The Long View

Investment Insights

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CAPITAL GROUP℠

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No Status Quo: The Difference Disruption Makes

"Disruptive technology is having a huge impact on the world and it is only getting bigger."

Mark Denning, Portfolio Manager

Out with the old, in with the new. People of nearly every era have probably surveyed the world around them and marveled at how quickly things can change. But these days, change seems to be setting a new speed record.

Seemingly overnight, products that were once part of everyday life become relics of a time gone by. Indeed, entire industries are being disrupted by innovation or new business models.

For both companies and investors, rapid change can be unsettling, but it can also present opportunity and potential reward, says portfolio manager Mark Denning.

"Disruptive technology is having a huge impact on the world and it is only getting bigger," says Mark. "Name an industry and it is being disrupted – just look at retail with the impact of e-commerce and mobile payments systems. As investors, we have to make sure we are on top of all the change that is taking place, which is why having the proper resources in place to cover these industries is crucial."

Mark and other investment professionals point out that, despite the excitement that innovation and change can inspire, investments are made in only the companies in which portfolio managers and investment analysts have the strongest conviction.

"It's important that we approach them with great diligence and make sure they're not just companies we like, but that we also know how fast they need to grow sales and improve profits to be fruitful investments," portfolio manager Carl Kawaja says. Carl is one of the managers of Capital Group Global Equity Fund℠ (Canada).

Change can be most apparent in the technology sector, where the status quo almost seems to be a thing of the past. But it's not the only area where there's upheaval.

"We are in the middle of a massive health care renaissance," says investment analyst Rich Wolf. "You're hearing almost every day about new biotech drugs. And we are in the very early stages of the biotech era.

"There are going to be many secondary effects, not only just for drugs and growth in the biotech industry, but also for the resources and equipment that are required to do that kind of research. There are many companies that supply that industry," Rich says.

Singapore-based portfolio manager Sung Lee says some changes may be incremental, but it's important to identify winners and invest early.

"Our advantage is that we can take a long-term view of these companies and see these changes through over many years. That perspective is what gives us the edge in terms of identifying them," Sung says.

"Certain companies recognize these changes as well, but are too protective of their current business model; once momentum builds, they get left behind. We want to be invested in those companies that think strategically about the long-term shifts in an industry."

Key Takeaways

We live in a transformational time

- **Emerging technologies and innovation are creating new products and business models that are disrupting the old ways.**
- **From cloud computing to a new era of breakthrough drugs, we are on the cusp of a dramatically different world.**
- **Companies that are poised to take advantage of these changes have the potential to reap new profits, and provide investors with opportunities that few could have imagined a decade ago.**

Cover: A woman uses a smartphone to make a payment on an electronic reader.

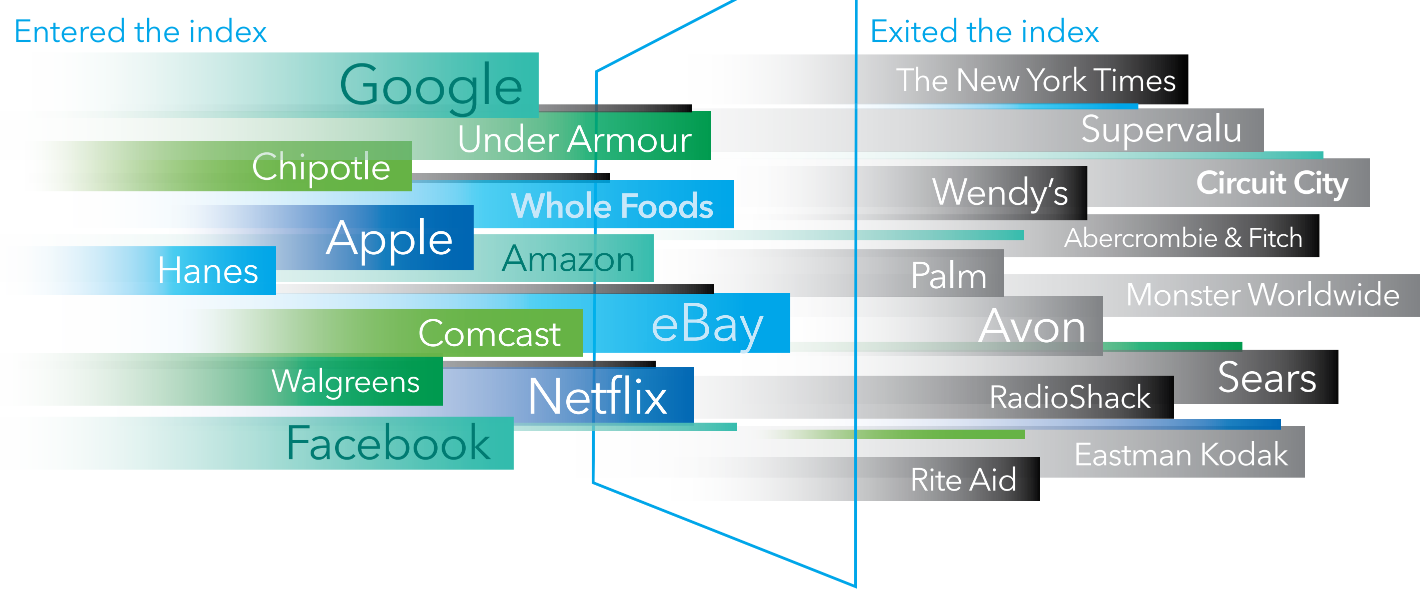
Warp Speed: The Churn Rate for the S&P 500 Is Accelerating

Many companies have turned disruption into opportunity

"It's obvious to me that we live in a transformational time, where emerging technologies are creating new business models and destroying old ones."

Nick Grace, Portfolio Manager

Sampling of companies that have entered and exited the S&P 500 Index, 1979-2015



Sources: S&P Capital IQ; *Standard & Poor's Analysts Handbook*, 1980, and *Stocks in the Standard & Poor's 500*, 1982, Standard & Poor's Corporation; Dow Jones Newswires, 1987, Dow Jones; and Reuters.com, 2015, Thomson Reuters. Standard & Poor's 500 Composite Index℠ and S&P 500® are service/trademarks owned by the McGraw-Hill Companies, Inc.

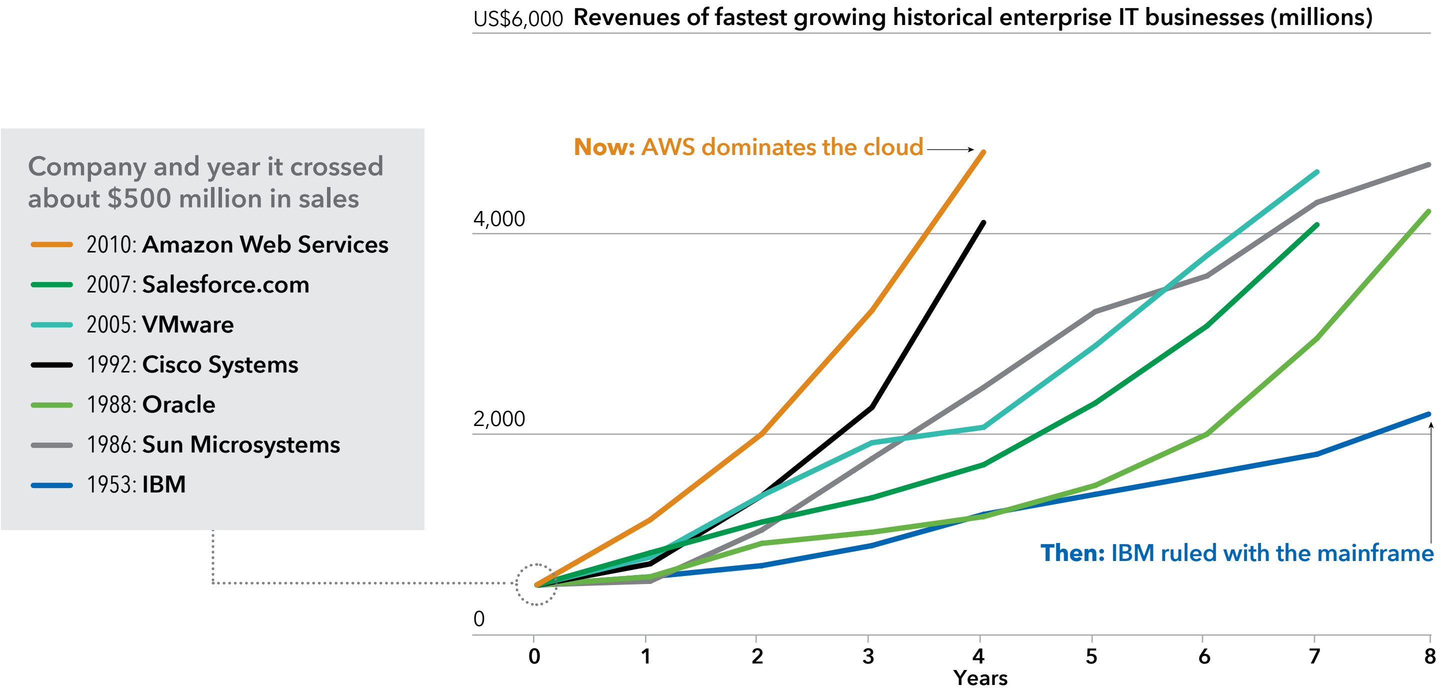
- Yale professor Richard N. Foster, co-author of *Creative Destruction,* has a warning for executives whose companies are now listed in Standard & Poor's 500 Composite Index: Your days may be numbered. At the current churn rate, 75% of the S&P 500 will be replaced by 2027. Indeed, since 2002, such household names as Sears, The New York Times and Eastman Kodak have exited the index, while Amazon, Netflix and Chipotle have joined the list of U.S. companies with the largest market capitalization.
- Companies in the S&P 500 are replaced for a variety of reasons, including decline in market value (for example, RadioShack) or acquisition by another company. But many of the changes are due to "creative destruction," in which companies that once dominated industries have seen their profits fall and their dominance vanish as rivals employed new technologies that disrupted the old way of doing business. One example: The Internet's impact on circulation and ad revenue in the newspaper industry.
- The information technology sector in the S&P 500 is perhaps the most dramatic example of disruption. Among those that disrupted the status quo and changed behaviour include Google, Facebook and Apple, all now household names. But things change. According to Foster, corporations in the S&P 500 in 1958 lasted in the index for 61 years, on average. Today, it stands at just 18 years based on seven-year rolling averages. During the decade ended 2011, about half of the companies in S&P 500 were replaced.

The Cloud Isn't Really up in the Air, but the Potential Is Sky-High

So high, so fast: Amazon Web Services is the fastest growing business in the history of enterprise IT

"There is a fabulous stream of new companies, disruptive companies, that come along and take the world by storm."

Jonathan Knowles, Portfolio Manager



Sources: Capital Group and SEC (U.S. Securities and Exchange Commission) reported company financial filings. Data are estimates.

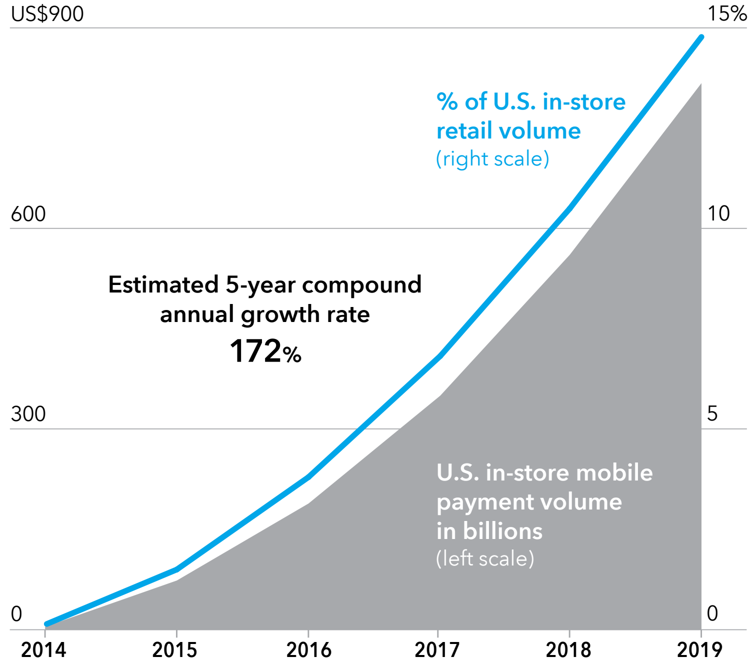
- First off, all of your music and pictures aren't really up in the air. The cloud is a cool name, but the reality of data storage and computing is more akin to a farm than the sky. In fact, Amazon, Google, Apple, Microsoft, Facebook and others run massive facilities around the world filled with servers that handle billions of transactions (one of Facebook's facilities has 950 miles of cable). The cloud, very simply put, refers to software and services that run on the Internet instead of your computer.
- Although its origins date back to the 1960s, cloud computing has become a hugely disruptive force in roughly the past decade, driving innovation and leading to numerous new business models. Because companies can now rent services they use via the cloud, companies that sell computer hardware are among the disrupted.
- The security of the cloud remains an issue for some, but a tipping point occurred in 2013 when one of the world's most private organizations – the U.S. Central Intelligence Agency – decided to trust the cloud. The CIA selected Amazon Web Services (AWS) to build its private cloud, a US$600 million job that *Wired* magazine called "a seismic shift in cloud computing."
- AWS now dominates the cloud, with Google and Microsoft playing catch-up. The chart shows how quickly the cloud generated revenue for AWS, going from US$500 million to nearly $5 billion in about four years. By 2017, enterprise spending on cloud computing will amount to a projected US$235 billion, triple the US$78 billion spent in 2011, according to researchers at IHS Technology.

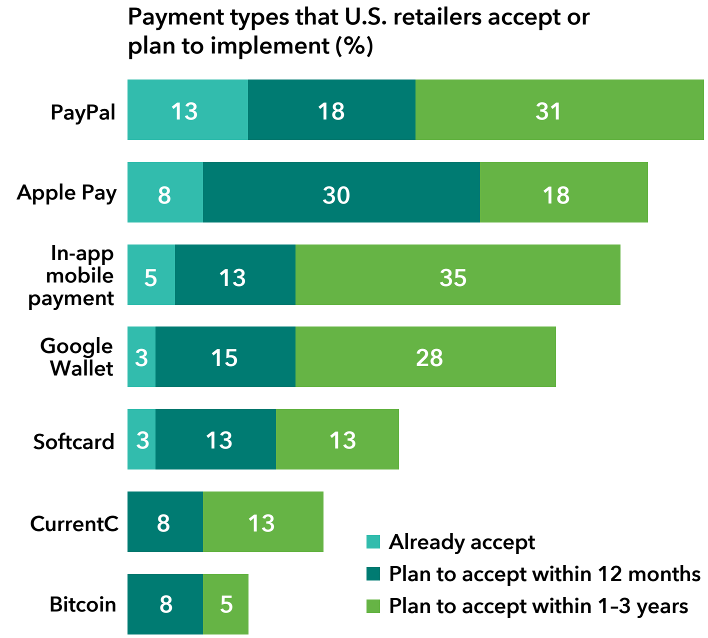
Can Smartphones Replace Wads of Cash? Companies Are Banking on It

There's a big payoff for the winner of the race to change the way you pay

"When you think about investing in mobile payments, it basically comes down to a company that can enable security, regardless of which system is being used."

Johnny Chan, Investment Analyst





Sources: BI Intelligence (both charts) and Boston Retail Partners (left chart). Data for mobile payment volume are estimates, and those for payment types are as of 2015.

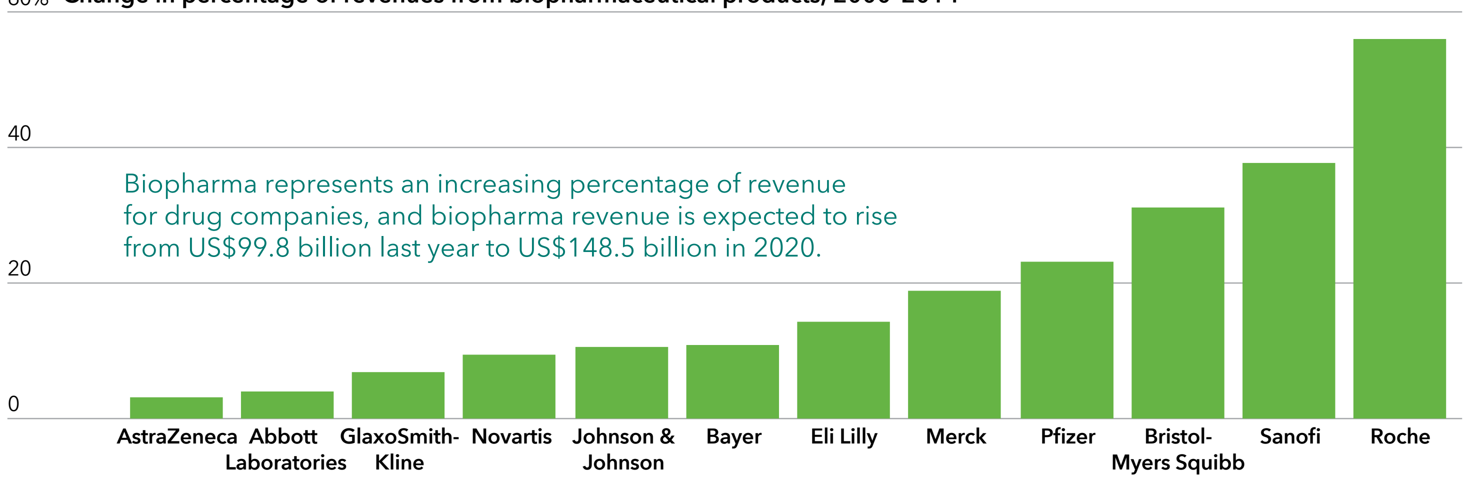
- Cash or cheque? How about smartphone? In 2014, customers in U.S. retail stores made an estimated US$5.5 billion in purchases using a mobile device. That's only about 0.1% of the nation's sales. In 2019, however, shoppers are expected to spend an estimated US$819 billion using a mobile device, or about 15% of sales, according to researchers at BI Intelligence. If correct, mobile payments may grow at a five-year compound annual growth rate of 172%, creating intense competition to provide digital wallets.
- While there have been a variety of mobile-payment efforts during the past few years, notably PayPal, the introduction of Apple Pay last year raised the profile of this potential transition in the way people pay for goods and services. Less than 72 hours after its debut, 1 million credit cards had been used on the service. Google recently unveiled a mobile payment system called Android Pay that will compete with Apple and Samsung Pay, and PayPal recently announced the acquisition of a mobile-wallet maker.
- The movement toward mobile payments languished for some time, but there now seems to be growing acceptance among businesses and consumers. Retailers from Wal-Mart to Whole Foods see mobile payments as the future, providing opportunity for numerous companies that facilitate the transactions. The CEO of a Dutch semiconductor company called 2014 "a very good year." Why? Because the company makes chips that help power the mobile payments system in Apple's iPhone 6.

Unleashing the Immune System

Innovation in biopharma has changed the pharmaceutical industry, and the way we treat cancer

> "We are in the middle of a massive renaissance in health care, and we are still in the early stages."
>
> **Rich Wolf**, Investment Analyst

Change in percentage of revenues from biopharmaceutical products, 2000–2014



Total revenue percentage of biopharmaceutical products (%)	AstraZeneca	Abbott Laboratories	GlaxoSmith-Kline	Novartis	Johnson & Johnson	Bayer	Eli Lilly	Merck	Pfizer	Bristol-Myers Squibb	Sanofi	Roche
2014	3	4	12	10	32	17	37	22	23	31	38	77
2020 estimates	12	4	21	16	36	16	66	32	29	58	48	79

Source: EvaluatePharma®, March 2014, Evaluate Ltd, www.evaluate.com. Data are based on sales totals that include conventional, biotechnology, other unclassified and over-the-counter sales.

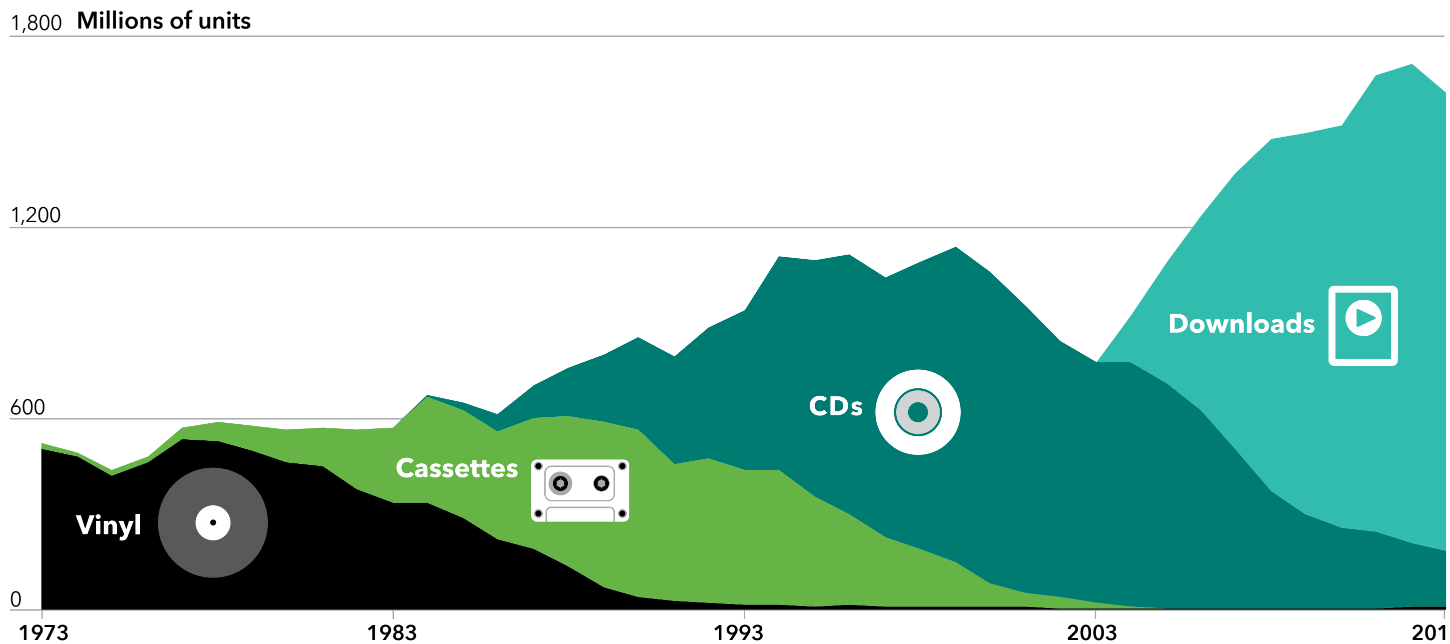
- Cancer has a cloaking mechanism that's so efficient the immune system can't see the disease. That cloak of invisibility, however, may soon be pulled away thanks to revolutionary new approaches in immuno-oncology, which harnesses the patient's own immune system to recognize and fight cancer.
- The key is the so-called programmed cell death-1 (PD-1) and programmed cell death-ligand 1 (PD-L1) inhibitors, which could form the backbone of many future cancer therapies and pave the way for big revenue streams at some pharmaceutical firms. The PD-1 and PD-L1 inhibitors remove cancer's ability to hide from the immune system.
- Bristol-Myers Squibb and Merck have been among the companies leading the charge in this area. Both have been developing immuno-oncology therapies for a number of different cancers, including skin, lung and breast cancer. These treatments are the ultimate in personalized medicine, finding and attacking abnormal cells regardless of the type of cancer.
- The pharmaceuticals industry is in its most innovative period since the 1990s, thanks in large part to advances in technology and genomics. After a decade of patent expirations and increased regulatory scrutiny, as well as undergoing a wave of consolidation in the 2000s, pharmaceutical companies are now spending more money on research and development focused on curing some of the biggest diseases of our time.

Digital Disruption: Technology Is Transforming the Music Business

iTunes rocked the industry, but streaming may represent another sea change

"There's a lot of disruption going on, and media is right in the middle of it. Traditional media companies have a lot of competition that didn't exist five or 10 years ago."

David Carpenter, Portfolio Manager



Source: Recording Industry Association of America. Data are based on year-end shipment statistics for the recorded music industry in the United States and represent the cumulative total of all four music formats shown in any given year. Units refer to the raw volume of products, which may be physical or digital, in a given category. Vinyl, cassettes, CDs and downloads all include both albums and singles.

- Yes, sales of vinyl records are surging – nearly 10 million old-fashioned platters were sold in 2013, the most since 1997. Who's buying records? Mostly hipsters into indie-rock, and diehard audiophiles who contend vinyl recordings sound better than digital (among recent best-sellers on vinyl: Jack White's "Lazaretto" and Beck's "Morning Phase"). While it's nice for old times' sake to see vinyl win a battle, the war over how we listen to music may be over, and if digital hasn't already won, the others may be down for the count.
- One need not look further than the music business and Apple's iTunes Music Store for an example of how innovation can transform an industry. After decades of distributing music to consumers in essentially the same fashion, with the launch of iTunes, everything changed in 2003. Since then, music sales have dropped from about US$12 billion to US$7 billion in 2013. But during that same time, people have been buying more music than ever, but in the form of the digital singles popularized by iTunes.

The low cost and ease of downloading digital singles may have been a blessing for music fans, but it's caused massive disruption in the music industry.

- Little more than a decade after iTunes revolutionized the music world, the industry is undergoing what may be an even more radical, digital transition – streaming. Many listeners are moving away from CDs and downloads to streaming services like Spotify, Pandora and YouTube. The music industry may be in for yet another sea change.

Investment Professional Biographies

Mark E. Denning is an equity portfolio manager at Capital Group. He has 32 years of investment experience, all with Capital Group. Earlier in his career at Capital, Mark had equity investment analyst responsibilities for companies based in Southeast Asia. He holds an MBA in finance and international business from Columbia Business School and a bachelor's degree in economics from the London School of Economics. Mark is based in Los Angeles.

Carl M. Kawaja has been one of the managers of Capital Group Global Equity Fund (Canada) since its inception in 2002. Earlier in his career, as an equity investment analyst at Capital, he covered global household products and U.S. personal care companies, along with Canadian companies. Before joining Capital, Carl was a security analyst for Gabelli & Company in New York, as well as an equity analyst for Lévesque Beaubien in Montreal. He holds a master's degree in finance from Columbia Business School and a bachelor's degree in history from Brown University graduating magna cum laude. Carl is based in San Francisco.

Richmond Wolf is an equity investment analyst at Capital Group with research responsibility for U.S. medical technology companies and REITs. He has 18 years of investment experience and has been with Capital Group for nine years. Prior to joining Capital, he was the assistant vice president for technology transfer at the California Institute of Technology and a cofounder of WebEventBroadcasting and Xen Golf. He holds a PhD from the California Institute of Technology, and a bachelor's degree from Princeton University graduating cum laude. Richmond is based in Los Angeles.

Sung Lee is an equity portfolio manager at Capital Group. He has 20 years of investment experience, all with Capital Group. Earlier in his career, as an equity investment analyst at Capital, he covered consumer & industrial electronics, telecom equipment, IT consulting & services and Asian electronic components companies. He holds an MBA from Columbia Business School and a bachelor's degree in marketing from Pennsylvania State University. He also studied abroad at Kansai Gaikokugo University in Osaka, Japan. Sung is based in Singapore.

Nicholas Grace is an equity portfolio manager at Capital Group. He has 25 years of investment experience and has been with Capital Group for 21 years. Earlier in his career, as an equity investment analyst at Capital, he covered global mining companies. Prior to joining Capital, he was manager of metals research for J.P. Morgan Investment Management in Australia. Nick holds an MBA from the University of Wisconsin-Madison, and a bachelor's degree in finance and economics from the University of Waikato, New Zealand, graduating with honors. He also holds the Chartered Financial Analyst® designation. Nick is based in London.

Jonathan Knowles is an equity portfolio manager at Capital Group. He has 23 years of investment experience, all with Capital Group. Earlier in his career, as an equity investment analyst at Capital, Jonathan covered pharmaceuticals, chemicals, support services and small-cap companies. He holds an MBA from INSEAD, France, and a PhD in immunovirology and bachelor's degree in veterinary science from the University of Liverpool, U.K., where he was a Wellcome Foundation Research Scholar. Jonathan is based in Singapore.

Johnny Chan is an equity investment analyst at Capital Group with research responsibility for Asian technology hardware companies and property & REITs. He has 16 years of investment experience and has been with Capital Group for eight years. Earlier in his career at Capital, he also covered Indian IT services. Prior to joining Capital, Johnny was an analyst with J.P. Morgan. He holds a postgraduate diploma in accounting and finance from the London School of Economics and a bachelor's degree in electronic engineering from Hong Kong University of Science and Technology. He also holds the Chartered Financial Analyst® designation. Johnny is based in Hong Kong.

J. David Carpenter is an equity portfolio manager at Capital Group. As an equity investment analyst, he covers the U.S. consumer staples sector. He has 20 years of investment experience and has been with Capital Group for 16 years. Prior to joining Capital, David was an investment analyst with Prudential Capital and an investment banking analyst with Prudential Securities. He holds an MBA in finance from the Anderson School of Management at the University of California, Los Angeles, and a bachelor's degree in economics from the College of William and Mary. He holds the Chartered Financial Analyst® designation. David is based in Los Angeles.