1. INTRODUCTION

My aim in writing this paper is to understand how key players in oil and natural gas and automotive sectors have hedged their bets in making long term decisions, when the results of those decisions were unknown in advance. Hedging is a theory of decision making that is different from the efforts corporations make to optimize returns. It also differs from bounded rationality, which claims organizations cannot optimize, though they may attempt to do so, because they lack knowledge, their time is limited, and they suffer from other decision making shortcomings. It is more akin to the risk adverse biases that prospect theory has proposed, but it applies the notion of risk aversion to organizations as a whole and attempts to define the mechanisms organizations use to protect themselves from losses and preserve their survival when the future is unknown and they cannot predict with certainty whether the strategic bets they have made will pay off, or if they actually have been miscalculations of grand proportions which can end their existence. The term hedging is borrowed from finance where it means moving in more than one direction at once to offset the chance of adverse movements in the markets. Technically, to hedge means to make future investments with negative correlations. That is, it means, to use the literature of strategic management, to take the ambivalence felt about the future direction of the state of the world and make simultaneously contradictory bets about what is to come next. When the future is unknown an organization cannot responsibly or prudently place all its eggs in one basket. It must bet on more than one world coming into being at the same time, in the hope that its positive bets will more than offset the negative ones, or that its bets alternately will sustain it in moments when different future conditions dominate. Uncertainty about the future leads to ambivalence about which strategic moves to make and this ambivalence leads to contradictory choices and hedging.

1.1 The Hedging Mechanisms of Major Oil and Natural Gas and Motor Vehicle Companies

The purpose of the paper is to reveal the hedging mechanisms of integrated oil and natural gas and motor vehicle companies in the energy industry. How have they tried to shield themselves from the disastrous consequences of the vast strategic bets they make that might go awry? This paper argues that their goal has not necessarily been to maximize returns to shareholders but to survive whatever contingency takes place and with some luck to prosper if the best of conditions arise. The track record of energy industry company decision making in the past has been anything but perfect and serious miscalculations have put nearly every firm in the industry at some point in time in danger of demise, but the major elimination of an energy industry company, even in the face of some of their bankruptcies, has not taken place. In this sense, their hedges have succeeded in protecting them from the worst of their decision making blunders.

Firms in the energy industry face at least two major uncertainties with which this paper grapples. The first of the major uncertainties has to do with volatile prices, the boom and bust conditions that
prevailed from 2012-16, when oil prices plunged from a height of about $100 a barrel and fell to a low of about $30 a barrel, in the process of wiping out about a third of major integrated oil and natural gas company revenue and providing motor vehicle companies with the opportunity to sell more highly profitable light duty trucks, pickups, SUVs, and crossovers. The second of the major uncertainties is the ongoing threat of climate change brought about by the incessant burning of fossil fuels that the integrated oil and natural gas and motor vehicle companies facilitate. Climate change introduces physical uncertainty in that meteorological conditions in the world which allow the global economy to function no longer will be operable and legal uncertainty in that almost every government in the world has tightened its standards on fuel efficiency and air emissions and stretched the technological capabilities of integrated oil and natural gas and motor vehicle companies to their limits in trying to arrive at ways to comply with the laws the world's governments have enacted. This period was one of mounting pressure on energy company firms to respond to climate change. This pressure culminated in the global Paris climate change pact of 2015 in which nearly all countries in the world committed to lower their carbon footprint by introducing tight new fuel efficiency and air quality standards.

1.2 Preparing for the Future

All of the firms in the integrated oil and natural gas and motor vehicles were preparing for a future in which fossil fuels would be less dominant, but their preparations for this future differed in significant ways that this paper helps to clarify. Some acted based on the assumption that reduced reliance on fossil fuels was more imminent than others and this assumption led them to making different strategic investments and bets than their peers. How companies reacted to the dual uncertainties of price volatility and climate change are this paper’s major theme.

- ExxonMobil adjusted however slightly its stance on climate change and widely publicized an effort on its part to develop petro-algae.
- BP disgorged large amounts of its fossil fuel assets to save itself from bankruptcy after the Deepwater Horizon oil spill.
- Shell restructured as well, letting go of large amounts of its oil assets and acquiring natural gas assets instead, which led to a major commitment to build liquefied natural gas infrastructure.
- TOTAL moved in a different direction than other integrated oil and natural gas companies, as it owned advanced battery and solar panel companies and started to secure for itself European electric utilities that it could operate.
- GM, on the other hand, introduced an electric plug-in and the all-electric Bold.
- Ford, wavered in the face of weak financial results unsure how much it should commit to its global bestselling F-150 series light truck versus moving to hybrids and to the opportunities of new transportation models, but it did come to a number of important decisions, both in making the F-150 series lighter with an aluminium body replacing some of the metal body.
- VW, with its back against the wall because its cheating on diesel emission standards, reversed its commitment to proclaiming that diesel was the world’s greenest solution, and promised that it would make almost all its models available in some type of electric option no later than 2030.
- Toyota promised the most far-reaching transformation of any automaker with regard to offering hybrid and fully electric vehicles for sale.
1.3 Paradox and Ambivalence

Uncertainty about the future led to ambivalence about which strategic moves to make and this ambivalence leads to contradictory choices and hedging. In the oil and natural gas and motor vehicle industries, in the face of the uncertainty, companies hedged their bets by staking out paradoxical positions. On the one hand, they focused on capturing as much gain as they could from the world’s current dependence on fossil fuels, and on the other hand, they made preparations for a future in which fossil fuels might not be the world’s dominant energy source.

This paper develops a theory of hedging that applies to firms in the oil and natural gas and motor vehicle industries in the 2012-2016 period, but which can be extended to other organizations experiencing similar disruptive change.

REFERENCES