Selling: Petrofac Ltd (PFC); FTSE Small-Cap; Oil, Gas and Coal

Managing a portfolio is a lot like managing a garden. In gardening there are regular recurring tasks such as trimming back fast-growing plants and replacing unattractive plants with more attractive alternatives. In a portfolio this means regularly trimming back oversized positions and replacing unattractive holdings with more attractive alternatives.

Average purchase price	Current price	Holding period
£13.90	£1.32	7 years 2 months
Capital gain	**Dividend income**	**Annualised return**
- 90.6%	16.5%	- 23.4%

"We are a leading service provider to the oil and gas production and processing industry. We design, build, operate and maintain oil and gas facilities, which we deliver through a range of innovative commercial models."

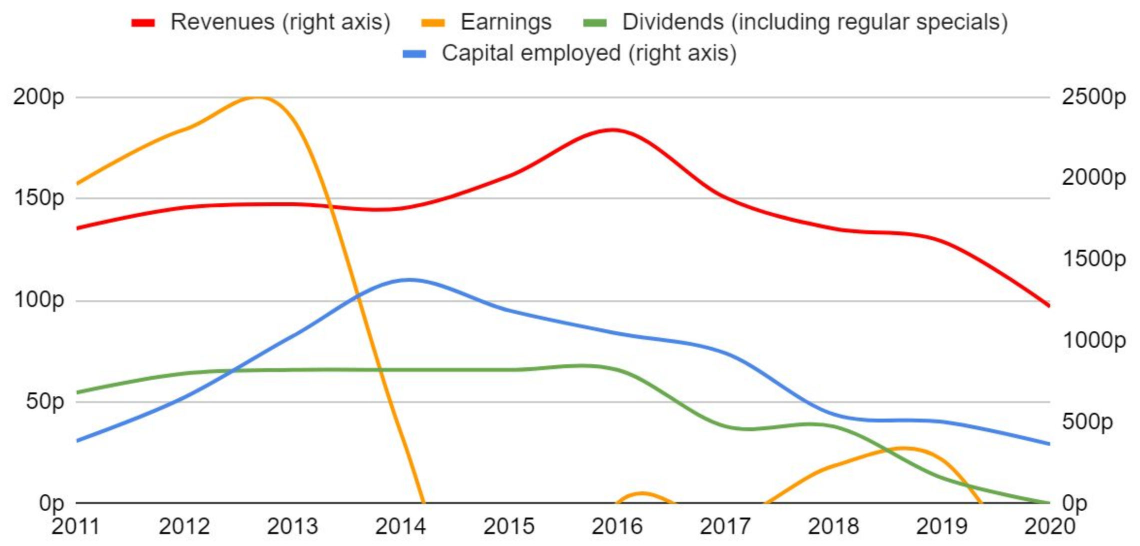
Summary: A quality but highly cyclical business facing significant headwinds

When Petrofac joined the model portfolio in early 2014 it had a track record most companies can only dream of. Its had grown by around 35% *per year* over the previous ten years, it had increased revenues, earnings and dividends 93% of time time and its average return on capital (ROCE) was 30%.

What I didn't appreciate at the time was the extent to which those results had been driven by a huge boom in oil and gas prices and construction projects which ran from the early 2000's until 2014/2015. When oil and gas supply finally caught up with demand, prices fell and the construction project pipeline dried up.

Petrofac has struggled to recover ever since and several major self-inflicted wounds have made its recovery much more difficult. Longer-term, there are serious risks as the world transitions away from fossil fuels.

Price / Buy Price	Dividend yield	PE10	Growth rate	Growth quality
1.7 (max 2.0)	Suspended	4.2 (max 30)	- 8% (min 2%)	46% (min 75%)
Return on capital	**Return on sales**	**Debt ratio**	**Capex ratio**	**Acquisition ratio**
6% (min 10%)	3% (min 5%)	7.3 (max 3.0)	189% (high)	9% (max 100%)



Investment checklist (used for both buy and sell decisions)

*This investment checklist is designed improve the odds that the model portfolio only invests in quality companies and defensive companies trading at prices which represent good or excellent value. You can access the checklist template as a Google Doc here: **UK Value Investor Checklist**.*

Quality: Is this a quality company? NO

Q.1. Does it have a focused core business?

YES Petrofac has three main businesses: (1) **Engineering & Construction** (E&C), which mostly designs, builds and installs oil and gas infrastructure; (2) **Engineering & Production Services** (EPS), which mostly operates and maintains oil and gas infrastructure and (3) **Integrated Energy Services** (IES), which develops and enhances oil and gas facilities in partnership with clients (who are usually either private or national oil and gas companies).

Of those three, E&C is the core business having generated around 75% of Petrofac's net profits over the last decade.

E&C is primarily (but far from exclusively) in the business of delivering mega-projects for clients in the Middle East and North Africa, mostly on a lump-sum turn-key basis. Typical projects would be the design and construction of a new gas terminal or carrying out a major overhaul of an existing oil refinery to enable it to produce super-low sulphur fuels. Projects range from a few million to several billion dollars.

In summary, Petrofac's core business is engineering and construction mega-projects within the oil and gas industry, mostly in the Middle East and North Africa. On that basis I would say that Petrofac does have a narrowly focused core business, combining niche skills with niche clients.

Q.2. Has it had the same core business for over a decade?

YES Petrofac started out as a producer of modular infrastructure for the oil and gas industry in Texas, USA. In 1991 the company launched an Engineering, Procurement and Construction business focused on projects in and around the United Arab Emirates, and this business went on to become Petrofac's core.

Q.3. Has it had broadly the same goal and strategy for more than a decade?

NO Petrofac has had more or less the same goal over the last decade and more, which is to be the preferred engineering and construction services provider to the global energy industry.

As for strategy, this has been less consistent. From around 2010 to 2015, Petrofac's strategy was centred around a short-term outcome-focused target of doubling recurring revenues and earnings by 2015, aiming for net earnings of more than $850 million.

It would achieve this by investing heavily in two existing business: (1) Integrated Energy Services (IES) and (2) offshore oil and gas support services.

In Integrated Energy Services, Petrofac would invest alongside the client in building or upgrading an oil and/or gas facility as a way to share the costs and potential benefits. Unlike Petrofac's core engineering and construction business, IES required far more up-front capital investment as Petrofac was investing in the facility rather than just building it. Management expected to invest around $1 billion per year into this business for at least several years (for context, Petrofac's earnings at the time were around $0.6 billion).

In offshore services, management commissioned an offshore services ship (the JSD6000) to take advantage of this fastest growing part of the oil and gas industry. The expansion of offshore services would require an investment of another $1 billion or so per year over several years.

To fund these new capital intensive businesses Petrofac increased its debts to $2.7 billion, giving the company a Debt Ratio of 7.7 in 2014, which is dangerously high for a company operating in the highly cyclical oil and gas construction industry (unfortunately I used a different and far less stringent debt to earnings ratio at the time, so I didn't spot this major red flag).

When oil prices collapsed through 2014 and 2015 management realised they'd made a mistake, and that taking on lots of debt to fund rapid growth at the peak of the oil and gas cycle was a very bad idea. The JSD6000 order was cancelled and Petrofac struggled to pay down its debts over the next few years.

Following this blunder, management changed their strategy to re-focus Petrofac on its core business (capital-light construction and engineering). This strategy of re-focusing on the core is something you'll see over and over again if you've been investing for long enough.

The scale of management's error in using debt to fund capital intensive expansion at the peak of the cycle is enough to undermine any confidence I might have in the strategic culture at Petrofac. In other words, the Board and senior managers failed to stop the executive team from following this plan, even though the risks should have been obvious to anyone who had worked in the oil and gas industry for several decades.

For me, this is a reminder that aggressive short-term outcome-focused goals are a red flag. "Doubling revenues" is a bad goal because management will tend to do whatever they think will deliver those results, even if what they do is very risky. This is basically what went wrong at Xaar.

In my opinion companies should focus on inputs rather than outputs. This means leveraging competitive advantages to go after relatively low risk opportunities in core and adjacent markets. Hopefully growth then naturally occurs as an output of those inputs. This may involve outcome-focused milestones (such as doubling revenue), but those are milestones to track progress rather than hard goals to go after.

Q.4. Has it earned consistently good returns?

NO In the decade from 2005 to 2014, oil prices were (apart from a brief blip during the Global Financial Crisis) heading relentlessly upwards and Petrofac's return on capital averaged a very impressive 30%.

After oil and gas prices collapsed in 2014/2015 following an increase in supply and a decrease in demand, Petrofac's ROCE has either been negative or low single digit.

Profit margin tells a similar story, averaging 9% in the decade to 2014 and 1% or less after 2014. Here's my interpretation of those facts:

1. During the oil price boom from 2000 to 2014, demand for oil outstripped supply so oil prices went up and oil producers made a lot of money. Understandably they wanted to add new facilities and update existing facilities to increase their production and profits.
2. This increased demand for oil and gas engineering and construction skills, enabling experienced players like Petrofac to book more orders at higher prices, driving very rapid growth.
3. Although the exact causes are debated, some combination of massively increased supply and falling demand caused oil and gas prices to collapse in 2014/2015.
4. Low prices led to low or negative profits for oil producers. As a result there was little or no economic rationale for building yet more oil and gas facilities or upgrading existing ones. Petrofac's order pipeline and profits collapsed and management were largely powerless to do anything about it.
5. The pandemic has driven demand and prices lower, which has led to further declines in oil and gas construction projects. This situation could take years to reverse.

This tells me Petrofac is not the master of its fate. Its profitability and growth are mostly determined by the highly cyclical swings in oil and gas prices and in demand for oil and gas projects.

Q.5. Has it produced consistent and sustainable growth?

NO Following on from the previous answer, Petrofac has clearly failed to produce consistent and sustainable growth. This is not entirely surprising as it operates at the crossroads of two very cyclical industries: oil and gas and construction.

In other words, it's very easy for oil and gas companies to defer orders for new facilities for years at a time, if necessary. This is not a good basis for steady and dependable growth.

Q.6. Has the company avoided the need for large transformation projects?

NO I think Petrofac's failed expansion into Integrated Energy Services contracts and offshore services was a large enough shift to be classed as transformational.

In the end neither of these failed projects came to much, but the damage done to the company's balance sheet and focus was enormous and the repercussions are still being felt.

Q.7. Has the company avoided excessively rapid expansion?

NO Although most of Petrofac's problems over the last five years have more to do with the collapse of oil and gas prices than anything else, those headwinds were exacerbated by management's attempts to hit unrealistic growth targets in the mid 2010s.

Those growth targets (doubling 2010 recurring revenues and earnings by 2015) came after a decade of incredibly rapid growth, with Petrofac's revenues going from $400m in 2002 to $4,400m in 2010, a tenfold increase in eight years. From the outside it looks as if management became mesmerised by these high growth rates and started to think they were normal and sustainable over the longer-term.

In reality the company had simply ridden a massive cyclical boom, a boom that was bound to end once the US shale oil industry delivered on its incredible potential.

Seven years after adding Petrofac to the portfolio, I am now well aware of the dangers of investing in highly cyclical businesses with very high growth rates. In almost all cases those high growth rates are completely unsustainable and do not reflect the company's potential over a full boom/bust cycle.

To summarise, although Petrofac didn't run into problems *because* it grew too fast, it did run into problems because it *tried* to grow too fast. Either way the underlying problem is a desire for excessive and unsustainable growth, and a willingness to fuel that growth with lots of new debt or equity.

Q.8. Has the company grown organically rather than through acquisition?

YES Petrofac hasn't made any major acquisitions in at least the last 20 years.

Q.9. Does the company benefit from network effects?

NO Network effects exist when clients or users are a fundamental part of the service offered to other clients or users (e.g. Rightmove, eBay or even Headlam to some extent), and this is not the case with Petrofac.

Q.10. Does the company benefit from unique and hard to replicate assets?

NO Petrofac's most important unique and hard to replicate assets are its brand and its history of successfully completed projects. The Petrofac name and history help it attract better employees at lower cost and better clients at higher prices than less successful and less well-regarded companies.

If these assets have valued it should show up in higher contract win-rates, book-to-bill ratios and returns on sales and capital. And that used to be the case with Petrofac. But the oil price collapse of 2014/2015 has decimated Petrofac's results to the point where all of those metrics look terrible, so it seems as if any competitive advantages gained from its reputation are not enough to offset the enormous cyclicality of its core oil and gas construction business.

In addition, Petrofac's reputation has taken something of a self-inflicted battering in recent years. There have been difficulties with some large projects (Laggan Tormore springs to mind) and a lengthy ongoing fraud investigation by the UK's Serious Fraud Office. Petrofac's ex-Global Head of Sales has pled guilty to charges of fraud, including payments of $30m to help Petrofac win more than $4 billion of contracts in Iraq and Saudi Arabia.

Petrofac has been banned from bidding for contracts in the United Arab Emirates, which seriously restricts its bidding pipeline and is a huge blow to its reputation as a trusted contractor.

This is one of the reasons why I'm wary of investing in companies that generate most of their revenues from large contracts. Contracts worth millions of pounds will attract high levels of due diligence from clients and cut-throat pricing from competitors, and neither is conducive to high profits. And of course large contracts are often signed off by a small number of client "gatekeepers", and bribing those gatekeepers is an ever present temptation.

As Buffett has said on many occasions, it takes 20 years to build a reputation and five minutes to ruin it. I don't think Petrofac's reputation has necessarily been ruined, but it's no longer the asset it once was.

Q.11. Does the company benefit from core market leadership?

NO I might have said yes a few years ago when Petrofac was one of the top-tier players in the oil and gas engineering and construction industry. It had an excellent reputation as one of if not the best operator, with many very successfully executed projects to brag about.

But those days are long gone and I think Petrofac has much to do to restore its reputation as a massively capable and dependable contractor.

Q.12. Does the company benefit from switching costs?

NO Most of Petrofac's projects are lump-sum and turn-key in nature, which means Petrofac carries out a specific project for a client (typically building or upgrading oil and gas facilities) and gets paid only for that project. Once the project is over there are usually no ongoing ties unless the client signs up for maintenance and/or operational services.

Clients can easily choose a different contractor to build or upgrade the next oil or gas facility. And while that would involve a bit more time and effort, I don't see that as a material barrier to switching.

Defensiveness: Is this a defensive company? NO

D.1. Is the company's core market defensive?

NO Petrofac operates at the crossroads of two very cyclical industries: oil and gas and construction.

During oil price booms, oil companies want facilities built or upgraded to increase supply so they can benefit from high oil prices. This increases demand for engineering and construction services such as those provided by Petrofac. But when oil prices fall, either because of a recession or an increase in supply, demand for engineering and construction services falls, sometimes materially, sometimes for years.

This makes oil and gas construction a very cyclical business to be in, and that's why management's decision to load Petrofac up with debt at the peak of the last cycle was such a basic error of judgement.

D.2. Is the core market expected to grow over the next few decades?

NO According to the International Energy Agency (IEA) and its World Energy Outlook 2020, global demand for oil is expected to flatline after 2030 under all scenarios, with demand potentially falling 30% or more if aggressive sustainability targets are met. As a lower CO_2 fossil fuel, natural gas is expected to have a brighter future through the remaining first half of the 21st century, but beyond 2050 even gas is expected to flatline and eventually decline.

Given all of that, I think a reasonable scenario is that Petrofac's core oil and gas market recovers from its current lows over the next decade, although perhaps not to the highs seen in the decade leading up to 2014. Beyond the next decade it seems likely that the industry will stagnate and eventually go into long-term decline, Perhaps with oil and gas prices at historically depressed levels.

This is why Petrofac is already pressing ahead with "new energy" projects. A notable example is its growing experience designing, building and installing platforms for High Voltage Direct Current substations, which convert direct current electricity from wind farms into alternating current for better long-distance transmission and distribution into households. However, new energy revenues aren't even broken out in Petrofac's annual results yet, so it has a long way to go before it becomes a material part of the business.

D.3. Is the core market relatively free from regulatory risk?

NO The decline of oil and gas demand after 2030-2050 will be driven primarily by new regulations such as carbon pricing, "green" taxes and subsidies and outright bans on things like pure petrol and diesel cars.

This reduction in demand will obviously have a knock on effect in terms of demand for new and upgraded oil and gas facilities and therefore a reduction in demand for Petrofac's core capabilities.

D.4. Is the core market unlikely to be disrupted?

NO Over the next several decades oil and gas demand is likely to be disrupted by a combination of regulation (such as the UK's target to reach net zero greenhouse gas emissions by 2050), technology (including renewables and the electrification of transport, heating and so on) and possibly cultural attitudes.

This is a relatively slow burning disruption rather than an abrupt dislocation, but the long-term direction of travel away from fossil fuels is clear.

D.5. Is the company free from significant concentration risk?

NO Generally I don't like to see a single customer be responsible for more than 10% of a company's revenues.

In Petrofac's case, in 2019 one customer generated $796m of revenue, or 14% of the total. In 2018 two clients generated combined revenues of $2,199m, or 38% of the total. Clearly this represents a significant risk and a falling out with one of these customers could have a very material impact.

D.6. Is the company free from significant product or patent risk?

YES Petrofac is an engineering and construction services business so it doesn't depend on products as such and patents aren't a material part of its business model.

D.7. Is the company largely unaffected by commodity prices?

NO As an oil and gas engineering and construction company, Petrofac's financial results are very heavily influenced by oil and gas prices and how they affect demand for new or upgraded facilities.

D.8. Does the company have prudent financial liabilities?

NO Petrofac has worked hard over the last few years to reduce its debt mountain following management's decision to aggressively fund new and highly capital intensive businesses at the peak of the last cycle.

Debts have come down from almost $3 billion in 2014 to just over $1 billion today, but unfortunately for Petrofac its earnings have declined even faster. This leaves it with debts that are more than seven-times its ten-year average earnings (a Debt Ratio of more than seven) and I think that's still far too much for such a highly cyclical company. In most cases I think highly cyclical companies should have a Debt Ratio of less than three, so Petrofac is more than twice over that limit.

In 2014 the company's Debt Ratio was 8.3, so that was a clear red flag which I completely missed. I missed it because in 2014 I used a different Debt Ratio which projected past earnings growth into the future and compared current debts to those estimated future earnings. As a high growth business, Petrofac's estimated future earnings were very high so its debts, according to that Debt Ratio, seemed prudent. Clearly that was wrong and the old Debt Ratio was replaced with the current more prudent version several years ago.

Value: Is this company good value? NO

V.1. Is the company free from problems which are likely to materially damage its long-term prospects?

NO Petrofac has two major problems which I think are likely to materially damage its long-term prospects:

(1) The pandemic: COVID-related travel restrictions and economic downturns have had a serious impact on oil and gas prices, both of which have led to a material decrease in demand for Petrofac's core skills. This is almost certain to be a short-term problem, but it's a very serious problem as demand has literally collapsed.

For example, Petrofac's revenues have fallen by almost half from their 2016 peak, and yet the company's 2020 book-to-bill ratio (the value of new orders booked compared to the value of work completed and billed) was just 40%. So Petrofac's order pipeline is being filled at 40% of the rate required to sustain revenues at their current level, which means revenues are very likely to fall substantially in the short-term and this could be an existential threat.

(2) Regulatory and technological disruption: The global energy transition from fossil fuels to alternatives is now well underway. More and more countries are targeting net zero CO_2 emissions by 2050 or so, and many companies are switching to 100% renewable electricity even sooner.

For example, many companies in the model portfolio are moving to 100% renewable electricity now or in the near future and some are offsetting more than 100% of their emissions. Electric cars are expected to make up almost half of all cars globally by 2040 and solar power is now the cheapest way to add electricity capacity in many countries.

This seriously undermines Petrofac's core oil and gas construction business, which requires new oil and gas facilities to be built and existing ones upgraded, preferably with high oil prices so that customers are willing to pay up for quality contractors. Neither of those are likely to happen if oil demand and prices are in long-term decline somewhere after 2030.

Of course, Petrofac could get around this by switching to renewable energy projects, which it has already started to do. But its operations there are relatively new and unproven and I don't want to invest in companies where the core business is being fundamentally disrupted. Successfully transitioning to a new market is extremely hard and risky, and companies facing extremely hard and risky challenges is not what I'm looking for.

V.2. Is dividend growth very likely over the next ten years and beyond?

NO Petrofac's dividend is currently suspended, so from that non-existent level I do think dividend growth is likely, but beyond that I don't expect long-term dividend growth. Here's Petrofac's dividend model:

Dividend Discount Model (USD)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030+
Estimated net return on capital	*0.0%*	*2.7%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	
Estimated earnings ps	0.0	12.5	25.6	26.6	27.5	28.4	29.3	30.1	31.0	
Estimated dividend cover	0.0	0.0	3.0	2.8	2.6	2.4	2.2	2.0	1.9	
Estimated dividends ps	0.0	0.0	8.5	9.6	10.7	12.0	13.3	14.8	16.5	165
Estimated capital employed ps	459	471	488	505	522	538	554	570	584	
Discount factor	*91%*	*83%*	*75%*	*68%*	*62%*	*56%*	*51%*	*47%*	*42%*	*39%*
Discounted dividends	0.0	0.0	6.4	6.5	6.6	6.7	6.8	6.9	7.0	63.6
Estimated dividend growth rates	ST growth	*11.6%*	LT growth	*0.0%*	Target rtn	*10.0%*	Buy Price	111	Price / BP	**1.7**
							Pence	80		

And here are the related assumptions:

(1) Profitability (ROCE) is depressed in 2021 and 2022 due to low oil demand and prices resulting from the pandemic and its after effects. Beyond that, ROCE reverts to the historically low level of 5.5% as US shale oil supply provides an effective cap on oil prices. This is materially below Petrofac's pre-2014 profitability.

(2) No dividend is paid in 2021 or 2022 as demand for new or updated supply facilities remains depressed.

(3) The dividend is reinstated in 2023 as the oil industry reverts to more normal levels of capital investment (to upgrade or replace ageing facilities).

(4) Dividend cover starts at the pre-2014 average of 3.0 and declines toward 2.0 as sensible reinvestment of retained earnings becomes difficult as demand for new oil and gas facilities begins to slow towards 2030.

(5) Long-term growth of zero percent reflects (a) the likely long-term decline of oil and gas demand and (b) uncertainty around Petrofac's ability to transition to “new energy” projects such as designing, building and installing platforms for High Voltage AC substations.

Although I think these assumptions and the related dividend model are both conservative and realistic, given the highly cyclical nature of Petrofac’s business I think there’s a good chance Petrofac’s future could turn out to be either markedly better or worse than I’ve assumed. And that’s part of the problem.

The range of realistically possible outcomes is huge and I just don’t want to invest in companies where the future is so very uncertain. I’m after relatively stable businesses where reasonably steady long-term growth is very likely, and Petrofac just doesn’t fit that description.

V.3. Are the risks and expected returns from this investment satisfactory?

NO Petrofac’s target Buy Price is £0.80 and its target Sell Price is £1.60. The current share price of £1.32 sits between those two, so at first glance it seems that Petrofac may be reasonably good value. Even so, Petrofac’s just doesn’t fit within my risk tolerance, regardless of price. This becomes more obvious if I ask myself whether I’d like to have 6% of the portfolio invested in Petrofac if its Price to Buy Price ratio was 0.5 (6% would be its target position size). The answer would be no.

This highlights the difference between the mathematically “expected return” from an investment and the potential risk of loss. Here’s an example using two bets based on a coin toss. Bet A: Heads you win £1m, tails you win £1m; Bet B: Heads you win £3m, tails you lose £1m.

The “expected return” from both bets is the same; it’s £1m. However, the risk of loss is entirely different. Bet A has no risk of loss while Bet B has a 50% chance of a £1m loss. Petrofac is effectively Bet B.

Final Decision: Are you happy to own this company at this price?

NO Petrofac has historically been a high quality operator in a highly cyclical industry, but there are question marks over that industry’s long-term prospects, Petrofac’s reputation and its ability to come through the current crisis without permanent damage. As such, Petrofac is not an appropriate holding for a defensive value portfolio. I will therefore remove it from the model portfolio and my personal portfolio a few days after this issue is published. The proceeds will be reinvested in the near future.

Other potential sales	Reason for not selling
XP Power, Burberry, Next Domino’s	These are potential sales because of their share prices are close to or above their Sell Prices. These companies may be sold in the near future.

IMPORTANT NOTICE: This analysis is for education only. It is not a recommendation to buy or sell shares. It should be used alongside other sources of information and not used in isolation. Always perform your own analysis and factual verification before making investment decisions. If you need advice see a regulated financial advisor. Please read the important notes on the back page.