

Date: 2/26/13

Analyst Name: Frank McLaughlin

## CIF Stock Recommendation Report (Spring 2013)

Company Name and Ticker: PPG Industries Inc. (PPG)

### Section (A) Summary

|   |   |  |                                       |
|---|---|--|---------------------------------------|
| Recommendation Buy: Yes <b>No</b>                 |   | Target Price: N/A                                      | Stop-Loss Price: N/A                  |
| Sector: Materials                                 | Industry: Specialty Chemicals             | Market Cap (in Billions): 18.95                        | # of Shrs. O/S (in Millions): 142.85  |
| Current Price: 132.68                             | 52 WK Hi: 147.99                          | 52 WK Low: 90.04                                       | EBO Valuation: 83.18                  |
| Morningstar (MS) Fair Value Est.: \$90.45         | MS FV Uncertainty: High                   | MS Consider Buying: \$69.00                            | MS Consider Selling: \$178.25         |
| EPS (TTM): 6.06                                   | EPS (FY1): 7.79                           | EPS (FY2): 8.95  | MS Star Rating: 3 Stars               |
| Next Fiscal Yr. End "Year": 2013<br>"Month": Dec. | Last Fiscal Qtr. End: Less Than 8 WK: Yes | If Less Than 8 WK, next Earnings Ann. Date: April 2013 | Analyst Consensus Recommendation: Buy |
| Forward P/E: 14.82                                | Mean LT Growth: 8.60%                     | PEG: 1.98  | Beta: 1.28                            |
| % Inst. Ownership: 81.90%                         | Inst. Ownership- Net Buy: N               | Short Interest Ratio: 7.50                             | Short as % of Float: 23.70%           |
| <b><u>Ratio Analysis</u></b>                      | <b><u>Company</u></b>                     | <b><u>Industry</u></b>                                 | <b><u>Sector</u></b>                  |
| P/E (TTM)   | 21.52                                     | 16.49  | 20.94                                 |
| P/S (TTM)   | 1.22                                      | 1.00   | 2.56                                  |
| P/B (MRQ)   | 5.18                                      | 1.68   | 1.11                                  |
| P/CF (TTM)  | 12.17                                     | 9.68   | 14.46                                 |
| Dividend Yield                                    | 1.81                                      | 1.41   | 1.63                                  |
| Total Debt/Equity (MRQ)                           | 92.78                                     | 30.10  | 31.65                                 |
| Net Profit Margin (TTM)                           | 7.00                                      | 6.73   | 6.54                                  |
| ROA (TTM)   | 7.78                                      | 8.42   | 4.65                                  |
| ROE (TTM)   | 27.39                                     | 12.30  | 6.96                                  |

|   |  |
|---|--|
| <p><b><u>Investment Thesis</u></b></p> <p><b>Pros:</b></p> <ul style="list-style-type: none"> <li>-Analysts are very bullish giving a mean rating of 1.91</li> <li>-The company has shown good steady growth over the past five years</li> <li>-The earnings have consistently met or beat analyst's expectations</li> <li>-Undergoing changes and acquisitions to grow even larger</li> </ul> <p><b>Cons</b></p> <ul style="list-style-type: none"> <li>-The fundamental valuation and Morningstar fair value both show that this stock is currently overpriced</li> <li>-The stock recently "death crossed" on the technical analysis</li> <li>-Short interest and days to cover have recently shot way up, meaning investors are trying to sell right now</li> </ul> | <p><b><u>Summary</u></b></p> <p>Provide brief summary of your analysis in each section that follows</p>  |
|   | <p><b><u>Company Profile:</u></b> One of the world leaders in manufacturing specialty coatings/paints as well as other chemicals. Operates in 70 countries.</p>  |
|   | <p><b><u>Fundamental Valuation:</u></b> EBO valuation of 83.18 with an abnormal growth rate of 4 years. This infers the stock is currently way overpriced.</p>   |
|   | <p><b><u>Relative Valuation:</u></b> Metrics fell directly in the middle of competitors. Some implied prices inferred that PPG is overpriced while others implied that it is underpriced. P/E is the most relevant ratio for this company.</p> |
|   | <p><b><u>Revenue and Earnings Estimates:</u></b> Their revenue has outperformed and also underperformed compared to estimates. Meanwhile earnings met/ beat estimates every time during the time period.</p>                                   |
|   | <p><b><u>Analyst Recommendations:</u></b> Very bullish with a mean rating of 1.91.</p>   |
|   | <p><b><u>Institutional Ownership:</u></b> The number of decreased positions outnumbers the number of increased positions as of late.</p>   |
|   | <p><b><u>Short Interest:</u></b> Short interest and days to cover have both increased tremendously as of late; very bearish signal.</p>  |
| <p><b><u>Stock Price Chart:</u></b> The 1 year and 5 year stock price charts show PPG's fantastic growth. The 3 month chart shows that their stock is currently plateauing.</p>   |  |

## **Section (B) Company Profile (two pages maximum)**

### **Company Summary**

PPG Industries was established in 1883 by Captain John B. Ford and John Pitcairn as the Pittsburgh Plate Company. The company is known for being one of the world leaders in producing different types of coatings and specialty products. PPG's other segments also include paints, optical, chemicals, glass and fiber glass production. The company operates in nearly 70 countries around the world and is still headquartered in Pittsburgh, Pennsylvania. The coatings and sealants that PPG produces are on everything from automobiles to soda cans to navy vessels.

From the 2011 10K report, their net sales were broken down like this for the segments: Performance Coatings accounted for 31% of sales, Industrial Coatings for 28%, Architectural Coatings 14%, Commodity Chemicals 12%, Optical & Specialty Materials 8% and Glass 7%. Their net sales were broken down like for the regions: United States accounted for 42% of net sales, Europe/Middle East/Africa for 34%, Asia Pacific for 16% and the Other Americas for 8%.

### **Business Model, Competition, Environment and Strategy**

Since the company operates in multiple business segments, they have a variety of competitors with possibly the largest competitor being Dow Chemical. This is because Dow operates in many of the same fields as PPG such as coating, specialty chemicals and glass. Since PPG is so heavily focused on their coating segment though, firms such as Sherwin-Williams and RPM International could be looked at as more direct competition.

The company's vision is "To continue to be the world's leading coatings and specialty products company. Through leadership in innovation, sustainability and color, PPG helps customers in industrial, transportation, consumer products, and

construction markets and aftermarkets to enhance more surfaces in more ways than does any other company.” PPG differentiates itself by taking what they are really good at (manufacturing coatings) and spreading that skill to many different areas.

The company is cyclical and tends to perform best during their 2<sup>nd</sup> and 3<sup>rd</sup> quarters.

### **Revenue and Earnings History**

This information is available in *Reuters.com*, “*Financials*” tab. Copy/paste the quarterly revenue and earnings per share numbers for the most recent three years. Add the numbers over four fiscal quarters to get annual revenue and earnings. For the current fiscal year, go ahead add up as many quarters as are available. **NOTE:** revenue numbers are “*in millions*”.

**Discuss any pattern in revenue and earnings (e.g., increasing year over year; seasonal; etc.)**

| REVENUE   |        |        | EARNINGS PER SHARE |         |         |
|-----------|--------|--------|--------------------|---------|---------|
| Periods   | 2011   | 2012   | Periods            | 2011    | 2012    |
| March     | 3533.0 | 3752.0 | March              | 1.40308 | 0.08414 |
| June      | 3986.0 | 3955.0 | June               | 2.12102 | 2.33548 |
| September | 3849.0 | 3845.0 | September          | 1.98342 | 2.18006 |
| December  | 3517.0 | 3648.0 | December           | 1.38639 | 1.4542  |

Note: Units in Millions of U.S. Dollars

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Revenue totals – 2011: 14,885, 2012: 15,200

Earnings totals – 2011: 6.89, 2012: 6.05

Both revenue and earnings are highest during the 2<sup>nd</sup> and 3<sup>rd</sup> quarters. Overall there seems to be a slow and steady growth for both tables except for the one outlier on EPS during March 2012. I have been unable to find the reason behind the outlier.

### Section (C) Fundamental Valuation (EBO)

Include the following here:

Copy/paste completed Fundamental Valuation (EBO) Spreadsheet

| PPG                    | PARAMETERS                        | FY1          | FY2          | Ltg          |  |              |              |              |              |              |              |               |               |  |
|------------------------|-----------------------------------|--------------|--------------|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|--|
|                        | EPS Forecasts                     | 7.79         | 8.95         | 8.60%        | Model 1: 12-year forecasting horizon (T=12).<br>and a 7-year growth period.  |              |              |              |              |              |              |               |               |  |
|                        | Book value/share (last fye)       | 21.39        |              |              |  |              |              |              |              |              |              |               |               |  |
|                        | Discount Rate                     | 10.78%       |              |              | Please download and save this template to your own storage device<br>You only need to input values to cells highlighted in "yellow"<br>The rest of the spreadsheet is calculated automatically<br>Please read "Guidelines_for_FundamentalValuation_ProfLee_Spreadsheet" file carefully |              |              |              |              |              |              |               |               |  |
|                        | Dividend Payout Ratio (POR)       | 39.00%       |              |              |  |              |              |              |              |              |              |               |               |  |
|                        | Next Fisc Year end                | 2013         |              |              |  |              |              |              |              |              |              |               |               |  |
|                        | Current Fisc Mth (1 to 12)        | 2            |              |              |  |              |              |              |              |              |              |               |               |  |
|                        | Target ROE (industry avg.)        | 22.34%       |              |              |  |              |              |              |              |              |              |               |               |  |
|                        | <b>Year</b>                       | <b>2013</b>  | <b>2014</b>  | <b>2015</b>  | <b>2016</b>  | <b>2017</b>  | <b>2018</b>  | <b>2019</b>  | <b>2020</b>  | <b>2021</b>  | <b>2022</b>  | <b>2023</b>   | <b>2024</b>   |  |
|                        | Long-term EPS Growth Rate (Ltg)   |              |              | 0.0860       | 0.0860   | 0.0860       | 0.0860       | 0.0860       |              |              |              |               |               |  |
|                        | Forecasted EPS                    | 7.79         | 8.95         | 9.72         | 10.56  | 11.46        | 12.45        | 13.52        |              |              |              |               |               |  |
|                        | Beg. of year BV/Shr               | 21.390       | 26.142       | 31.601       | 37.530   | 43.969       | 50.962       | 58.556       |              |              |              |               |               |  |
|                        | Implied ROE                       |              | 0.342        | 0.308        | 0.281  | 0.261        | 0.244        | 0.231        |              |              |              |               |               |  |
| ROE                    | (Beg. ROE, from EPS forecasts)    | 0.364        | 0.342        | 0.308        | 0.281  | 0.261        | 0.244        | 0.231        | 0.229        | 0.228        | 0.226        | 0.225         | 0.223         |  |
| Abnormal ROE           | (ROE-k)                           | 0.256        | 0.235        | 0.200        | 0.173  | 0.153        | 0.136        | 0.123        | 0.122        | 0.120        | 0.119        | 0.117         | 0.116         |  |
| growth rate for B      | (1-POR)*(ROE-1)                   | 0.000        | 0.222        | 0.209        | 0.188  | 0.172        | 0.159        | 0.149        | 0.141        | 0.140        | 0.139        | 0.138         | 0.137         |  |
| Compounded growth      |                                   | 1.000        | 1.222        | 1.477        | 1.755  | 2.056        | 2.383        | 2.738        | 3.123        | 3.560        | 4.055        | 4.615         | 5.248         |  |
| <b>growth*AROE</b>     |                                   | <b>0.256</b> | <b>0.287</b> | <b>0.295</b> | <b>0.304</b>   | <b>0.314</b> | <b>0.325</b> | <b>0.337</b> | <b>0.380</b> | <b>0.428</b> | <b>0.481</b> | <b>0.540</b>  | <b>0.607</b>  |  |
| required rate (k)      | 0.108                             | 0.108        | 0.108        | 0.108        | 0.108  | 0.108        | 0.108        | 0.108        | 0.108        | 0.108        | 0.108        | 0.108         | 0.108         |  |
| Compound discount rate |                                   | 1.108        | 1.227        | 1.360        | 1.506  | 1.668        | 1.848        | 2.048        | 2.268        | 2.513        | 2.784        | 3.084         | 3.416         |  |
| div. payout rate (k)   | 0.390                             |              |              |              |  |              |              |              |              |              |              |               |               |  |
| Add to P/B             | PV(growth*AROE)                   | 0.23         | 0.23         | 0.22         | 0.20   | 0.19         | 0.18         | 0.16         | 0.17         | 0.17         | 0.17         | 0.18          | 0.18          |  |
| Cum P/B                |                                   | 1.23         | 1.47         | 1.68         | 1.88   | 2.07         | 2.25         | 2.41         | 2.58         | 2.75         | 2.92         | 3.10          | 3.28          |  |
| Add: Perpetuity        |                                   |              |              |              |  |              |              |              |              |              |              |               |               |  |
| beyond current yr      | (Assume this yr's AROE forever)   | 2.15         | 2.17         | 2.01         | 1.87   | 1.75         | 1.63         | 1.53         | 1.55         | 1.58         | 1.60         | 1.63          | 1.65          |  |
| Total P/B              | (P/B if we stop est. this period) | 3.38         | 3.63         | 3.70         | 3.76   | 3.82         | 3.88         | 3.94         | 4.13         | 4.33         | 4.53         | 4.72          | 4.92          |  |
| <b>Implied price</b>   |                                   | <b>73.56</b> | <b>79.08</b> | <b>80.48</b> | <b>81.84</b>   | <b>83.18</b> | <b>84.50</b> | <b>85.78</b> | <b>90.00</b> | <b>94.26</b> | <b>98.55</b> | <b>102.87</b> | <b>107.21</b> |  |
| <b>Check:</b>          |                                   |              |              |              |  |              |              |              |              |              |              |               |               |  |
| Beg. BV/Shr            |                                   | 21.39        | 26.14        | 31.60        | 37.53  | 43.97        | 50.96        | 58.56        | 66.80        | 76.15        | 86.74        | 98.72         | 112.26        |  |
| Implied EPS            |                                   | 7.79         | 8.95         | 9.72         | 10.56  | 11.46        | 12.45        | 13.52        | 15.32        | 17.35        | 19.64        | 22.20         | 25.08         |  |
| Implied EPS growth     |                                   |              | 0.149        | 0.086        | 0.086  | 0.086        | 0.086        | 0.086        | 0.133        | 0.132        | 0.132        | 0.131         | 0.130         |  |

### Inputs (provide below input values used in your analysis)

EPS forecasts (FY1 & FY2): 7.79 & 8.95

Long-term growth rate: 8.60%

Book value /share (along with book value and number of shares outstanding):

Book value: 3249.0

# of shares outstanding: 151.89

Book value / share: 21.39

Dividend payout ratio: 39.00%

Next fiscal year end: 2013

Current fiscal month: 2  
Target ROE: 22.34%

### **Output**

Above normal growth period chosen: 4 years  
EBO valuation (Implied price from the spreadsheet): 83.18

### **Sensitivity Analysis**

EBO valuation would be (you can include more than one scenario in each of the following):

- 84.50 if changing above normal growth period to 6
- 84.63 if changing growth rate from mean (consensus) to the highest estimate 9.30
- 81.14 if changing growth rate from mean (consensus) to the lowest estimate 7.60
- 118.73 if changing discount rate to 8.00%
- 83.18 if changing target ROE to 50%

I chose four years because they are currently undergoing acquisitions and taking on debt to grow their company. Four years will allow enough time to see the return from these acquisitions. Currently in process of acquiring AkzoNobel Architectural Coating for \$1.1 billion.

## Section (D) Relative Valuation

Copy/paste your completed relative valuation spreadsheet here

| PPG                     |      |                   |               |   |                |                        |        |              |                 |                |            |             |          |
|-------------------------|------|-------------------|---------------|---|----------------|------------------------|--------|--------------|-----------------|----------------|------------|-------------|----------|
|                         |      |                   |               | Mean FY2                                |                |                        |        |              |                 |                |            |             |          |
| Ticker                  | Name | Mkt Cap           | Current Price | Earnings Estimate<br>(next fiscal year) | Forward<br>P/E | Mean LT<br>Growth Rate | PEG    | P/B<br>(MRQ) | ROE<br>5 yr ave | Value<br>Ratio | P/S<br>TTM | P/CF<br>TTM |          |
| 1                       | SHW  | Sherwin-Williams  | \$ 16,078.51  | \$ 161.23                               | \$ 9.32        | 17.30                  | 14.60% | 1.18         | 8.73            | 35.09%         | 0.25       | 1.69        | 18.71    |
| 2                       | RPM  | RPM International | \$ 3,969.30   | \$ 30.54                                | \$ 2.06        | 14.83                  | 9.50%  | 1.56         | 3.19            | 12.81%         | 0.25       | 1.01        | 15.38    |
| 3                       | DOW  | Dow Chemical      | \$ 37,202.81  | \$ 31.81                                | \$ 2.91        | 10.93                  | 6.62%  | 1.65         | 2.20            | 7.05%          | 0.31       | 0.66        | 11.02    |
| 4                       | VAL  | The Valspar Corp  | \$ 5,439.90   | \$ 61.77                                | \$ 4.35        | 14.20                  | 13.40% | 1.06         | 4.52            | 9.36%          | 0.48       | 1.36        | 16.4     |
|                         | PPG  | PPG Industries    | \$ 18,952.83  | \$ 134.66                               | \$ 8.95        | 15.05                  | 8.60%  | 1.75         | 5.18            | 27.39%         | 0.19       | 1.22        | 12.17    |
| Implied Price based on: |      |                   |               |   | P/E            | PEG                    | P/B    | Value        | P/S             | P/CF           |            |             |          |
| 1                       | SHW  | Sherwin-Williams  |               |   | \$154.83       |                        |        | \$91.20      | \$226.95        |                | \$177.15   | \$186.54    | \$207.02 |
| 2                       | RPM  | RPM International |               |   | \$132.69       |                        |        | \$120.12     | \$82.93         |                | \$177.31   | \$111.48    | \$170.18 |
| 3                       | DOW  | Dow Chemical      |               |   | \$97.83        |                        |        | \$127.10     | \$57.19         |                | \$222.20   | \$72.85     | \$121.94 |
| 4                       | VAL  | The Valspar Corp  |               |   | \$127.09       |                        |        | \$81.57      | \$117.50        |                | \$343.85   | \$150.11    | \$181.46 |
|                         |      | High              |               |   | \$154.83       |                        |        | \$127.10     | \$226.95        |                | \$343.85   | \$186.54    | \$207.02 |
|                         |      | Low               |               |   | \$97.83        |                        |        | \$81.57      | \$57.19         |                | \$177.15   | \$72.85     | \$121.94 |
|                         |      | Median            |               |   | \$129.89       |                        |        | \$105.66     | \$100.22        |                | \$199.75   | \$130.80    | \$175.82 |

### From the top panel

Discuss whether your stock and its competitors have very different multiples. Point out if any of the five stocks have multiple that is far off from the others. Make an attempt to explain why (you would want to read analyst research report in *Morningstar Direct*; you should also look for comments from other financial sites). **The discussions should address all of the following valuation metrics: forward P/E, PEG, P/B (MRQ), P/S (TTM), and P/CF (TTM).**

Compare the implied prices derived from various valuation metrics. Also compare those implied price to the stock's current price, and 52-week high and low.

Since PPG Industries operates in a number of different business segments, it was difficult for me to select four direct competitors so the ratios might be a little skewed. I chose Dow Chemical because they compete with PPG in multiple areas and I chose the other three companies because they compete directly with PPG in

the coating field. Literally all of PPG's metrics (P/B, ROE, P/S, etc.) fall directly in the middle of all of the other companies. So it is hard to take away anything positive or negative from this valuation.

### **From the bottom panel**

Discuss the various implied prices of your stock derived from competitors' ("comparables") multiples. How different are the prices derived from the various valuation metrics? Note any valuation metrics that seem to yield outlier prices and explain why (**HINT:** is that because that particular valuation metrics is not very relevant for the industry? Do you best to provide convincing arguments).

For each valuation metrics, Compare the current price and 52-week high /low of your stock to the High-low range derived from multiples of its competitors.

Among the valuation metrics analyzed, **which ones do you think are most relevant as a valuation tool for your stock?**

The implied price for P/E is higher than the actual price with Sherwin-Williams and lower for all the other stocks. The implied price for PEG is lower than the actual price for all of the companies. If simply looking at PEG, it would appear that PPG's stock is currently overvalued. The value ratio and P/CF would suggest the opposite. Those implied prices make it seem that this stock is undervalued. However, with the differences between the five companies, it is best to take this valuation with a grain of salt. The forward P/E produced a high and low that were closest to the actual 52-week high and low of the company. P/E seems to be the most accurate and relevant ratio for PPG Industries.

## Section (E) Revenue and Earnings Estimates

Copy/Paste the “Historical Surprises” Table from *Reuters.com*, “Analysts” tab (include both revenue and earnings; make note that revenues might be in “millions”)

Review recent trends in company’s reported revenue and earnings, and discuss whether (1) the company has a pattern of “surprising” the market with numbers different from analysts’ estimates; (2) Were they positive(actual greater than estimate) or negative (actual less than estimate) surprises? (3) Were surprises more notable for revenue or earnings? (4) Look up the stock chart to see how the stock price reacted to the “surprises. **NOTE:** Reuters does not put the sign on the surprise. **You need to put a “negative” sign when it is a negative surprise.**

| <b>HISTORICAL SURPRISES</b>                      |          |          |            |            |
|--|----------|----------|------------|------------|
| Sales and Profit Figures in US Dollar (USD)      |          |          |            |            |
| Earnings and Dividend Figures in US Dollar (USD) |          |          |            |            |
| Estimates vs Actual                              | Estimate | Actual   | Difference | Surprise % |
| <b>SALES (in millions)</b>                       |          |          |            |            |
| Quarter Ending Dec-12                            | 3,590.15 | 3,648.00 | 57.85      | 1.61       |
| Quarter Ending Sep-12                            | 3,910.69 | 3,845.00 | 65.69      | — 1.68     |
| Quarter Ending Jun-12                            | 4,153.75 | 3,955.00 | 198.75     | — 4.78     |
| Quarter Ending Mar-12                            | 3,743.82 | 3,752.00 | 8.18       | 0.22       |
| Quarter Ending Dec-11                            | 3,499.83 | 3,517.00 | 17.17      | 0.49       |
| <b>Earnings (per share)</b>                      |          |          |            |            |
| Quarter Ending Dec-12                            | 1.53     | 1.53     | 0.00       | 0.07       |
| Quarter Ending Sep-12                            | 2.20     | 2.24     | 0.04       | 1.69       |
| Quarter Ending Jun-12                            | 2.36     | 2.36     | 0.00       | 0.20       |
| Quarter Ending Mar-12                            | 1.69     | 1.81     | 0.12       | 6.89       |
| Quarter Ending Dec-11                            | 1.27     | 1.31     | 0.04       | 3.09       |

For sales there were more positive surprises than negative surprises, however the largest single surprise was negative and that came in Jun-12. All of the earnings tied estimates or outperformed. The stock charts didn’t seem to be affected much by any of the surprises.

**Copy/paste the “Consensus Estimates Analysis” Table from *Reuters.com*, “Analysts” tab (include both revenue and earnings)**

Review the range and the consensus of analysts’ estimates. (1) Calculate the % difference of the “high” estimate from the consensus (mean); (2) Calculate the % (negative) difference of the “low” estimate from the consensus; (3) Are the divergent more notable for the current or out-quarter, FY1 or FY2, revenue or earnings? (4) Note the number of analysts providing LT growth rate estimate. It that roughly the same as the number of analysts providing revenue and earnings estimates?

| CONSENSUS ESTIMATES ANALYSIS                     |                |           |           |           |            |  |
|--|----------------|-----------|-----------|-----------|------------|--|
| Sales and Profit Figures in US Dollar (USD)      |                |           |           |           |            |  |
| Earnings and Dividend Figures in US Dollar (USD) |                |           |           |           |            |  |
|  | # of Estimates | Mean      | High      | Low       | 1 Year Ago |  |
| <b>SALES (in millions)</b>                       |                |           |           |           |            |  |
| Quarter Ending Mar-13                            | 10             | 3,441.79  | 3,511.23  | 3,324.93  | 3,808.66   |  |
| Quarter Ending Jun-13                            | 10             | 3,881.37  | 4,191.00  | 3,627.94  | 4,242.14   |  |
| Year Ending Dec-13                               | 15             | 14,878.20 | 15,437.00 | 13,935.00 | 16,055.20  |  |
| Year Ending Dec-14                               | 15             | 15,993.20 | 16,979.80 | 14,618.00 | 16,497.50  |  |
| <b>Earnings (per share)</b>                      |                |           |           |           |            |  |
| Quarter Ending Mar-13                            | 16             | 1.57      | 1.71      | 1.20      | 1.72       |  |
| Quarter Ending Jun-13                            | 16             | 2.27      | 2.40      | 2.04      | 2.41       |  |
| Year Ending Dec-13                               | 19             | 7.79      | 8.25      | 6.75      | 7.99       |  |
| Year Ending Dec-14                               | 17             | 8.95      | 10.00     | 7.55      | 8.78       |  |
| LT Growth Rate (%)                               | 4              | 8.60      | 9.30      | 7.60      | 12.31      |  |

| Difference | Q1-2013 | Q2-2013 | Year end-13 | Year end-14 | Q1-2013 | Q2-2013 | Year end-13 | Year end-14 |
|------------|---------|---------|-------------|-------------|---------|---------|-------------|-------------|
| High %     | 2.01    | 7.98    | 3.76        | 6.17        | 8.92    | 5.72    | 5.90        | 11.73       |
| Low %      | 3.50    | 6.99    | 6.77        | 9.41        | 30.83   | 11.27   | 18.54       | 15.41       |
|            | Sales   | Sales   | Sales       | Sales       | EPS     | EPS     | EPS         | EPS         |

The differences were most greatly noticed in the earnings. The variance was pretty similar throughout quarters and years. The number of analysts providing LT Growth Rate estimates was much lower.

Copy/paste the “Consensus Estimates Trend” Table from *Reuters.com*, “Analysts” tab (include both revenue and earnings)

Review recent trend of analysts’ consensus (mean) estimates on revenue and earnings. (1) Are the consensus estimates trending up, down, or stay the same? (2) Is the trend more notable for the near- or out- quarter, FY1 or FY2, revenue or earnings?

| CONSENSUS ESTIMATES TREND                        |           |            |             |             |            |
|--|-----------|------------|-------------|-------------|------------|
| Sales and Profit Figures in US Dollar (USD)      |           |            |             |             |            |
| Earnings and Dividend Figures in US Dollar (USD) |           |            |             |             |            |
|  | Current   | 1 Week Ago | 1 Month Ago | 2 Month Ago | 1 Year Ago |
| <b>SALES (in millions)</b>                       |           |            |             |             |            |
| Quarter Ending Mar-13                            | 3,441.79  | 3,439.65   | 3,441.75    | 3,483.31    | 3,808.66   |
| Quarter Ending Jun-13                            | 3,881.37  | 3,860.89   | 3,863.48    | 3,863.38    | 4,242.14   |
| Year Ending Dec-13                               | 14,878.20 | 14,825.00  | 14,752.50   | 14,606.00   | 16,055.20  |
| Year Ending Dec-14                               | 15,993.20 | 15,914.30  | 15,866.50   | 15,347.30   | 16,497.50  |
| <b>Earnings (per share)</b>                      |           |            |             |             |            |
| Quarter Ending Mar-13                            | 1.57      | 1.57       | 1.57        | 1.66        | 1.72       |
| Quarter Ending Jun-13                            | 2.27      | 2.27       | 2.26        | 2.23        | 2.41       |
| Quarter Ending Dec-13                            | 7.79      | 7.80       | 7.74        | 7.72        | 7.99       |
| Quarter Ending Dec-14                            | 8.95      | 8.95       | 8.90        | 8.67        | 8.78       |

Between the time period of 1 year ago and 2 months ago there were very sharp downward estimates for both sales and earnings. This turned around though for the most part as most of those estimates were raised back up again (at least partially) between two months ago and today.

**Copy/paste the “Estimates Revisions Summary” Table from *Reuters.com*, “Analysts” tab (include both revenue and earnings)**

Review the number of analysts revising up or down their estimates (both revenue and earnings) **in the last and last four weeks.** (1) Note whether there are more up or down revisions; (2) are the revisions predominantly one directional? (3) Any notable difference last week versus last four weeks, revenue versus earnings?

| ESTIMATES REVISIONS SUMMARY |           |      |              |      |
|-----------------------------|-----------|------|--------------|------|
| Number Of Revisions:        | Last Week |      | Last 4 Weeks |      |
|                             | Up        | Down | Up           | Down |
| <b>Revenue</b>              |           |      |              |      |
| Quarter Ending Mar-13       | 0         | 0    | 0            | 0    |
| Quarter Ending Jun-13       | 0         | 0    | 0            | 0    |
| Year Ending Dec-13          | 0         | 0    | 1            | 0    |
| Year Ending Dec-14          | 0         | 0    | 0            | 0    |
| <b>Earnings</b>             |           |      |              |      |
| Quarter Ending Mar-13       | 0         | 0    | 0            | 0    |
| Quarter Ending Jun-13       | 0         | 0    | 0            | 0    |
| Year Ending Dec-13          | 0         | 0    | 1            | 0    |
| Year Ending Dec-14          | 0         | 0    | 0            | 0    |

You will need to incorporate what you see here with Morningstar’s analyst research report (you can access *Morningstar Direct at the Financial Markets Lab.*) and other readings/analysis you found from various on-line financial sites. Discuss whether you think the company has a good chance of making or beating analyst consensus estimate, and why. Based on how the stock has been trading lately, do you think market has already anticipated strong or lackluster financial outlook from the company?

**Bulls Say**

- PPG sports a diverse customer base, leading to smoother earnings in times of industry-specific slowdowns.
- More than 25% of the firm's sales come from emerging regions, a factor that should help drive growth with the developed world expanding at a slower rate.
- Consolidation has characterized the coating industry during the past decade, and PPG is in a position to capture additional share as consolidation continues.

**Bears Say**

- PPG's asbestos settlement, which it is still paying down, highlights the risks of environmental remediation to cash flows. The company needs to expense more than \$130 million in the coming years to meet its obligations.
- Despite a diversified customer base, PPG's profitability is not immune to economic slowdowns, as seen in 2008 and 2009, when operating margin dropped below 10% for the first time in a decade.
- With a slowdown gripping the continent, PPG's European coatings businesses have struggled.

(This table is from Morningstar ↑) Morningstar analysts are currently rating PPG as 3.8 out of 5. This is a bullish sign and agrees with the analysts estimates from Reuters. The estimates revision summary saw very little change over the past four weeks except for one analyst who upgraded his opinion on earnings and revenue for the end of the current fiscal year.

## Section (F) Analysts' Recommendations

Copy/paste the "Analyst Recommendations and Revisions" Table from *Reuters.com*, "Analysts" tab. NOTE: Make sure you copy the entire table including the "Mean Rating" at the bottom of the table.

| ANALYST RECOMMENDATIONS AND REVISIONS |         |             |             |             |
|---------------------------------------|---------|-------------|-------------|-------------|
| 1-5 Linear Scale                      | Current | 1 Month Ago | 2 Month Ago | 3 Month Ago |
| (1) BUY                               | 8       | 8           | 8           | 8           |
| (2) OUTPERFORM                        | 6       | 6           | 6           | 5           |
| (3) HOLD                              | 6       | 4           | 6           | 5           |
| (4) UNDERPERFORM                      | 0       | 0           | 0           | 1           |
| (5) SELL                              | 0       | 0           | 0           | 0           |
| No Opinion                            | 0       | 0           | 0           | 0           |
| Mean Rating                           | 1.90    | 1.78        | 1.90        | 1.95        |

| Revision Date                                     | Upgrade or Downgrade | Current Recommendation | Previous Recommendation | Firm | Last Revision |
|---|----------------------|------------------------|-------------------------|------|---------------|
| The most recent revision date                     | N/A                  | N/A                    | N/A                     | N/A  | N/A           |
|   |                      |                        |                         |      |               |
|   |                      |                        |                         |      |               |
|   |                      |                        |                         |      |               |
| The earliest revision date in the last two months |                      |                        |                         |      |               |

Review the trend of analyst recommendations over the last three months. Is there a notable change of analyst opinions, turning more bullish or bearish? How many different ratings out of the five possible ones did the company receive currently, one, two, and three months ago? Is there a notable trend of opinion convergence or divergence? Is what you see here consistent to comments in Morningstar analyst's research report as well as various online financial sites you had researched on?

**NOTE:** On a Five-point scale, Reuters assigns "1" to "Buy", the most bullish recommendation, and "5" to "Sell", the most bearish recommendation. **Some other online sites have opposite scale**, with their "1" being the most bearish and "5" being the most bullish recommendations.

Analysts are extremely bullish about this stock with a mean rating of 1.90. The mean rating has increased and decreased both slightly but has stayed bullish the entire time. I had to fill in N/A for the new chart because PPG Industries was not listed on any of the revision dates.

## Section (G) Institutional Ownership

Copy/paste the completed *"CIF Institutional Ownership" spreadsheet* here.

| PPG                                   |               |                |             |          |
|---------------------------------------|---------------|----------------|-------------|----------|
| Ownership Activity                    | # of Holders  | % Beg. Holders | Shares      | % Shares |
| Shares Outstanding                    |               |                | 142,843,038 | 100.00%  |
| # of Holders/Tot Shares Held          | 819           | 105.00%        | 123,630,649 | 86.55%   |
| # New Positions                       | 90            | 11.54%         |             |          |
| # Closed Positions                    | 51            | 6.54%          |             |          |
| # Increased Positions                 | 288           | 36.92%         |             |          |
| # Decreased Positions                 | 398           | 51.03%         |             |          |
| Beg. Total Inst. Positions            | 780           | 100.00%        | 113,459,916 | 79.43%   |
| # Net Buyers/3 Mo. Net Chg            | -110          | 41.98%         | 10,170,733  | 7.12%    |
| Ownership Information                 | % Outstanding |                |             |          |
| Top 10 Institutions % Ownership       | 32.90%        |                |             |          |
| Mutual Fund % Ownership               | 0.86%         |                |             |          |
| Float %                               | 99.51%        |                |             |          |
| > 5% Ownership                        |               |                |             |          |
| Holder Name                           | % Outstanding | Report Date    |             |          |
| The Vanguard Group, Inc.              | 6             | 12/31/2012     |             |          |
| State Street Global Advisors (US)     | 5.3           | 12/31/2012     |             |          |
| BlackRock Institutional Trust Company | 5             | 12/31/2012     |             |          |

Combine information provided in all three sections to discuss whether (1) institutions, on net basis, have been increasing or decreasing ownership and how significant, (2) the stock has sizable institution interests and support, (3) the extent of the (> 5%) owners, and (4) this could be a bullish or bearish indication of future stock price movement.

The number of net buyers has decreased by a fairly significant amount in the past three months. This is a bearish signal. None of the >5% are insiders.

## Section (H) Short Interest (two pages)

From <http://www.nasdaq.com/> (NASDAQ's website)

Copy/paste or enter the data in the following table. You also need to copy/paste the chart to the right.

Copy/paste or type the information from "short interest" table. You will start from the most recent release date, and go back for a year (some stocks may not have data go back for a year)

Copy/paste the chart to the right of the "short interest" table, immediately follow the table below

**NOTE:** You are encouraged to look at the short interest information for two of the companies' closest competitors. This will help gauge whether the sentiment indicated in the short interest statistics is company specific or industry-wide.

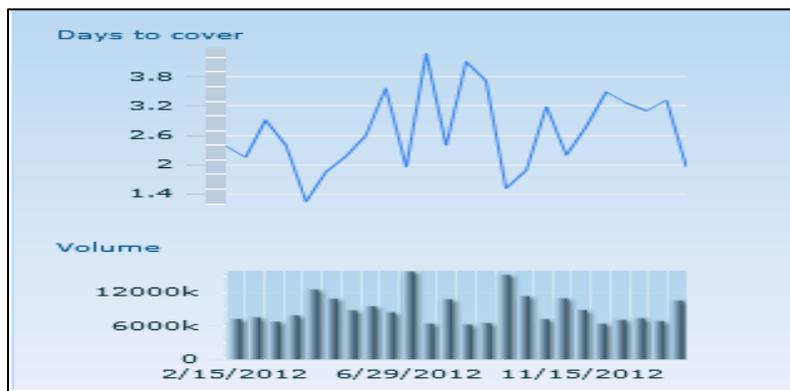
| Settlement Date | Short Interest | Average Daily<br>Shares Volume | # of<br>Days to cover |
|-----------------|----------------|--------------------------------|-----------------------|
|-----------------|----------------|--------------------------------|-----------------------|

| Settlement Date | Short Interest | Avg Daily Share Volume | Days To Cover |
|-----------------|----------------|------------------------|---------------|
| 1/31/2013       | 35,966,449     | 6,690,382              | 5.375844      |
| 1/15/2013       | 15,107,993     | 2,986,824              | 5.058213      |
| 12/31/2012      | 4,904,431      | 2,072,404              | 2.366542      |
| 12/14/2012      | 3,749,211      | 1,626,503              | 2.305075      |
| 11/30/2012      | 3,041,696      | 951,001                | 3.198415      |
| 11/15/2012      | 2,417,381      | 783,078                | 3.087025      |
| 10/31/2012      | 1,707,744      | 789,235                | 2.163797      |
| 10/15/2012      | 1,762,186      | 688,216                | 2.560513      |
| 9/28/2012       | 1,708,097      | 762,117                | 2.241253      |
| 9/14/2012       | 1,874,581      | 1,143,100              | 1.639910      |
| 8/31/2012       | 1,583,768      | 791,417                | 2.001180      |
| 8/15/2012       | 1,658,409      | 827,008                | 2.005312      |
| 7/31/2012       | 1,946,885      | 1,561,466              | 1.246832      |
| 7/13/2012       | 2,079,638      | 862,767                | 2.410428      |
| 6/29/2012       | 2,250,934      | 956,793                | 2.352582      |
| 6/15/2012       | 2,662,328      | 1,056,996              | 2.518768      |
| 5/31/2012       | 2,916,980      | 1,234,264              | 2.363336      |
| 5/15/2012       | 3,093,547      | 1,243,002              | 2.488771      |
| 4/30/2012       | 2,856,787      | 1,591,398              | 1.795143      |
| 4/13/2012       | 1,539,865      | 2,429,813              | 1.000000      |
| 3/30/2012       | 1,716,529      | 1,011,641              | 1.696777      |
| 3/15/2012       | 2,768,024      | 805,249                | 3.437476      |
| 2/29/2012       | 2,454,442      | 914,302                | 2.684498      |
| 2/15/2012       | 3,082,088      | 787,724                | 3.912650      |



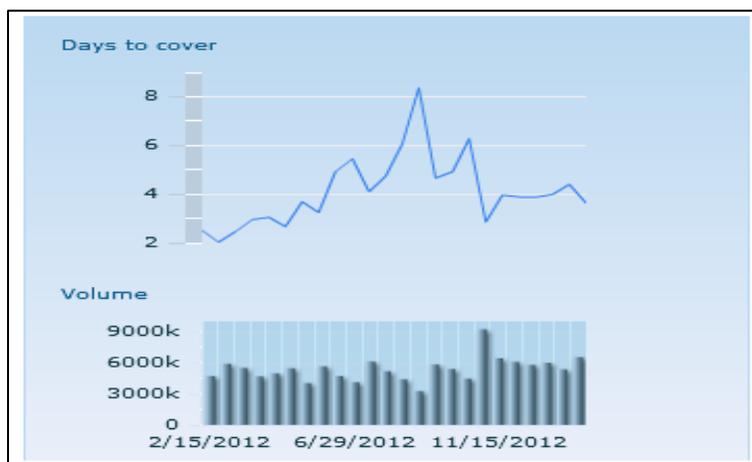
## DOW Chemical Company

| Settlement Date | Short Interest | Avg Daily Share Volume | Days To Cover |
|-----------------|----------------|------------------------|---------------|
| 1/31/2013       | 20,634,201     | 10,619,260             | 1.943092      |
| 1/15/2013       | 23,006,881     | 6,922,413              | 3.323535      |
| 12/31/2012      | 23,129,041     | 7,447,050              | 3.105799      |
| 12/14/2012      | 23,294,864     | 7,134,216              | 3.265231      |
| 11/30/2012      | 22,572,633     | 6,464,242              | 3.491923      |
| 11/15/2012      | 24,768,082     | 8,903,178              | 2.781937      |
| 10/31/2012      | 24,288,391     | 11,037,390             | 2.200556      |
| 10/15/2012      | 23,125,325     | 7,239,339              | 3.194397      |
| 9/28/2012       | 21,586,893     | 11,405,114             | 1.892738      |
| 9/14/2012       | 23,119,099     | 15,245,562             | 1.516448      |
| 8/31/2012       | 24,463,331     | 6,577,215              | 3.719406      |
| 8/15/2012       | 25,729,638     | 6,260,775              | 4.109657      |
| 7/31/2012       | 25,960,606     | 10,863,738             | 2.389657      |
| 7/13/2012       | 27,772,614     | 6,479,344              | 4.286331      |
| 6/29/2012       | 30,946,627     | 15,886,544             | 1.947977      |
| 6/15/2012       | 30,454,641     | 8,532,628              | 3.569198      |
| 5/31/2012       | 24,899,481     | 9,586,040              | 2.597473      |
| 5/15/2012       | 19,217,069     | 8,853,555              | 2.170548      |
| 4/30/2012       | 20,337,996     | 10,977,233             | 1.852743      |
| 4/13/2012       | 15,707,035     | 12,597,953             | 1.246793      |
| 3/30/2012       | 18,975,085     | 7,937,583              | 2.390537      |
| 3/15/2012       | 19,801,864     | 6,793,741              | 2.914722      |
| 2/29/2012       | 16,276,251     | 7,568,196              | 2.150612      |
| 2/15/2012       | 17,445,372     | 7,316,710              | 2.384319      |



## Du Pont

| Settlement Date | Short Interest | Avg Daily Share Volume | Days To Cover |
|-----------------|----------------|------------------------|---------------|
| 1/31/2013       | 23,726,560     | 6,527,561              | 3.634828      |
| 1/15/2013       | 23,534,599     | 5,347,207              | 4.401288      |
| 12/31/2012      | 23,890,582     | 5,987,989              | 3.989750      |
| 12/14/2012      | 22,307,367     | 5,768,560              | 3.867060      |
| 11/30/2012      | 23,566,849     | 6,070,672              | 3.882082      |
| 11/15/2012      | 25,377,793     | 6,418,431              | 3.953894      |
| 10/31/2012      | 26,136,164     | 9,197,724              | 2.841590      |
| 10/15/2012      | 27,884,821     | 4,445,248              | 6.272951      |
| 9/28/2012       | 26,490,187     | 5,382,362              | 4.921666      |
| 9/14/2012       | 27,079,185     | 5,811,969              | 4.659210      |
| 8/31/2012       | 27,262,045     | 3,254,442              | 8.376872      |
| 8/15/2012       | 26,610,410     | 4,387,288              | 6.065344      |
| 7/31/2012       | 24,425,638     | 5,165,215              | 4.728871      |
| 7/13/2012       | 25,026,387     | 6,105,256              | 4.099154      |
| 6/29/2012       | 22,363,667     | 4,104,605              | 5.448433      |
| 6/15/2012       | 23,285,164     | 4,728,240              | 4.924700      |
| 5/31/2012       | 18,342,893     | 5,646,300              | 3.248657      |
| 5/15/2012       | 14,828,045     | 4,026,381              | 3.682723      |
| 4/30/2012       | 14,533,663     | 5,470,554              | 2.656708      |
| 4/13/2012       | 15,100,639     | 4,964,358              | 3.041811      |
| 3/30/2012       | 13,774,842     | 4,669,642              | 2.949871      |
| 3/15/2012       | 13,417,377     | 5,480,558              | 2.448177      |
| 2/29/2012       | 11,941,100     | 5,902,294              | 2.023129      |
| 2/15/2012       | 11,797,108     | 4,694,719              | 2.512846      |



From <http://finance.yahoo.com/>

Complete the following table with information from the “*share statistics*” table.

| <b>Avg Vol<br/>(3 month)</b>               | <b>Avg Vol<br/>(10 day)</b>               | <b>Shares<br/>Outstanding</b>                  | <b>Float</b>                            |
|--|---|--|---|
| 3,453,250                                  | 2,186,250                                 | 142.85M  | 142.29M                                 |
| <b>Shares Short<br/>(Most recent date)</b> | <b>Short Ratio<br/>(Most recent date)</b> | <b>Short % of Float<br/>(Most recent date)</b> | <b>Shares Short<br/>(2 weeks prior)</b> |
| 35.97M                                     | 7.50                                      | 23.70%   | 15.11M                                  |

Based on the short interest statistics and its recent trend, how is the market sentiment on the stock? Has the sentiment turned more bullish or bearish over the last year? How about in more recent month and why?

Recently the market sentiment has been very negative and bearish towards PPG. The short interest and days to cover have both shot through the roof in the past month. Investors must infer that the stock is about to drop in the near future. PPG’s short interest and days to cover are both higher than those of its competitors which is not a good sign.

## Section (I) Stock Charts

### A three months price chart

Copy/paste the "3 Mos." stock chart here



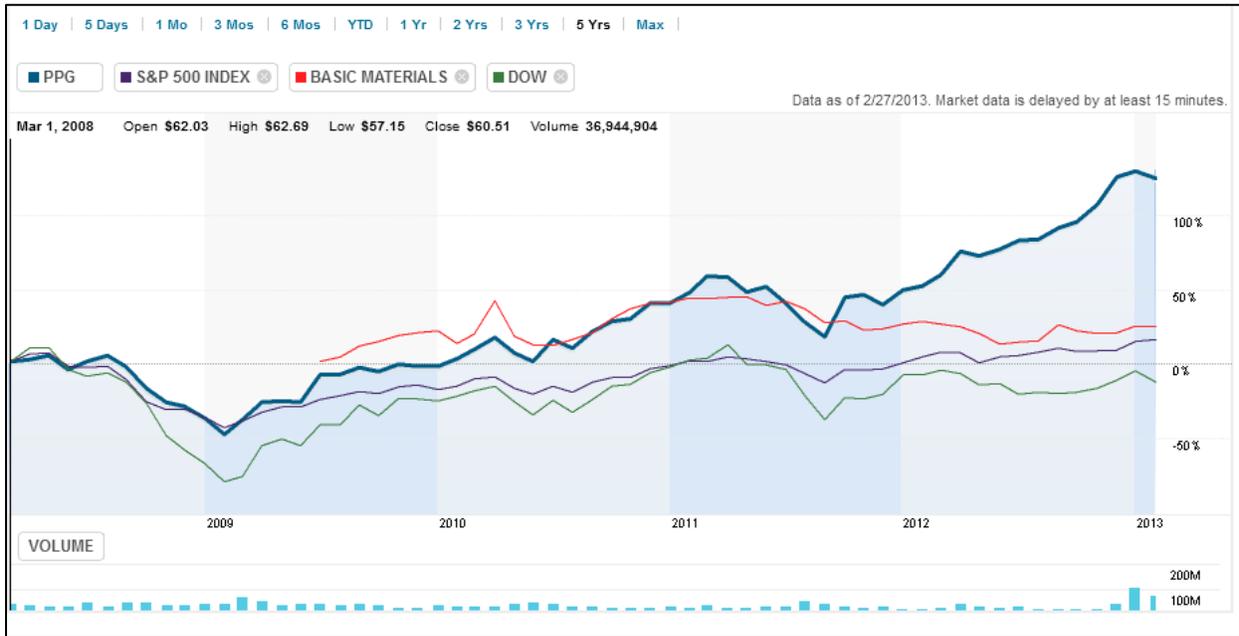
### A one year price chart

Copy/paste the "1 Yr" stock chart here



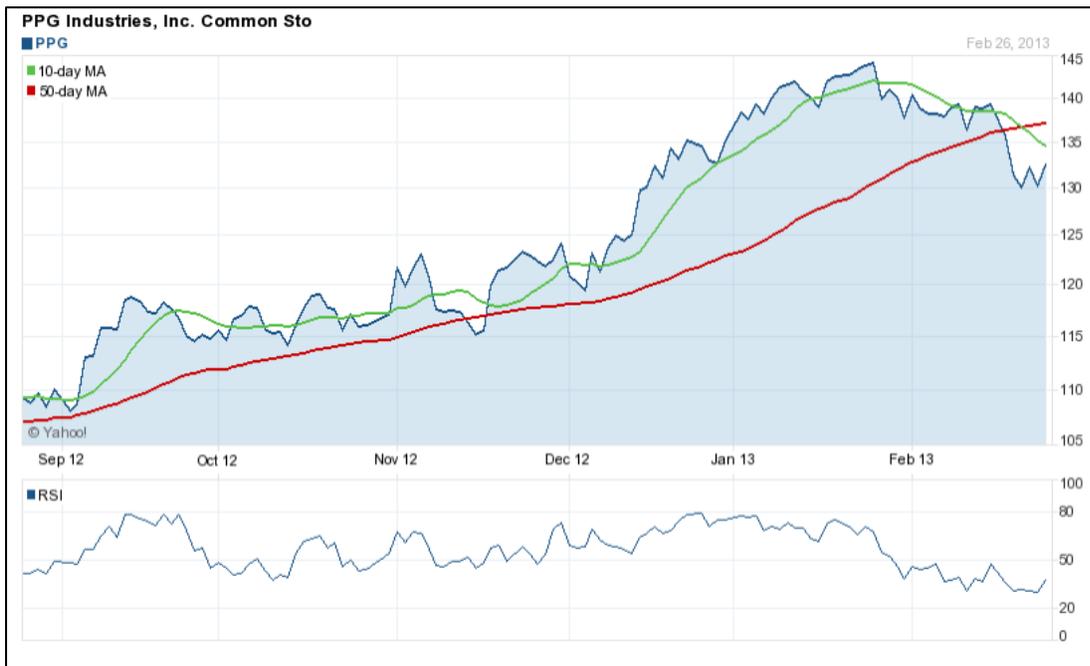
## A five year price chart

Copy/paste the "5 Yrs." stock chart here



## Additional price chart

If you have other stock charts, feel free to copy/paste here





**Discuss what you observe from the stock charts. This should include comparing your stock to competitors, sector, and SP500 over the three different time horizons.**

The 5 year and 1 year price charts for PPG look fantastic. The company saw tremendous growth during those periods and outperformed the sector, the market and competitors. The company performs well during the beginning of the 3 month price chart but then seems to reach a plateau.

In the 10 day and 50 day moving average chart, the company recently hit a death cross which is a very bearish signal.