies respectively, had payout ratios between zero and one.

The answer to research question one is hence that the international oil and gas companies studied significantly alter their payout ratios in high and low oil price scenarios. They do this by endeavouring to maintain the established cash dividend level as long as possible, and only cut back when in significant financial trouble, over time. Once out of low oil price scenarios, the payout ratios quickly resume to normal levels.

The results of this study addressing the primary research question are generally in line with expectations, based on theory and relevant literature. In the following, specific findings will be linked to prior research on the topic.

For a more direct comparison, we look at the findings of high oil price years, excluding 2017, and compare with two relevant studies. The reason only the high oil price years are directly compared here is the bias from negative payout ratios in low oil price years on the annual average values in this study. 2017 is excluded due to ConocoPhillips' significantly negative payout ratio, that bias the calculation as per the low oil price years. Figure 22 shows how this creates non-representative values. The annual average total payout ratio of this study is between 33% and 67%, and the mean values ranges from 34% to 78%. Farre-Mensa et al. (2014) report average annual total payout ratios of between 20% and 29% between 1999 and 2012, which is the overlapping part of these two studies. Floyd et al. (2015) report mean ratios between 57%

and 93% for companies that pay both cash dividends and repurchase shares, and 26% and 48% for companies that only pay cash dividends, in the same period. A full one to one comparison of results here is not feasible, as both these studies exclude negative payout ratios from the studies, and the populations as such are different. Both of these studies utilise much larger and wider, in terms of sectors, populations. For the years of high oil price, where comparison is feasible however, the result of this study renders values between the two external studies, and is thus deemed to be reasonable. As noted earlier, the latter study mentioned only calculate values based on companies that pay dividends and repurchase shares, hence higher resulting payout ratios are expected.

One element that could be influencing these results, is the compositions of companies in the studies, in terms of company maturity. This factor is found to influence the payout behaviours, as younger companies, like start-ups, generally do not pay dividends at all, due to the need to fund profitable investments and growth. More mature companies have less profitable investments available, and can divert a larger portion of their free cash flow back to their investors.(DeAngelo et al., 2009) Farre-Mensa et al. (2014) add to this by stating that large and profitable companies tend pay out more than risky, growth companies. The seven companies in this study are all mature companies that are expected to distribute significant payouts, while the populations of the two above-mentioned studies are more wide-spread.

The highest payout ratios in this study were seen in years where the companies experienced significant loss in net income. This correlates well with how Floyd et al. (2015) describe that the highest ratios of their study was seen during the financial crisis of 2007/2008.

The findings of Brav et al. (2005), where 94% of interviewed managers strongly or very strongly agree that they try to avoid cutting cash dividends are very much in line with the findings in this work. This renders the description of cash dividends as sticky suitable also for this study. (Farre-Mensa et al., 2014)

DeAngelo et al. (2009) report that where volatility in earnings is seen, share repurchase tend to have its place in the payout policy. This is generally the case for the study done in this work as well, with Equinor standing out as an exception. Flexibility to distribute transitory earnings is provided by repurchases, while permanent earnings contribute to a stable cash dividend. This allows managers to distribute the available cash, without jeopardizing their reputation with shareholder by constantly increasing and cutting back the cash dividend levels.

Skinner (2008), and others, report that while repurchases absorb the volatility in earnings, cash dividend levels tend to get smoothed over time, due to conservative increases, in combination with managers' reluctance to cut back once introduced. Hence, the total payout is not smoothed, solely the cash dividends component is. This correlates well with the findings in this study.

A lot of the discussions thus far have covered more substantial changes in the financial results of the companies in the study, but what about more transitory changes? In 2008, ConocoPhillips reported a significant net loss, although with revenues exceeding those of the following two years, where positive net incomes again were reported. The reason for this was significant impairment of goodwill. Skinner (2008), as referred to by DeAngelo et al. (2009), find that companies that report losses due to incidents similar to ConocoPhillips above, are less likely to make changes to the payout policy because of this reported loss. This correlates well with the behaviour exhibited by ConocoPhillips in this work.

It is worth noting that there are some exceptions to the general trends found in this study. While most companies studied frequently repurchase shares, Equinor rarely does so. In fact, they have only done so once in the 20-year timeframe. Also, while most companies did cut their cash dividends during the 20 years, ExxonMobil and Chevron did not. With such a small population as seven companies, these exceptions take a larger place in the results than what potentially would have been the case with a larger population. This renders the results somewhat less conclusive. Similar studies should be conducted with larger populations to verify these observations.

In Figure 7, the oil price was categorised in low and high oil prices scenarios. The extent to which the oil price was above or below the three-year rolling average varied, something that is reflected in the results of this study as well. This is clear in Figure 15, where the total payout ratios of all companies were plotted. In 2013, where the oil price was only marginally categorised as a low oil price year, the payout ratios are very similar to those of high oil price years. Again in Figure 16, for net incomes, the same observation is valid. The net incomes of 2013 are on their way down, hence the low oil price stamp fits well, but they have not plummeted enough to make a substantial impact in the payout ratios. Figure 19 through Figure 21 demonstrate similar evidence.

The chosen methodology for this study comes with some trade-offs, but also with some added benefits. Studies excluding negative payout ratios are able to calculate meaningful ratios for all

years in the study, and thus give better statistical insight over time, albeit some of these calculations being biased by exclusions of parts of the population. Still, with its limitations, what this study offers, that Farre-Mensa et al. (2014) and Floyd et al. (2015) do not, is the unmasked insight into what alterations are done to the payout ratios in years where the companies experience significant reductions in net income. As both of the studies exclude years of negative payout ratios, i.e. years of net losses with payouts, this data is lost. This work also offers insight that is not believed to have been presented in a coherent way before, based on data not found readily available in major financial databases.

Counter-cyclical CAPEX alterations

The secondary research question of this study sets out to analyse if any of the companies repeatedly exploit reduced market contracting rates, by acting countercyclically in their CAPEX spend. Research question one clearly demonstrated that company sustain payouts as long as possible in oil price downturns, rather than reducing payouts with the aim to increase CAPEX spend. Still, CAPEX spend could have been increased in oil price downturns by increasing debt or reducing cash reserves in the companies, hence this secondary research questions has still been investigated.

The analysis has shown no significant evidence of companies acting this way. The closest is Eni, that in two subsequent instances have demonstrated an element of this. Around the oil price drops in 2002 and 2009, Eni's CAPEX spend is ranked highest of the seven, when comparing normalised values. In 2014/2015 Eni cut back CAPEX less than some of their competition, but not significantly. This indicates that Eni *may* have been able to sanction development projects and associated costs at more competitive rates than their competition. However, there are a number of variables to this, and further research would be required to firmly conclude.

This finding is supported also in relevant literature, where significant share price drops, as the results of companies cutting back dividends in order to fund profitable investments, are found (Ghosh & Woolridge, 1989). With managers maintaining payouts as long as possible when the net income drop, there is naturally not much free cash flow to divert to increased CAPEX spend.

Recommendations for further work

Beyond broadening studies like this, in terms of size of population, and region/sector mix, there is a lack of a common way of analysing data involving negative payout ratios, without losing the insight those values offer. This is currently holding back the comparability of research

similar to what has been done in this study. While it for some purposes may be acceptable to neglect these data points, it would not offer sufficient insight for this work.

Another interesting route of expanding this work, would be to include oil service companies, rather than just international oil and gas producing companies.

Conclusion

The objective of this study was to analyse in what way oil and gas companies alter their payout behaviours in high and low oil price environments. Secondary, the aim was to analyse whether countercyclical behaviours in CAPEX spend is observed, in a way that could result in a competitive advantage, when contracting field development activities. This was done by constructing structured data sets from 20 years of financial reporting by the major international oil and gas operating companies. The results of this study have demonstrated that the companies studied indeed alter their payout behaviours when the oil price drops. They maintain their cash dividend levels as long as possible, while share repurchase is cut back much quicker. The plummeting net income, and maintained cash dividends, generally increases the total payout ratios. Some companies experience net losses, while still maintaining their cash dividends, rendering negative payout ratios. In short, in years of low oil price, the spread in payout ratios significantly increase, compared to that of years of high oil price. No significant evidence is found of companies in the study bolstering their CAPEX spend countercyclically.

The objectives of the study were met, but further research remains necessary to complete the picture. The limitations of the work are primarily the small population size (seven companies) and lack of direct comparability for parts of the time series, due to other studies neglecting observations of negative payout ratio; a key behaviour in this study.

Several recommendations for further work have been done in the discussions of this report, but the development of a common methodology for analyses involving negative payout ratios, without losing the granularity of the data, would cater for advancements in this topic of research.

This study has concluded that trends seen in single-market studies on market-wide populations also are valid for international companies in a single-sector study.

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Appendix A

The below listed formula was utilised in the Refinitiv Eikon excel formula builder, to extract relevant data for this study.

$$= TR \left(\begin{array}{l} XOM;RDSa.AS;CVX;ENI.MI;TOTF.PA;COP;AKERBP.OL;DNO.OL;EQNR.OL; \\ TR.TotalCashDividendsPaid.date;TR.RepurchaseRetirementOfCommon \\ TR.DivDate;TR.DivPaymentType;TR.DivAccountingYear;TR.DivNotes; \\ TR.CapexCFStmt;TR.CapitalExpendituresCFStmt;EARNINGS;TR.NetProfitActValue; \\ TR.NetProfitRepActValue; SDate=0CY EDate=-20AY Frq=Y CH=Fd RH=IN \end{array} \right)$$