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RBC WEALTH MANAGEMENT

Global Insight

Focus Article

Fast track to the future

Disruptive forces are upending the business world, bringing with them investment challenges—and opportunities.

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All values in U.S. dollars and priced as of August 31, 2017, market close, unless otherwise noted.

RBC Wealth Management

Fast track to the future

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Technological innovation can be particularly disruptive to the old guard. By bringing cutting edge and often cheaper products or services, disruptive technologies can force incumbents to transform their business models or processes to regain competitiveness. Share prices of affected companies can suffer severe setbacks. What can investors do?

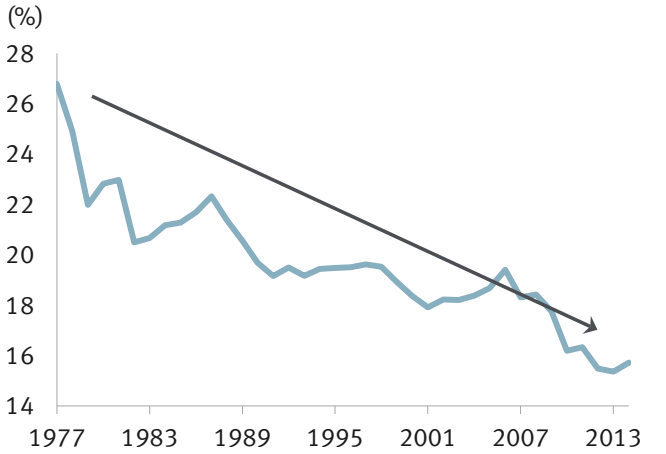
Disruption in perspective

With Uber replacing traditional taxis, Airbnb assailing the hotel industry, and smartphones reconfiguring the market for PCs and digital cameras, not to mention the prospect for self-driving cars as well as computers taking on diagnostic functions in hospitals, is a new world order upon us?

Perhaps, but this impression is at least in part a product of the lack of change and disruption that has characterised the past 40 years in the opinion of Eric Lascelles, chief economist at RBC Global Asset Management.

He points out that from as far back as the 1970s there has been a steady decline in the turnover of U.S. firms. Relatively few new companies have been created and fewer have closed down.

U.S. firm turnover has declined steadily

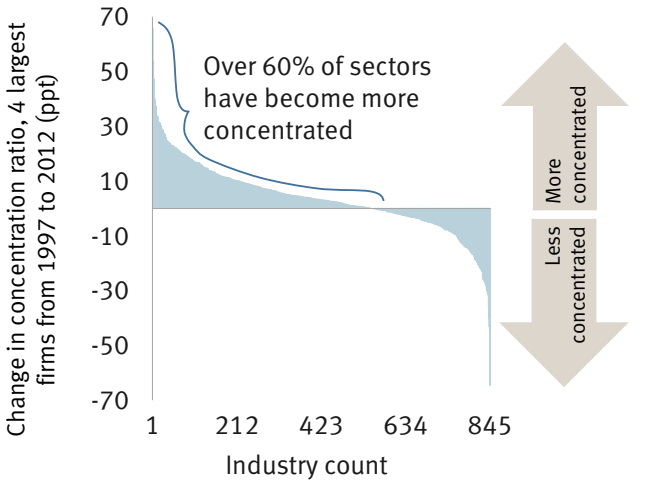


Lower turnover contributes to sluggish productivity gains.

Note: Measured as number of firms opened or closed in a year as % of total
Source - U.S. Census Bureau, RBC Global Asset Management

Moreover, he observes that fully 60% of all sectors are more concentrated today than they were 10 years ago. Successful companies operating in concentrated industries can become more sluggish and complacent, innovating and disrupting less. This low business dynamism, stemming from low corporate turnover and rising industry concentration, in Lascelles's view, constrains economic activity and arguably is a factor behind the lacklustre growth and sluggish productivity gains of recent years.

U.S. industry concentration has increased



Out of 845 industry sectors, the majority have become more concentrated.

Note: Change in concentration ratio (i.e., revenues of the four largest firms as % of total in a sector)
Source - U.S. Census Bureau, RBC Global Asset Management

So disruption may not yet be as widespread as one might be led to believe, though there are reasons to think that this may be about to change.

The new face of disruption

For those companies impacted by disruption, there is a risk they will underestimate disruptive threats. Think of Jim Keyes, CEO of Blockbuster, who stated in 2008 that "neither RedBox nor Netflix are even on the radar screen in terms of competition." Blockbuster filed for bankruptcy in 2010.

Disruption will likely accelerate as new services or products are created today, made possible by technologies which require low levels of capital investment. Compare, for example, the modest capital requirements Airbnb initially needed to disrupt the hotel industry with the very costly investments required to build railways which replaced rivers as a means of transport. In fact, the prohibitively hefty investment required was one of the reasons why steam engines arrived on the scene in the 17th century but didn't come to dominate the industrial landscape until the 19th century.

More modest capital requirements lower the barriers to entry for new disruptors, enhancing competitive dynamics and adding pressures on incumbent companies. It is one of the reasons cited by outgoing General Electric CEO Jeff Immelt at a recent event where he stated that global disruption was "breathtaking" and unstoppable. "None of it is going to get any easier. It's only going to get harder."

Sectors at risk

The table on the following page shows disruptive technologies for select vulnerable industries, the potential impact on related business models, and the expected time frame. To put the disruption in context, some key regulatory headwinds are noted. Conceivably, the most affected industries are those which face technological disruption at a time when the regulatory burdens are either particularly heavy or changing as well. Auto, financials, and energy are at the top of the list.

Fast track to the future

The auto industry faces enormous technological challenges with the advent of the electric vehicle (EV) powered by lithium-ion batteries. Adopting this technology opens the door to a complete rethink of fundamental design and production processes. RBC Capital Markets estimates that the number of moving parts in an EV engine is less than 150, down from more than 2,000 in an internal combustion engine. Clean air regulation is spurring this paradigm shift, and France (2030) and the U.K. (2050) have set emission-free deadlines for cars sold. EVs currently reduce carbon emissions by half compared to petrol-powered cars.

If this was not enough, the auto industry is already contending with the rise of the sharing economy, itself enabled by high levels of connectivity. This has already

Disruptive technologies and regulation for key industries

Some vulnerable industries	Key disruptive technologies	What is at risk?	When?	Disruptive regulation	Impact
Auto	Driverless cars	Additional investment, competitive position, sales	5–10 yrs.	Energy efficiency	Capex, supply chain
	Electric cars	Additional investment, competitive position, sales	5–10 yrs.		
	Connectivity & sharing economy	Lower sales volumes	5–10 yrs.		
Capital Goods	3D printing	Supply chain, loss of competitive position	5–10 yrs.		
	Renewable energy	Product suite	Ongoing		
	Energy battery storage	Product suite	10 yrs.		
	Robotics	Capex	5–10 yrs.		
Energy	Renewable energy	Lower sales volumes	10 yrs.	Energy efficiency, Environment	Lower volumes, Higher costs
	Energy storage of renewable sources	Lower gas demand if consumers switch to electric-based heating, drawing on renewable energy battery storage	10 yrs.		
Financials	Fintech	Lower revenues & margins	Ongoing	Capital adequacy, Other regulations	Lower returns, Higher costs, Lower returns on equity
	Crowd funding	Lower revenues & margins	Ongoing		
	Peer-to-peer lending	Lower revenues & margins	Ongoing		
	Robo advisers	Lower revenues & margins	Ongoing		
	Mobile internet	Number of branches, costs	Ongoing		
	Artificial intelligence	Back-office cuts	Ongoing		
Health Care	Biosimilars	Pharma's manufacturing process	5 yrs.		
	Medical robots	Capex, training costs	Ongoing		
	3D printing	Medtech manufacturing process	10 yrs.		
IT	Cloud technology	Lower hardware demand	Ongoing		
Leisure (travel, hotels, restaurants)	Connectivity & sharing economy	Lower revenues & margins	Ongoing		
Media	Internet	Business models	Ongoing		
Mining	Advanced materials	Lower steel sales volumes	Ongoing	← Environment (coal)	Higher costs
Real Estate	eCommerce	Lower retail real estate	Ongoing		
Retail	Mobile internet	Brick-and-mortar retailers	Ongoing	← Minimum wage	Lower margins
Telecoms	5G	Higher capex	5 yrs.	← Minimum coverage	Higher capex

Source - RBC Wealth Management

cut into demand from young adults in large cities, where the average car sits idle for 23 hours each day. Studies by the Organization for Economic Cooperation and Development (OECD) and the Boston Consulting Group suggest the advent of self-driving vehicles would make ride sharing even more pervasive, perhaps accounting for 25% of all miles driven by 2030.

Disruption in one sector can ripple through adjacent sectors.

Retail is another industry where business models are facing radical disruption. Amazon has already almost singlehandedly reconfigured much of the industry, and now Wal-Mart is making a massive push. More than 35% of apparel sales are now done online.

Amazon has now trained its crosshairs on the retail food industry, which so far has been largely immune from online disruption, generating a mere 1% in online sales. Its purchase of Whole Foods is a warning shot, and Amazon hopes to use that company's fleet of refrigerated trucks and supply chain managers and embed them into its ecosystem of data and artificial intelligence. If Amazon can be aware, through connectivity and digitisation, of when consumers are running out of a product, it can deliver the item to consumers' doors faster than the competition and with more convenience by eliminating a trip to the store.

If Amazon (and now Wal-Mart) succeeds, the ensuing disruption will not be confined to food retail. Given the rapid penetration of online retailers, large food stores are often the only remaining reason why buyers continue to visit shopping centres. Retail rents are under pressure, which may lead to credit impairments for lenders. Industry observers look for retail space closures in the U.S. this year to comfortably exceed those of the 2008 financial crisis year. This could entail collateral damage not only for the broader commercial real estate market but also potentially on residential land prices. The U.S. would be most affected given retail space ranges between 20–25 square feet per person, compared to some 15 square feet in Canada, and 2–5 square feet in Europe, according to Morningstar and RBC Capital Markets.

Protecting portfolios

Once the possible threats to an industry have been ascertained, the second step to protect portfolio values would be to identify those companies which can adapt and survive, and those which will struggle. This is key as in 1935 the lifespan of an S&P 500 company was 90 years, though it has dropped to 18 years today, according to a McKinsey & Company study.

Determining which leopard can change its spots is no easy task. The impact of a disruptive technology may not be visible immediately and may easily be misjudged. For example, the food industry was not immediately revolutionised with the advent of the tin can in the early 1800s. That awaited the invention of the can opener half a century later.

Assessing whether companies have a good track record at generating high returns will not be sufficient, nor will being a proven innovator. All too often, a company's power and willingness to adopt new technologies is limited by the burden of legacy businesses that management feels the need to protect.

The focus needs to be on management's ability and willingness to consider doing things completely differently, and to even allow some core divisions and "sacred

cows" to die off. A management team which has led a company to an established, successful position may not be best-placed to lead it through times when it may need to reinvent itself.

Companies which rely too much on what is currently popular with customers or are too eager to protect their margins tend to ignore new technological trends, according to a recent study from the Harvard Business School. They see their own success as evidence their customers are happy with what they are offering today. Potential costs of adopting new technologies may also be judged unnecessary and unhelpful to meet profit targets. But when a competitor brings innovative technology to the market, and starts to encroach on market share, the competitive gap may be already too wide to bridge.

A tale of two tech giants: Kodak's and Canon's diverging fates.

The stark difference in the fates of Kodak and Canon in facing the competition of digital cameras and mobile phones is a case in point.

Kodak had a culture of "perfection," which enabled it to enjoy an 85% share of camera sales in the late 1970s. But with this dominant market position came a complacency which prevented a "first to market" attitude. Its response to the threat of digital photography and mobile phones was late. And none of its eventual responses were enough to turn the tide. The company was delisted from the NYSE in 2012, went through a painful bankruptcy in which it sold off most of its valuable patents, and re-emerged as a much smaller and dramatically less valuable company.

Kodak goes belly up

Kodak share price (USD)

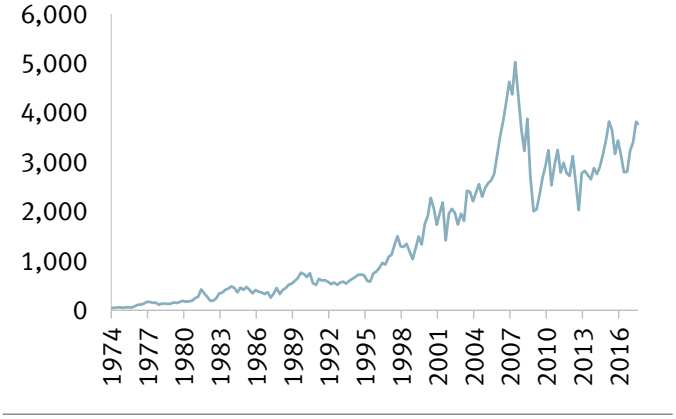
Kodak's response to digitisation was not radical enough ...

Source - Bloomberg, RBC Wealth Management; data through 9/3/13

Canon faced similar threats. While it suffered a 37% decline in digital camera sales in the 10 years to 2016, it has moved away from mass market compact digital cameras and now targets the high-end hobbyist and professional market. It is aggressively pursuing its innovation effort, developing a whole slate of new products, including virtual reality design studios, 3D printing materials, surveillance cameras, and medical imaging. It is a powerful force in the printer industry. While the stock has largely moved sideways for the last 10 years, it has escaped Kodak's fate.

Canon does better

Canon share price (JPY)



... Canon responded more forcefully.

Source - Bloomberg, RBC Wealth Management; data through 8/22/17

Opportunity

Wise use of disruptive technologies can increase margins or improve cash flow ...

Disruption also can bring opportunity. Manufacturing companies which adopt 3D printing processes and make wise use of automation and robotics may well see margins expand after their initial investment. Businesses that use artificial intelligence to optimise their supply chain may improve cash flow. And the developers of new technologies that prove to be truly disruptive by changing an established industry or creating a new one will be aggressively sought out by investors.

Evaluating whether an established business is prepared and capable to adopt and exploit new technologies is not necessarily easy, but it is within the normal purview of investment analysis. However, picking from among the many firms working to become the next big disruptor, of which only a handful will succeed, has much more of speculation than investment about it.

Even successful new innovators can travel a bumpy road. Nvidia makes 3D graphics processors which transform PCs into gaming devices. The share price lost some 80% not once but twice between 2002 and 2008 before appreciating by more than 2,900% over the past eight years.

To the future and beyond

The pace of disruption looks poised to accelerate, with wide-ranging implications for any portfolio. We advocate the best defence for investors continues to be avoiding industries which face too many disruptive headwinds and reiterate the importance of investing in the highest-quality companies, with agile, responsive management, open to new ways of competing and prepared to transform and, if necessary, sacrifice legacy businesses to remain competitive and dominant.

Diversification is always the first line of defence for the prudent investor and is also the best way to incorporate higher-risk positions in a portfolio. Boards and management teams may face very difficult and often painful decisions when confronted by disruptive competition in their industry. Investors can be much more dispassionate when determining whether to stay or go.

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