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Abstract

In this paper, the economic relationship between oil prices and operating expenses in the E&P sector is examined, along with the implications for capital budgeting and decision-making. We provide empirical evidence that the price and operating costs are positively correlated, and that failing to take this relationship into account has serious repercussions for the valuation of investment projects when using either the conventional Net Present Value (NPV) methodology or the Real Option approach. In the conventional NPV method, projects that are undervalued as a result of ignoring a price-cost correlation tend to be overvalued in Real Options Analysis, and vice versa.

Purpose: The objective of the study was to demonstrate the influence of the relationship between oil prices and operating expenses on the assessment of oil prospects, and to highlight the potential consequences of neglecting or underestimating this correlation.

Relevance: It presents the importance of ignoring or overlooking the relationship between the price of oil and operational expenditures, which might lead to the wrong decision when investing in a certain project.

Key methodological aspects: This paper examines the impact when the price-cost correlation is ignored in the final investment and decision-making process. To investigate this, used the widespread traditional NPV approach and the Real Options Valuation approach. Data was taken from the local Operating company's one of future projects.

Summary of Key Findings: This paper shows that neglecting price-cost correlation has substantial effects, independent of the valuation methodology used (conventional NPV and/or real options approach). Ignoring the price-cost link leads to an overestimation of risk in NPV assessment, which leads to an underestimating of the investment project's value. When genuine option analysis is used, disregarding cross-correlation results in more volatility and, as a result, exaggerated project values.

Key conclusion: The final investigation shows that during the decision-making process, it’s important to use various instruments and not to ignore some economic processes that might impact the project's expected outcomes.

KEYWORDS: Oil price. Operating costs. Financial distress. ROA. NPV approach. Monte Carlo SImulation.

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ROA	Real options approach
SPSS	Statistical Package for the Social Sciences
NPV	Net present value
SD	Standard Deviation
CF	Cash flow

Introduction

It is widely acknowledged among oil company executives involved in capital budgeting and decision-making that costs associated with exploration, appraisal, development, and production have undergone a substantial increase in the past half-decade. The aforementioned phenomenon can be ascribed to the increased need for drilling rigs, proficient workforce, and other essential resources. The escalation in expenses can be ascribed to the increased level of operations within the Exploration and Production (E&P) sector, which is a result of the influence of the recent upward trend in oil prices.

The present study furnishes empirical evidence that the operational expenditures within the oil and gas (exploration and production) industry exhibit a strong correlation with fluctuations in crude oil prices. Despite its significance, the aforementioned correlation is often overlooked in the context of capital budgeting. When there is a correlation between the costs and the price of oil, any fluctuations in revenue are mitigated to some extent by the concurrent movement of costs. Neglecting this compensatory impact may lead to an overestimation of the instability of cash flow. The present research investigates the impact of this matter on the assessment of oil prospects using two distinct methods: the conventional NPV approach and a real option valuation technique. The research emphasizes the possible outcomes of neglecting the interconnectedness between the cost of oil and capital and operational expenses, which could result in flawed decision-making.

The conventional NPV methodology tends to overestimate the cash flow volatility, leading to a perception of higher risk associated with projects, despite their actual risk level being lower. Misconceptions exist regarding the expenses incurred by the firm due to its financial distress. The company's failure to accurately assess the net present value (NPV) of potential investments may result in missed opportunities for profitable investments. The appreciation of an exploration and production (E&P) project is contingent upon the augmentation of its cash flow volatility. In the event that a real option methodology is employed, an overestimation of volatility will result in an overestimation of the project's value, as demonstrated in the ensuing section.

The subsequent segment presents a succinct synopsis of the evaluation process for projects utilizing the customary NPV and real option methodologies. Section 3 presents empirical evidence demonstrating the correlation between costs and oil prices. Section 4 of the document covers the variations in project valuation when considering the correlation between cost and price, as well as a numerical illustration. The concluding segment encompasses research discoveries, deductions, and extensive ramifications of the findings for the decision-making procedure.

1. Review of literature

1.1. Project Evaluation Under Traditional NPV and ROA

There are currently a variety of geoscientists and reservoir engineers who can do probabilistic oil and gas production projections. Price, investment, and operating cost methodologies are other reoccurring themes in the sector. Price and investment forecasts, as well as output, are given careful consideration, with each company developing its own prediction. However, operational cost forecasting is an area where economic analysts continues to use only a mathematical average (Hastenreiter et.al. 2014).

The operating cost appears as one of the key aspects involved in the project evaluation, determining whether or not the project will be implemented. As a result, this variable is crucial in the portfolio management decision-making process.

There are a few approaches in the petroleum business that specify the long-term prediction of operational costs and how they relate to other variables in an economic evaluation.

According to Bradley and Wood (1993), while analyzing the problem, one exogenous factor that has a significant influence on the behavior of operating costs is the oil price. Thus, understanding the relationship between pricing and cost is critical in the project evaluation process.

1.2. Valuation Using Traditional NPV

The total annual cash flows produced by all of the projects, each of which has been properly discounted to account for the systematic risks related to these cash flows, i.e.

$$NPV = \sum_{t=0}^{T} \frac{CF_t}{(1+r)^t} \quad \text{.. (1)}$$

where CFt represents the expected cash flow in year t and r represents the risk-adjusted discount rate (also known as the opportunity cost of capital).

Because CFt is an expected value (i.e., a dollar value) that represents the mathematical expectation of the net cash flow to be produced by the project in year t, it is irrelevant for its estimation to take into account the correlation between the components of cash flow (revenues, costs, investments, and taxes). In ideal markets, r is dependent on the relationship between project cash flow and market portfolio return (1). In other words, the project's systematic risk determines what r is. However, taking into account market flaws like the cost of financial distress, informational asymmetries, and agency costs, investors value projects at a discount in comparison to a model like the CAPM (2). This implies that the discount rate is raised as a result of market imperfections, or that the costs of market imperfections must be added to cash flow.

Here, we Point on how the cost of financial distress affects cash flow. The likelihood that the company running a certain number of projects will file for bankruptcy is directly correlated with its financial distress. In Bulow and Shoven(1978), financial distress is covered in detail (3). The unpredictability of a company's cash flow is directly related to the likelihood of bankruptcy. In a perfect market, the discount rate solely accounts for systematic risk. However, in real-life imperfect markets, the estimation of the appropriate discount rate is influenced by the unsystematic volatility of cash flow, which refers to fluctuations in cash flow that are not related to general market movements. Consequently, an increase in unsystematic volatility should result in a corresponding increase in the discount rate, while a decrease in unsystematic volatility should lead to a decrease in the discount rate. So if the cash flow volatility is overestimated, the likelihood of financial distress is also overestimated, which leads to an underestimation of the NPV. In the third section, we provide an actual example to illustrate this effect further.

The industry's investment pattern has also been cyclical. Every company effort necessitates a positive and stable economic climate in order to attract investors. The ups and downs in the petroleum industry have pushed capital investment to shift to electronic and internet firms.

The last two decades have seen the lowest number of drilling rigs built in the petroleum industry's history. The number of cold-stacked rigs due to idleness was similarly at its peak in the previous decade. The consequence is the drop in operating company profit margins, which has resulted in massive labor reductions and mega mergers in recent years.

1.3. Valuation Using Real Option Analysis

The real options methodology, based on financial option pricing theory, handles this difficulty more successfully than traditional strategies such as the NPV method. The real options method considers unpredictability in oil prices, changes in oil production rates, and managers' decision-making flexibility to determine the ideal moment to transition from one production option to another. As a result, the maximum value of the oil reservoir is reached.

The real options approach represents a broadening of the scope of financial options theory to encompass options that are associated with non-financial assets. Options refer to conditional choices that enable an individual to arrive at a decision subsequent to the occurrence of an uncertain event. The value of an option is derived from the presence of uncertainty and the capacity of the agent to effectively address it. Real options valuations are often associated with financial market valuations, whenever feasible. Option valuation poses a significant vulnerability to most investment vehicles. There are four types of alternatives linked with investment projects: the ability to grow, postpone, abandon, or temporarily pause an investment. The capacity to expand a project holds significance in instances where a corporation intends to allocate resources towards a project that exhibits a negative net present value (NPV), as it enables the organization to undertake the development of a new project. The present scenario involves the assessment of a mine's valuation, wherein only 50% of the mine's resources are deemed economically viable for development at current commodity prices. The allocation of funds will provide the possibility to further advance the extraction site in the event of a change in market conditions.

In this situation, the opportunity to expand is valuable and should be considered when calculating the mine's worth. Conversely, in spite of a favorable net present value project, the ability to defer the investment is advantageous as it affords the organization the opportunity to delay until additional market data is obtainable. In addition, the ability to discontinue a project is a vital and valuable aspect of research and development (R&D) investments as it provides the flexibility to abandon a project in the event of unfavorable results. Unlike the traditional technique, which analyzes predicted cash flows to assess investment projects, the real option approach considers the complete distribution of cash flows, allowing the firm to react/respond over the course of the investment. Finally, if a company has the opportunity to open and close a facility, the ability to temporarily cease production is valuable. In the event of a decline in commodity prices, the corporation may choose to implement a strategy of facility closure, with the intention of reopening at a later time when prices have increased. The evaluation of flexibility can hold significant value for various investment endeavors, and the option-pricing model serves as a powerful tool for assessing such flexibility. Furthermore, the real options approach to valuation is currently being applied in pragmatic contexts and further developed in diverse directions, notably by integrating competitive dynamics and their impact on option exercise strategies. The work of Schwartz (2013) has been referenced.

With deterministic oil prices, net present value is traditionally utilized to value the project. However, this strategy does not account for the volatility of oil prices and the value of decision-making flexibility, such as the ability to determine when to move from one oil production option to another based on unpredictable factors such as oil prices. Based on financial option pricing theory, the real options approach solves this difficulty better than traditional methodologies such as the NPV method. The real options method considers unpredictability in oil prices, changes in oil production rates, and managers' decision-making flexibility to determine the ideal moment to transition from one production option to another. As a result, the maximum value of producing an oil reservoir is procured (Xu, et.al. 2012).

The ability to incorporate managerial flexibility into the valuation process makes real options analysis (ROA) the natural replacement for the conventional NPV valuation, according to some. Copeland and Antikarov (2002), as well as Schwartz and Trigeorgis (2004), are a couple of significant sources for asset valuation.

A real option may be valued in accordance with a number of methodologies that reflect the ways in which managers make decisions throughout the course of a project. Postponing investments, giving up, and changing a project's capacity are examples of common options given in the literature.

The value of an investment option is dependent on six main factors, according to Copeland and Antikarov (2002): the net present value of expected cash flow, investment costs (exercise price of the option), maturity of the option (i.e., deadline to start the investment project), uncertainty regarding present value of cash flows (volatility of cash flows), risk-free interest rate, and irreparably lost cash flow as a result of delaying the project.

The fourth variable is especially intriguing to us (volatility of cash flow). The volatility of a project is distinct from the volatility of the various input variables to be taken into account, such as the price of oil, production uncertainty, capital and operating expenses, and taxation. Instead, if the statistical characteristics of the input variables have already been estimated, volatility can be fairly easily estimated using a Monte Carlo simulation. However, one aspect of the input variables' characteristics that is of utmost significance—and one that is frequently disregarded in ROA valuation—is their correlation. We will apply the approach outlined in Copeland and Antikarov (2002), which Costa Lima and Suslick (2006) modified for the valuation of E&P investments.

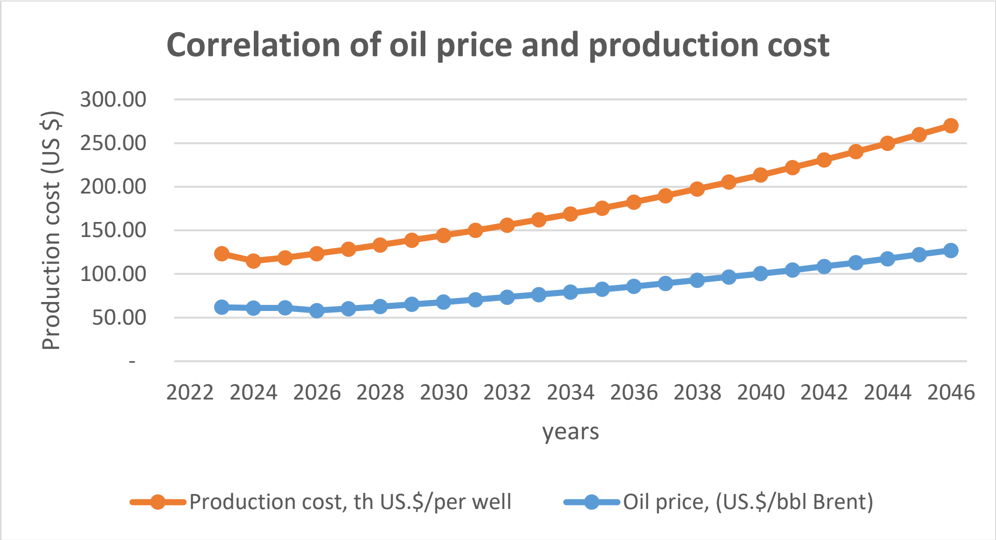
Because the volatility of a project's rate of return is required to value it according to ROA, we convert present values into rates of return using the following relationship:

1.4. The Behaviour of Oil Price and Costs Over Time

The fluctuation in crude oil prices has presented a significant challenge for oil companies in terms of decision-making and strategic planning, particularly in the recent past. Oil corporations have responded to low oil prices by decreasing their R&D budgets, capital spending, and hiring patterns. Despite the present rise in crude oil prices, operators are more cautious than ever before when it comes to capital spending and expansion (Inikori, et.al. 2001).

As previously stated in the initial section, elevated and sustained oil prices lead to a surge in global exploration and production (E&P) endeavors, thereby driving up the requirement for specialized laborers and equipment such as oil rigs. The correlation between operating costs in the oil industry and oil prices is positive, as the demand for goods and services associated with exploration and production activities exhibits a slower response to price increases compared to supply.

Figure 1. Correlation of Oil price and Operating costs



Note that the simplifications used here (prices and costs modelled as random walk series and no lagged effect between oil price and costs) are solely for didactic purposes. As long as price and costs continue to be correlated, other hypotheses could be adopted, such as more complex mean-reverting processes for oil prices, like those used by Blanco and Soronow(2001), or they could admit lagged price-cost effects.

It is important to remember that the simplifications used here (price and cost models as random walk series and no lag between oil price and costs) are solely for didactic purposes. Other hypotheses, such as more complex mean-reverting processes for oil prices, like those employed by Blanco and Soronow(2001), or admitting lags in price-cost effects, would produce the same results in terms of quality as long as price and costs continue to be correlated.

2. Research Methodology

The research methodology in this paper is exploratory type and answers the questions of whether there is a connection between oil price and costs and how it might affect the final decision-making. To investigate this,w e used the NPV approach and Real Options approaches using the Excel tool. To show the distribution of the Cash Flow used Monte Carlo simulation with a thousand iterations.

Monte Carlo simulation refers to the application of statistical sampling experiments in order to obtain approximate solutions to complex mathematical problems. The correlation between the inception of the aforementioned entity and its subsequent widespread adoption can be attributed to the concurrent emergence of the computer. The methodology has been applied to various predicaments encountered in the petroleum sector, encompassing engineering schematics (Banon et al., 1991; Williamon, 1998; Sawaryn et al., 2002), approximations, and prognostications. Williamson et al. (2006) argue that the utilization of the approach is particularly appropriate for normal well forecasts due to the significant number of uncertain or unknown effects at play.

Once the cash flow has been established, the economic evaluation and NPV may be calculated. Given the uncertainties in the estimation of the variables in the analysis, treating them as probabilistic variables is a crucial aspect in establishing the net present value of an oil field project. It is also critical to estimate the parameters of the probability distribution with the maximum accuracy feasible.

NPV vs. ROA: Price-Cost Correlation

This section pertains to the assessment of the worth of an uncomplicated investment undertaking. The possibility of drilling two infill wells for a mature operational field is being contemplated by an oil company. The drilling operations have the potential to enhance oil retrieval for a period of 15 years, within a span of three years. Table 2 demonstrates that the production schedule is unambiguous due to the comprehensive understanding of the reservoir's characteristics.

The management of the corporation has the option to either make an immediate investment or defer the decision for a period of one year. In accordance with the provisions outlined in the lease agreement, the corporation is prohibited from deferring the investment decision for a duration surpassing one year. The assumptions enumerated in Table 2 are posited. The annual price volatility and cost volatility are both recorded at 3.9%.

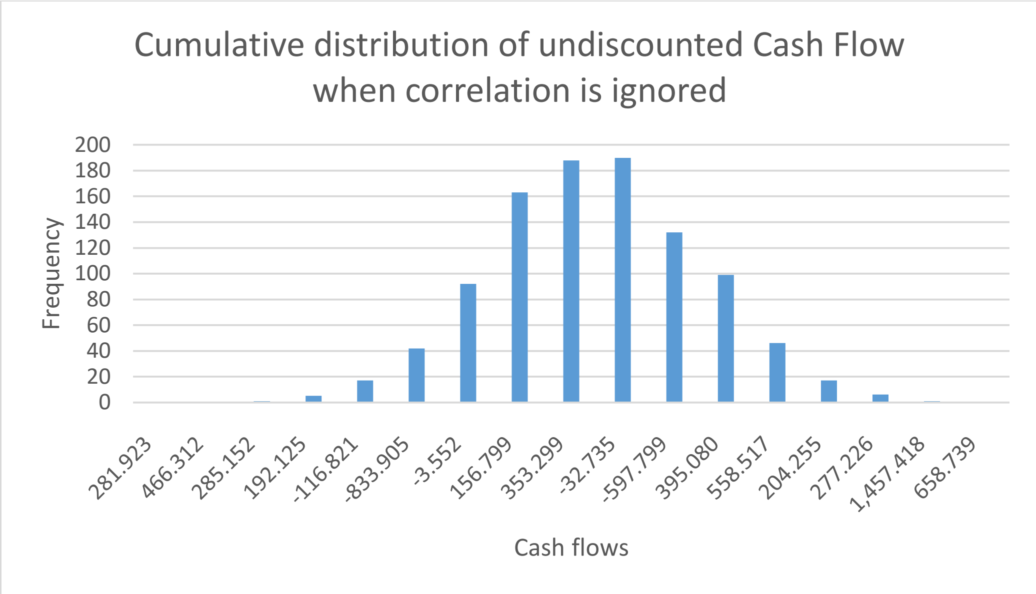
If the pricing and costs of a project are independent of each other, along with its production and investment schedules and tax structure, it may be possible to utilize Monte Carlo simulation to predict the project's volatility in terms of rate of return.

In fact, this is a common practice among the majority of individuals.

The correlation between pricing and costs, as depicted in Figure 1, is significant. Neglecting this relationship may lead to a distortion of project volatility and, as a result, its valuation. In order to achieve a precise estimation of the interdependence between price and cost, it is imperative to ascertain the causal relationship that exists between these two variables. It is imperative to ascertain whether a rise in prices engenders a corresponding increase in expenses or if elevated costs prompt a commensurate increase in prices. The economic feasibility of the exogenous variable being the price of oil is significantly higher, indicating that it serves as the primary driving force in this particular process. It is also economically debatable whether cost pressure would cause corporations to raise their pricing. However, this does not appear to be the case, at least not in the recent decade, when commodity prices rose due to rapid global economic expansion.

It is crucial to emphasize that the simplifications used here (prices and costs treated as random walk series and no lag between oil price and costs) are solely for didactic purposes. Other assumptions, such as more complex mean-reverting procedures for oil prices, such as those employed by Blanco and Soronow (2002), and/or admitting lagged price-cost effects, would yield qualitatively similar results as long as price and costs remained associated.

Figure 2. Cumulative distribution of undiscounted Cash Flow when correlation is ignored (NPV)



The investment amount of US$7.25 thousand, adjusted for the tax implications of depreciation, is free of any ambiguity;

- The price of oil at year 0 is US$60/tonn
- Discount rate of the project is 11.5%

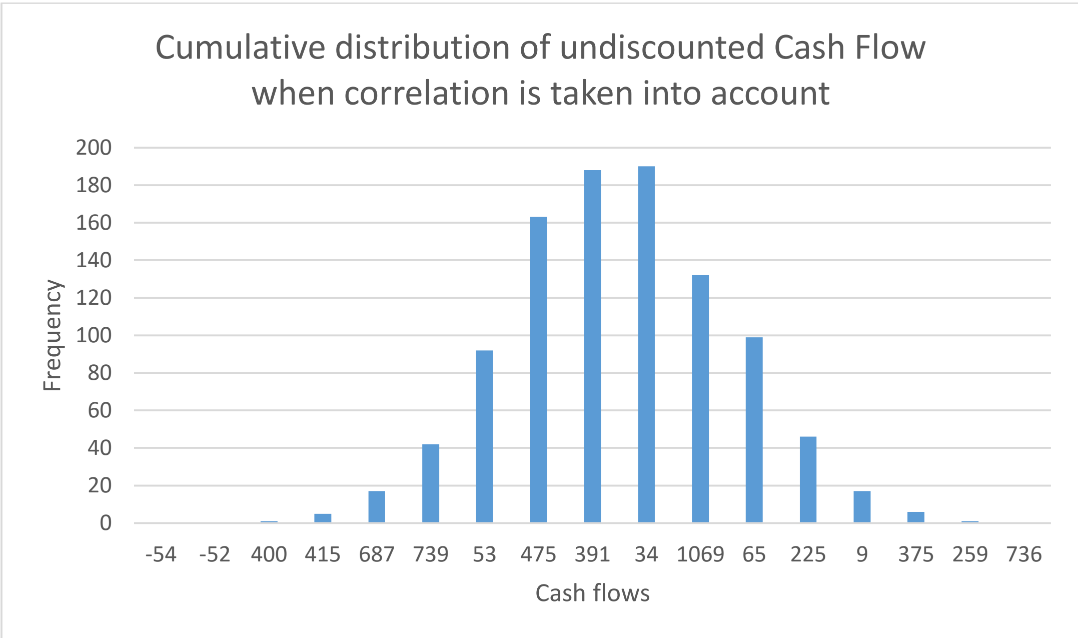
In the following sections, we examine the valuation of this investment project in four scenarios: 1) using traditional NPV while disregarding the price-cost connection; 2) using NPV while accounting for the price-cost correlation; 3) using ROA without accounting for correlations; and 4) using ROA while accounting for correlations.

As noted in the preceding section, the valuation of an investment project is determined by the firm's ultimate financial distress costs. Assume that the firm faces financial distress charges of US$450 thousand (paid in the third year) anytime the project's simple sum of undiscounted cash flows is negative. When a corporation is unable to meet its financial obligations, such as debt service and principal, financial distress costs develop. As a result, it makes it reasonable to anticipate that whenever the net revenues generated by the project are insufficient to cover the investment costs, the company would incur financial distress costs such as lawyers, increased negotiation costs, increased working capital management costs, and so on.

To estimate the expected NPV of the cash flows was used the traditional method of calculation. This NPV, however, does not account for the predicted expenses of a financial crisis. To calculate the NPV accurately, we must first calculate the chance of financial distress, which is Prob(CF0 + CF1 + CF2 + CF3 0).

Running a Monte Carlo simulation using the two unknown variables (price and costs) as inputs, modelled as stated in the preceding section, is the easiest technique to assess the chance of entering financial difficulty. We do this in two ways: first, by ignoring the price-cost correlation, and second, by taking the correlation into account.

Figure 3. Cumulative distribution of undiscounted Cash Flow when correlation is ignored (NPV method)



Figures 2 and 3 illustrate the probability distributions associated with the summation of cash flows, with Figure 2 representing the scenario where correlations are disregarded, and Figure 3 representing the scenario where correlations are taken into account. Upon addressing the correlation, it can be observed that the offsetting effect between price and cost leads to a reduction in the volatility of cash flows. This, in turn, results in a distribution with considerably less spread in Figure 3 as compared to Figure 2.

Thus, substituting these values into Equation (4), we obtain the following NPVs:

• Price-costs uncorrelated: NPV = 1 382 th.US$. Therefore the decision would be not to invest in this project.

• Price-costs correlated: NPV = 1 789 th.US$. Therefore the decision would be to invest in this project.

It can be demonstrated with ease that investment decisions are influenced by the mere consideration of the price-cost relationship. If the correlation is not taken into account, we will have an incorrect sense of the likelihood of financial distress, resulting in an overstated cost of financial distress and, as a result, an undervalued enterprise. Figures 2 and 3 illustrate the probability distributions pertaining to the aggregate cash flows, with Figure 2 representing the scenario where correlations are not taken into account, and Figure 3 representing the scenario where correlations are taken into account. Upon addressing the correlation, the offsetting impact between price and cost leads to a decrease in the volatility of cash flows. This results in a distribution that exhibits significantly less spread in Figure 3 as compared to Figure 2.

In this situation, failing to evaluate the price-cost correlation would result in an inaccurate choice to abandon the investment project.

Real Option Valuation

We now think that the firm may decide to postpone the project for up to five year, implying that the firm has the option to invest with a five-year maturity. To estimate the value of the investment option, we will utilize a binomial model for simplicity. We could also use numerous subperiods to examine the option's value, but that is not our goal at this time.

The benefits of waiting stem from the fact that managers can wait for price and cost realization before making new estimates of expected cash flows and the likelihood of financial trouble. All else being equal, the best decision is to invest if prices are rising. On the other hand, if prices decline significantly while all else remains constant, the best decision is not to invest.

Figure 4. Cumulative distribution of undiscounted Cash Flow when correlation is ignored

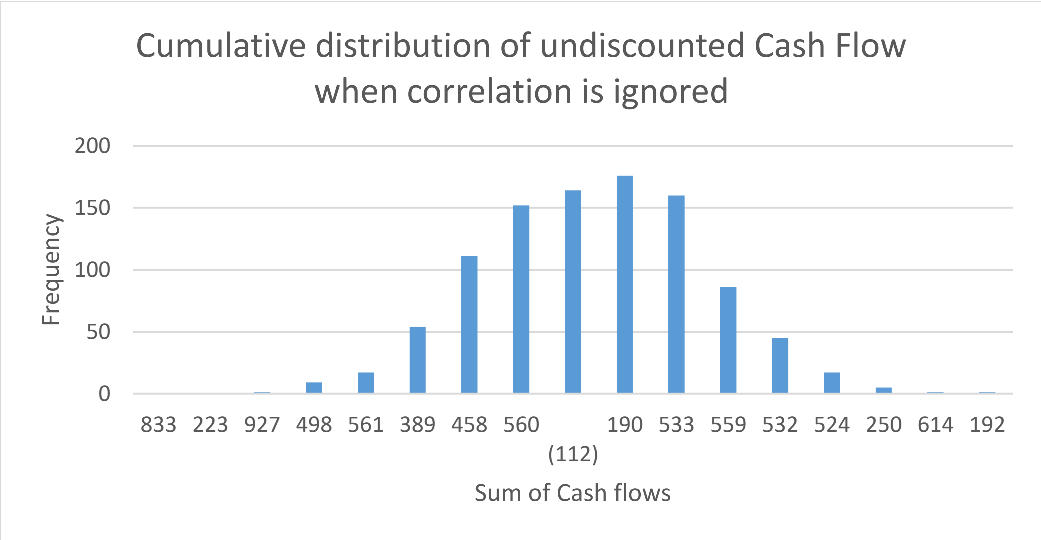
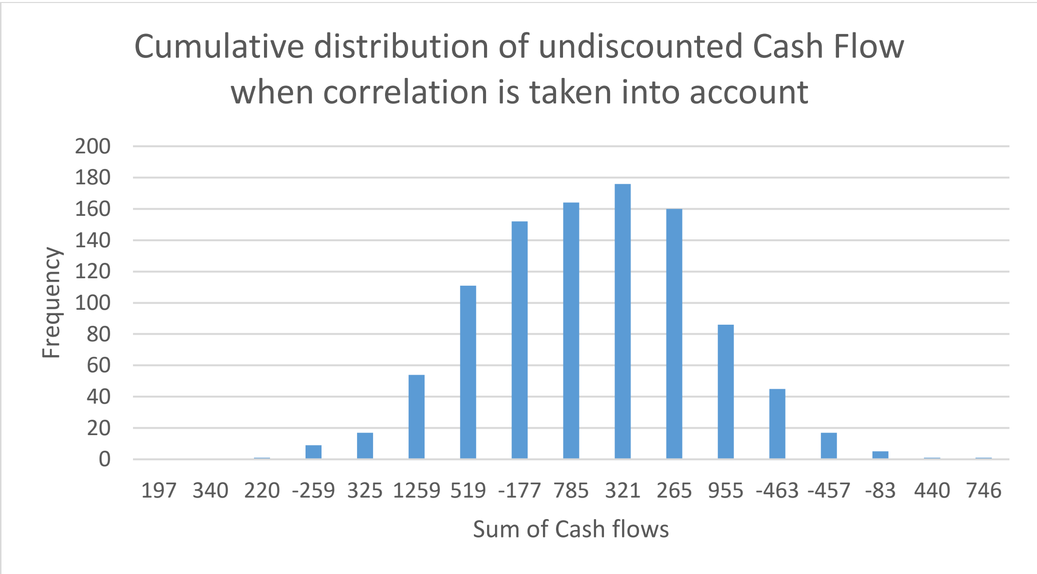


Figure 5. Cumulative distribution of undiscounted Cash Flow when correlation is taken into account



We use the method proposed by Copeland and Antikarov (2002) to value the investment option. First, we calculate the 10-year standard deviation of the project value considering the delay of the project. This is accomplished by Monte Carlo simulation (just as we did for the NPV calculation), (Figure 3 and 4), considering and ignoring the price-cost correlation. The following Cash flows are obtained:

Table 1. CF Summary when considering the correlation

max	$ 978,93
min	$ 84,93
mean	$ 471,71
st.dev	$ 295,68

Hence, the estimated NPV when the correlation is taken into account equals:
NPV = 471.71*(11.5%+5) = 2 412.79

Table 2. CF Summary when ignoring the Correlation

max	$ 945,47
min	$ 142,60
mean	$ 526,01
st.dev	$ 265,59

The estimated NPV of the project equals:
NPV = 526.01*(11.5%+5) = 2 690.541

These findings demonstrate how a single error in modeling the factors that comprise a project's cash flow can result in a wholly inconsistent valuation. Ignoring price-cost link is prevalent in many organizations, not just the oil industry. In our example, project value would be inflated by roughly one-fourth of its actual value, causing managers to make mistakes and possibly make erroneous decisions. A wider gap could have been achieved had a more extended maturity for the option been analyzed, as the volatility tends to increase over time. This would have allowed the company to have the option of delaying their investment for more than a year.

We note that most commercially available Monte Carlo simulation tools provide a function that allows you to set correlations between variables, making accurately calculating price-cost correlations fairly simple in reality.

The problem is magnified if one is particularly interested with the value of the option itself (i.e. the project value using ROA minus the project value using NPV). In our example, if V is the option's value, we get:

Vuncorr = 2 690.541 – (1 382) = US$1 308,54thousand

Vcorr = 2 412.79 – (1 789) = US$623,79 thousand

resulting in an error of [(1 308.54 – 623.79)/623.54] = 11% in the value of the option.

3. Results and discussion

Previous researches showed that about 40% error might be during the option valuation if the correlation is ignored with the NPV and ROA methods (Schiozer, Costa Lima, Suslick, 2008). In valuing investment opportunities for the E&P industry, this paper illustrated the effects of the relationship between the price of oil and the costs. Price and cost tend to move together for a very good economic reason. First, rising expenses put pressure on prices. Second, high oil prices encourage investment, which in turn increases demand for scarce resources like oil rigs, skilled labor, etc. This essay's objective is to assess the effects of this relationship on managerial choices rather than to pinpoint the causal link between price and costs. First, we provided empirical support for the correlation between price and costs, and we calculated their cross-correlation (i.e. how price and costs co-move over time).

We demonstrate that, regardless of the valuation methodology chosen (traditional NPV and/or real option approach), ignoring this relationship has serious consequences. Ignoring the price-cost relationship results in an overestimation of risk in NPV valuation, which results in an underestimation of the value of the investment project. On the other hand, ignoring cross-correlation when real option analysis is applied results in higher volatility and, as a result, overestimated project values.

Consideration of the dependency relationship between two key variables in predicting the NV: oil price and operational cost. In order to generate a realistic NPV calculation, a corporation should strive to faithfully portray the behavior of these variables when analyzing a project. However, it is critical to highlight areas for improvement and other difficulties for the future growth of works. It is advised that nonlinear or more sophisticated models be investigated in order to better communicate the dependent relationship between oil price and operational cost (Hastenreiter et.al. 2004).

4. Conclusion

The present study demonstrates, by means of a simple illustration, how the assumption of variable independence can lead to a significant error of nearly 11% in the project value when applying real option analysis. Additionally, this assumption can generate an inaccurate negative net present value (NPV), which can have severe consequences on the decision-making process.

This issue is solved with a straightforward process. It is possible to model the time behavior of price, cost, and their relationship in a fairly straightforward manner using historical data. Additionally, it is perfectly reasonable to assume, as we do in this case, that price fluctuations affect both operational and capital expenditures. It is entirely reasonable to expect capital expenditures and oil price changes to be correlated, even if capital expenditures may react to changes in oil prices more slowly. This lagged correlation between the price of oil and operational and capital expenditures can also be easily accommodated using the method described in this paper.

Additionally, we employed quite unreliable models for price and cost behavior over time (simple random walk). In fact, the assumption holds true regardless of the models used to describe the trajectory of price and costs over time, such as mean-reverting or even more complex models, as long as costs and prices are correlated. Therefore, regardless of the models we employ, the message is always the same: NPV is overestimated and real option value is underestimated if price-cost correlation is disregarded.

APPENDICES

LIST OF DATASET

Year	Oil Price US$/tonn	Oil production th.tonn	Operating costs	Variable costs	Net Revenue (th. US$)	Cash flow, th. US $
1	$ 60,30	10,61	256,43	$ 9,92	$ 639,48	373,1
2	$ 62,71	22,00	533,37	$ 21,40	$ 1 379,70	824,9
3	$ 65,22	26,43	554,70	$ 26,75	$ 1 724,07	1142,6
4	$ 67,83	24,34	576,89	$ 28,24	$ 1 651,29	1046,2
5	$ 70,54	22,33	599,97	$ 29,88	$ 1 575,31	945,5
6	$ 73,36	20,56	623,97	$ 31,63	$ 1 508,19	852,6
7	$ 76,30	18,95	648,93	$ 33,52	$ 1 445,61	763,2
8	$ 79,35	17,52	674,88	$ 35,55	$ 1 390,59	680,2
9	$ 82,52	16,15	701,88	$ 37,63	$ 1 333,15	593,6
10	$ 85,83	14,95	729,95	$ 39,87	$ 1 282,89	513,1
11	$ 89,26	13,85	759,15	$ 42,13	$ 1 236,35	435,1
12	$ 92,83	12,88	789,52	$ 44,55	$ 1 195,98	361,9
13	$ 96,54	11,95	821,10	$ 47,46	$ 1 153,81	285,3
14	$ 100,40	11,13	853,94	$ 50,40	$ 1 117,50	213,2
15	$ 104,42	10,38	888,10	$ 53,61	$ 1 084,31	142,6

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