Companies have finished reporting results for the financial year so it's time to take stock of how the different business sectors of Australia are fairing. In our company results wrap series we take a step back from the short-term focus of quarterly profit and loss statements and examine what big picture factors are at play.

Some well known resource stocks in Australia have reported major losses, including US$6.38 billion for BHP Billiton over the past year and US$1.1 billion for Santos over the past six months. These losses have largely been driven by lower commodity prices, which in turn is the result of a slowing Chinese economy and weak global growth rates. But the bigger question is whether this most recent downturn is heralding a long term decline in mining activities.

Commentators throughout history have predicted that minerals and energy production would eventually decline because of resource depletion and rising costs. One of the most well-known theories is Peak Oil, originally developed by King Hubbert in the 1950s. This theory explained how many oil fields have a bell-shaped production function from discovery through to exhaustion. This was used to predict the year and level of when the industry would hit maximum supply. Since then this same concept of an inevitable 'peak' has been widely applied to other commodities, to describe when global production might reach maximum levels.

However these predictions of maximum production outputs continue to be surpassed. Hubbert's original projections were that global oil production would peak in 1995 when actual annual production has continued to grow steadily since then to be about 55% higher. In fact the slump in oil prices since 2014 have largely been caused by excess supply (together with the effects of lower growth in China and other economies).

Understanding why resource production continues to grow even when depletion must be occurring, provides some hints as to the future of commodities. The first is that mineral

commodities tend to be driven by long term cyclical forces, particularly on the supply side.

Higher resource prices, as seen in the 2003-2012 resources boom, drove huge investments into new production, both in Australia and overseas. That growth in supply is now maturing because of the long lead time to get new projects developed, with virtually no new projects approved since 2012. Oversupply causes lower prices and shuts off new projects; there is often a long hiatus until the next boom because of an expanding supply base and the buffering effects of inventories.

The second pointer is that there are a variety of structural factors that shift both supply and demand. The key factors on the supply side are new discoveries and better technologies; these increase potential supply over time.

On the demand side, increased development of renewables and more efficient energy systems can systematically lower fossil fuel demand, while countries typically have lower metals requirements once industrialisation has been achieved. It was the combination of cyclical forces, such as lower economic growth, and structural changes in both supply and demand factors that led to the post-2012 slowdown in commodity prices.

Some analysts have focused on the structural changes, arguing for example that greater generation of renewable energy and improved productivity will lower fossil fuel demands permanently. However it is unlikely that structural changes have been enough to date to outweigh increases in demand when the economic cycle moves more strongly into a growth phase.

For example the International Energy Agency in 2015 predicted that world energy demand would grow by nearly one-third between 2013 and 2040, and even though renewables will be the fastest growing sector there is still likely to be some growth in coal and oil consumption to meet the balance of needs.

The third pointer is that the major slump in commodity prices over the past three years has focused the minerals sector on cost-cutting and efficiency. This has been more intense than in previous downturns, but the end result is that production costs are much lower than in 2012.

As a result, any rebound in resource prices, as has occurred across some commodities this year, will not have to be as large for operations to be profitable. In essence the cyclical downturn has forced a structural reduction in operating expenses that will make the industry more resilient to future commodity cycles.

This broad summary papers over a number of factors that influence individual commodities; these include government regulation, exploration policies, controls on supply, market access, taxation and support policies, infrastructure access and charges, labour markets and technology drivers. While those factors help to explain movements between sectors, it is the cyclical forces of global demand and global supply that drive prices and returns for Australian companies.

Analysts should also keep in mind that the company accounting systems do not fully reflect all environmental costs; for example responsibilities for mine rehabilitation tends to be underestimated and there is no current system to internalise the spillover costs of greenhouse emissions. Regulatory and accounting systems need to be improved so that all environmental impacts and liabilities are fully recorded, particularly if a cyclical upturn in the future stimulates growth again in the sector.

John Rolfe currently leads a research project on mine closure with funding from the Australian Coal Association Research Program.

Read more http://theconversation.com/company-results-wrap-is-the-resources-downturn-structural-or-cyclical-64542