**The last 6 recessions:** Key facts.

All the analysis of recent recessions that takes place in this project is based on the following key facts.

**Figure 1:**

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| **Name** | **Start** | **End** | **Duration**  **(Months)** | **Last Recession**  **(Months)** | **Unemployment**  **(Peak)** | **GDP decline**  **(Peak)** |
| **COVID 19** | Feb 2020 | April 2020 | 2 | 128 | 14.7% | −19.2% |
| **Global Financial Crisis** | Dec 2007 | June 2009 | 18 | 73 | 10.0% | −5.1% |
| **Dot Com**  **(9-11 attack)** | Mar 2001 | Nov 2001 | 8 | 120 | 6.3% | −0.3% |
| **Early 1990s** | July 1990 | Mar 1991 | 8 | 92 | 7.8% | −1.4% |
| **Early 1980s**  **(Part 1)** | July 1981 | Nov 1982 | 16 | 12 | 10.8% | −2.7% |
| **Early 1980s**  **(Part 2)** | Jan 1980 | July 1980 | 6 | 58 | 7.8% | −2.2% |

Source: Wikipedia

**Our questions:**

How long does it take the market to recover after a recession?

Is there a link between the number of days in recession and the number of days it takes to recover?

How has each sector fared in previous recessions?

Can we use previous recession data to predict how long recovery will take?

**Data Source:**

Our stock price data and sector performance data was obtained through Yahoo Finance.

With the adjustment of the start and end dates below, we were able to send a request to the Yahoo Finance website and acquire the data we needed for the relevant timeframe.

Scatter chart

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**The Recovery Quotient:**

This quotient is a metric which has been designed by the group. It is a measure of how long recovery takes relative to the length of the recession. It allows for the comparison of sector recoveries after recessions of DIFFERENT LENGTHS.

Calculating the Quotient of Recovery:

Using the Quotient of Recovery:

**QRec = 1.5** -Means the recover took 1.5 times longer than the length of the recession.

**QRec = 0.75** - Means the recover took 75% of the length of the recession.

Why use a Quotient of Recovery instead of ‘days’?

Recovery can indeed be measured in days, and when comparing sector performance after a particular recession it serves us well. The problem we encounter, however, is when we wish to compare sector performances across multiple different recessions. Our group feels that a recovery will likely take longer if the recession, itself, was longer. Thus, having a measure such as QRec, which takes into account the recession length, was seen by the team as beneficial when attempting to compare recovery data for the sectors over time.

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**The findings:** COVID-19 Recession (Feb 2020 – April 2020)

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**Insights:**

* All sectors were negatively impacted by the recession, but the severity of that impact varied. This is demonstrated by the fact that all sectors took at least *some* time to recover and consequently have a blue bar on the charts above. The size of each blue bars indicates the duration of the recovery.
* The market took 1.11 times the length of the recession to recover.
* Real Estate, Utilities, Financial, Industrial, Consumer (Discretionary) and Energy all took considerably longer than the market average to recover.
* Materials, Consumer Discretionary, Health Care, Technology and Communications took considerably less time than the market average to recover despite all taking a hit of some degree.
* The slowest recover was Utilities which took 8.25 times the length of the recession to recover. Energy wasn’t too far behind, taking 6.74 times the length of the recession to recover.
* The fastest sector to recover was Health Care. It only took approximately 26% of the recession duration to recover.

**The findings:** GFC Recession (Dec 2007 – June 2009)

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**Insights:**

* All sectors were negatively impacted by the recession, but again the severity of that impact varied. As compared to the COVID-19 recession, each sector took a greater amount of time to recover relative to the length of the recession. The fastest sector to recover after this recession was Consumer (Discretionary). It took 58% of the recession length to bound back to pre-recession levels. In the COVID recession the fastest recovery time belonged to the Health Care sector at 26% of *its* recession length. Consumer Staples was the second fastest to recover with a QRec of 1.03.
* The market took 2.42 times the length of the recession to recover.
* The variation in recovery times across the sectors is less for the GFC than it was during the COVID-19 recession. The range in QRecs is 4.6 as compared to 8. Sectors had a more similarity negative experience throughout the GFC.
* Except for Consumer (Discretionary), all sectors took longer than the duration of the recession to recover.
* Only Financial and Utilities underperformed by way of recovery as compared to the market average. All others matched or outperformed the market average.

**The findings:** Dot-Com Recession (Mar 2001 – Nov 2001)

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**Insights:**

* The Materials sector took only 6 days to recover its losses from this recession. It’s QRec score of 0.02 suggests it recovers in 2% of the time the recession lasted.
* The market took 5.55 times the length of the recession to recover. This Market QRec score is the highest of the 3 recessions analysed, by some distance. (GFC: 2.42 and COVID-19: 1.11)
* 5 of the 10 sectors were nearly unaffected by this recession, with Communications, Technology Utilities, Health Care and Industrials taking the brunt of the downturn.
* The Communications sector recorded a QRec score of 27.93, meaning that it took 6872 days to recover. Relative to other sectors in the same recession, no sector has taken a bigger hit. The second highest QRec score for the Dot-Com recession belonged to Technology at 8.45. This score represents only 30% of the Communications QRec score.

In the GFC the second highest QRec score was 63% of the highest.

In the COVID 19 recession the second highest QRec score was 82% of the highest.

*Please note that the Real Estate sector data is not available for the Dot-Com recession or any other recession prior.*

**How sectors have recovered from the last 3 recessions:**

Below is a comparative bar chart showing how each sector has recovered from the 3 recessions analysed in this report.

Chart, bar chart, box and whisker chart

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**Average Sector Recovery after the last 3 recessions:**

Chart

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Insights:

**Sector Loss Versus Recovery Time:**

In this section of the report we will investigate the possibility that there exists a relationship between the amount of money lost by a sector and it’s recovery time.

Below is a data frame that was constructed to facilitate the process:

Table

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**The following scatter plots depict:**

1. The recovery time in days for each sector versus the percentage of that sector’s value that was lost throughout its recession.

(Each dot represents a sector in particular recession.)

1. The recovery quotient versus the percentage of that sector’s value that was lost throughout its recession.

(Again, each dot represents a sector in particular recession.)

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**Insights:**

* Both scatter plots show a weak to non-existent relationship between the depth of the loss for each sector and its recovery time.

That is to say, a more substantial loss for a given sector does not predict with any certainty a longer recovery time. This is supported by the respective r-squared values of 0.007 and 0.016 for the two linear regression models shown above.

* The fact that sector ‘bounce back’ appears unrelated to the size of that sector’s loss has meant that historically, large losses have be recovered quite quickly by certain sectors, while other sectors have taken relatively large amounts of time to recover small losses.

**Limitations:**

The data for Real Estate only exist for the COVID-19 recession and the Global Financial Crisis.