

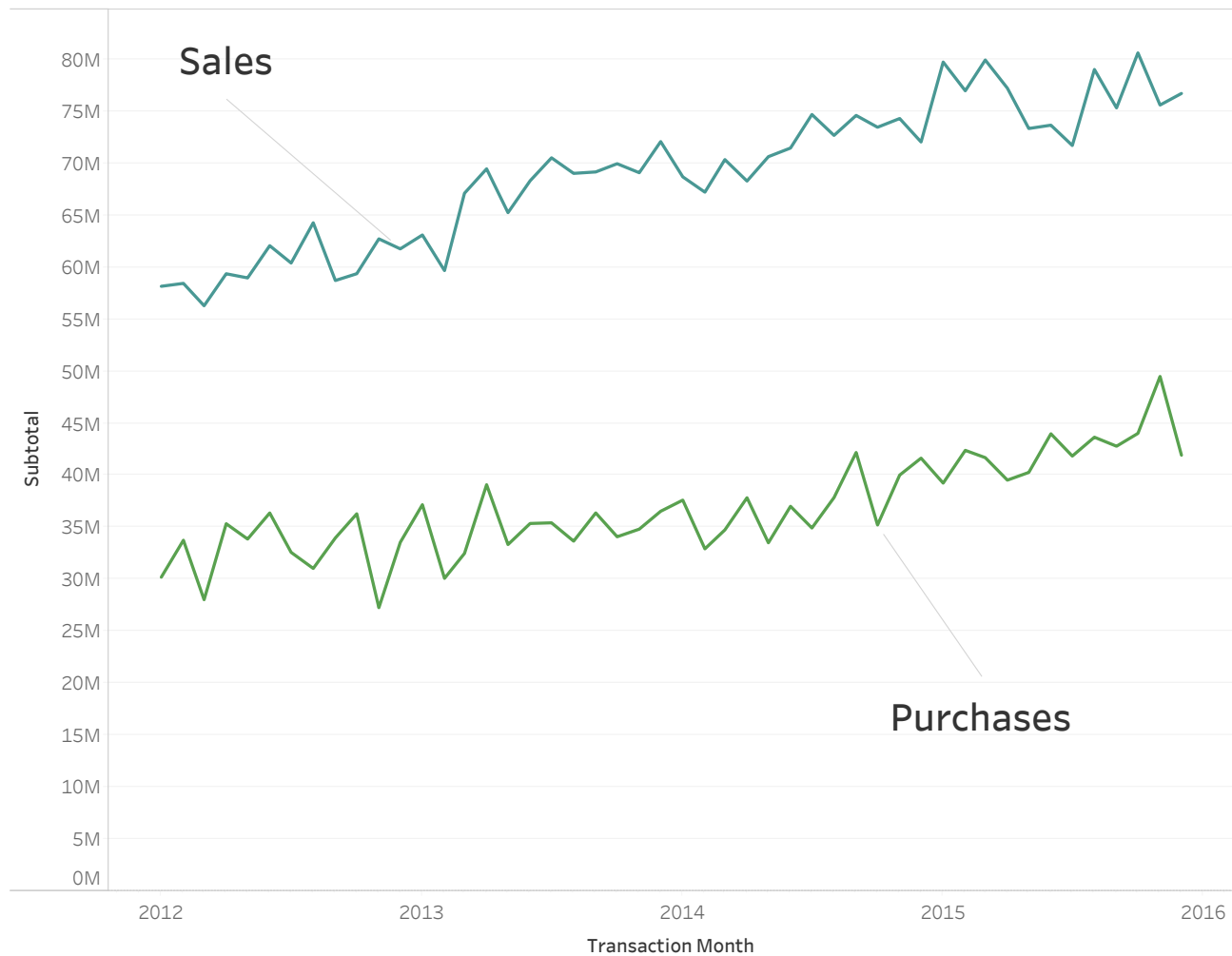
Acme Fraud Assessment

Amanda Shu & Vince Wong

The first red flag we investigated is the abnormal increase in purchases subtotals. Acme's sales have been increasing over time. We see that the growth in purchases is very similar to that of sales, but there are no abnormal increases in purchases that would indicate fraud. Perhaps breaking down the purchases by site will give us more insight.

We observe an abnormal increase in purchases in Illinois starting in April 2015. The purchase subtotals for the other sites stay fairly steady,...

Monthly Purchases and Sales



Acme Fraud Assessment

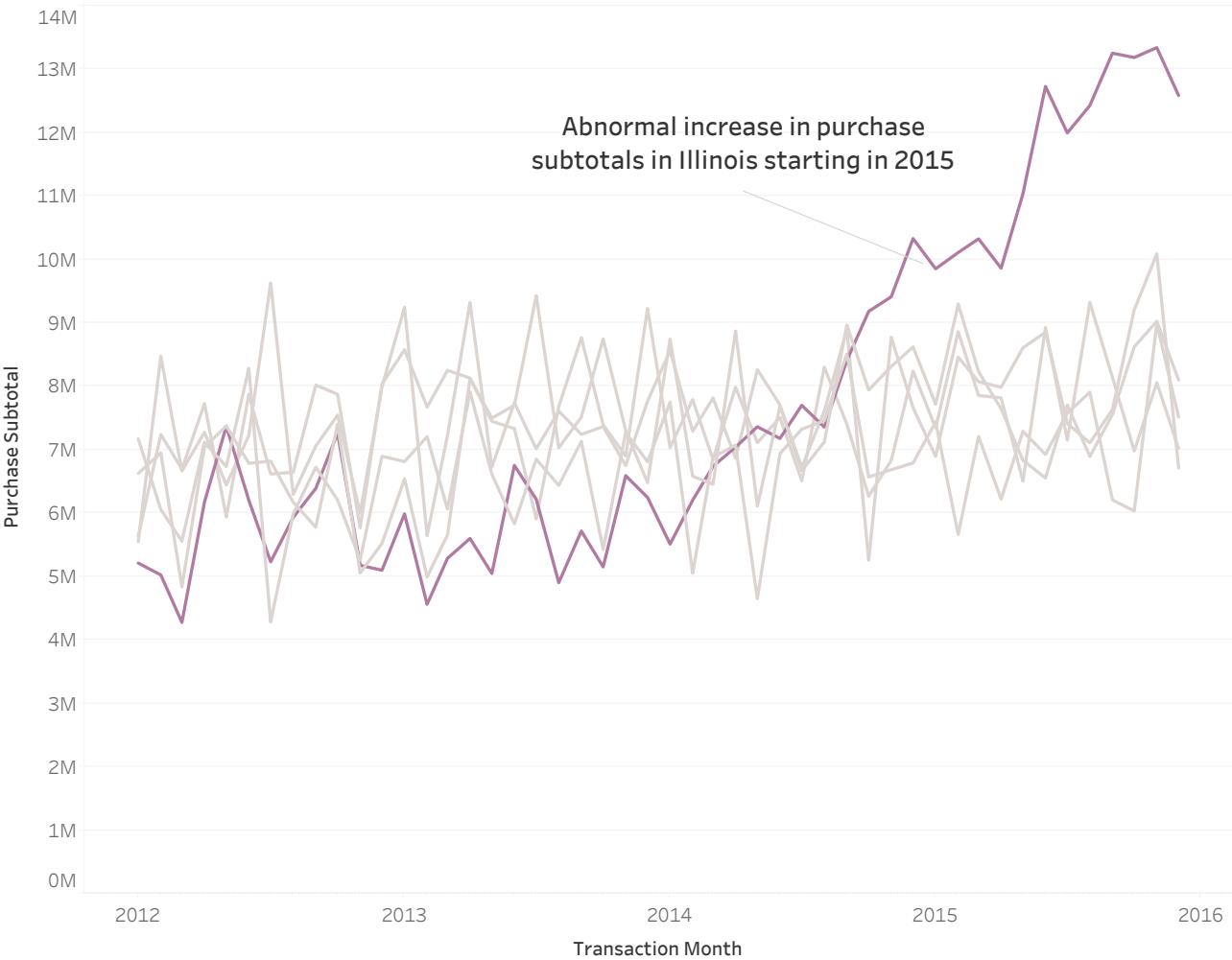
Amanda Shu & Vince Wong

The first red flag we investigated is the abnormal in..

We observe an abnormal increase in purchases in Illinois starting in April 2015. The purchase subtotals for the other sites stay fairly steady, suggesting that the increase in purchases over time (as seen in the previous graph) is driven by purchases in Illinois. Are employees at the Illinois site suddenly purchasing more overall or are certain employees committing fraud?

To investigate whether certain employees in Illinois could h..

Monthly Purchases By Site



Acme Fraud Assessment

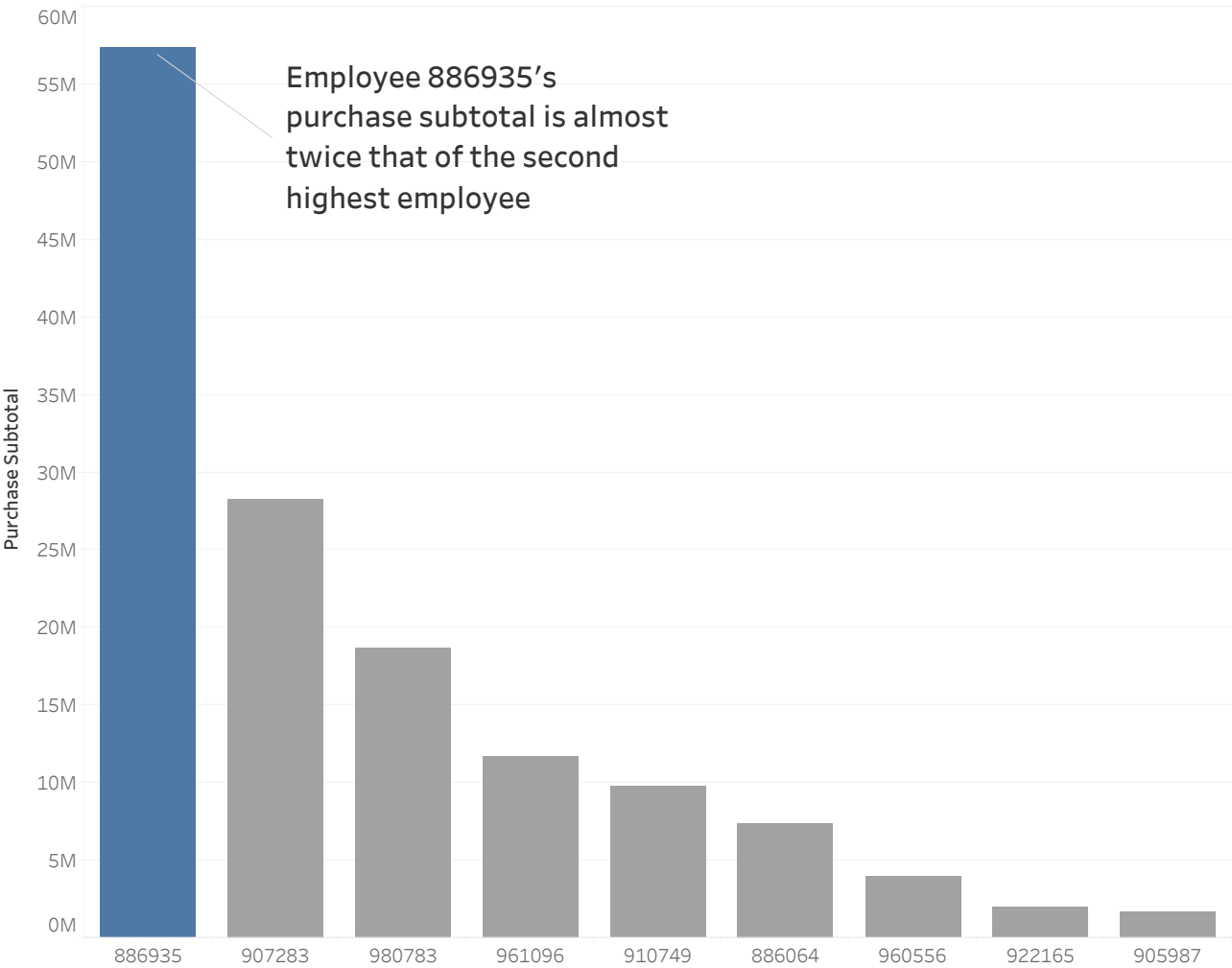
Amanda Shu & Vince Wong

We observe an abnormal increase in purchases in Illinois start..

To investigate whether certain employees in Illinois could have contributed to the dramatic increase in purchases, we look at the purchase subtotals for each employee in the Illinois site between April 2015 to December 2015. We find that the employee with employee ID 886935 has an abnormally high purchase subtotal as compared to the other employees.

A comparison of purchase subtotals for each employee month by mon..

Purchase Subtotals By Employee ID in Illinois (2015)



Acme Fraud Assessment

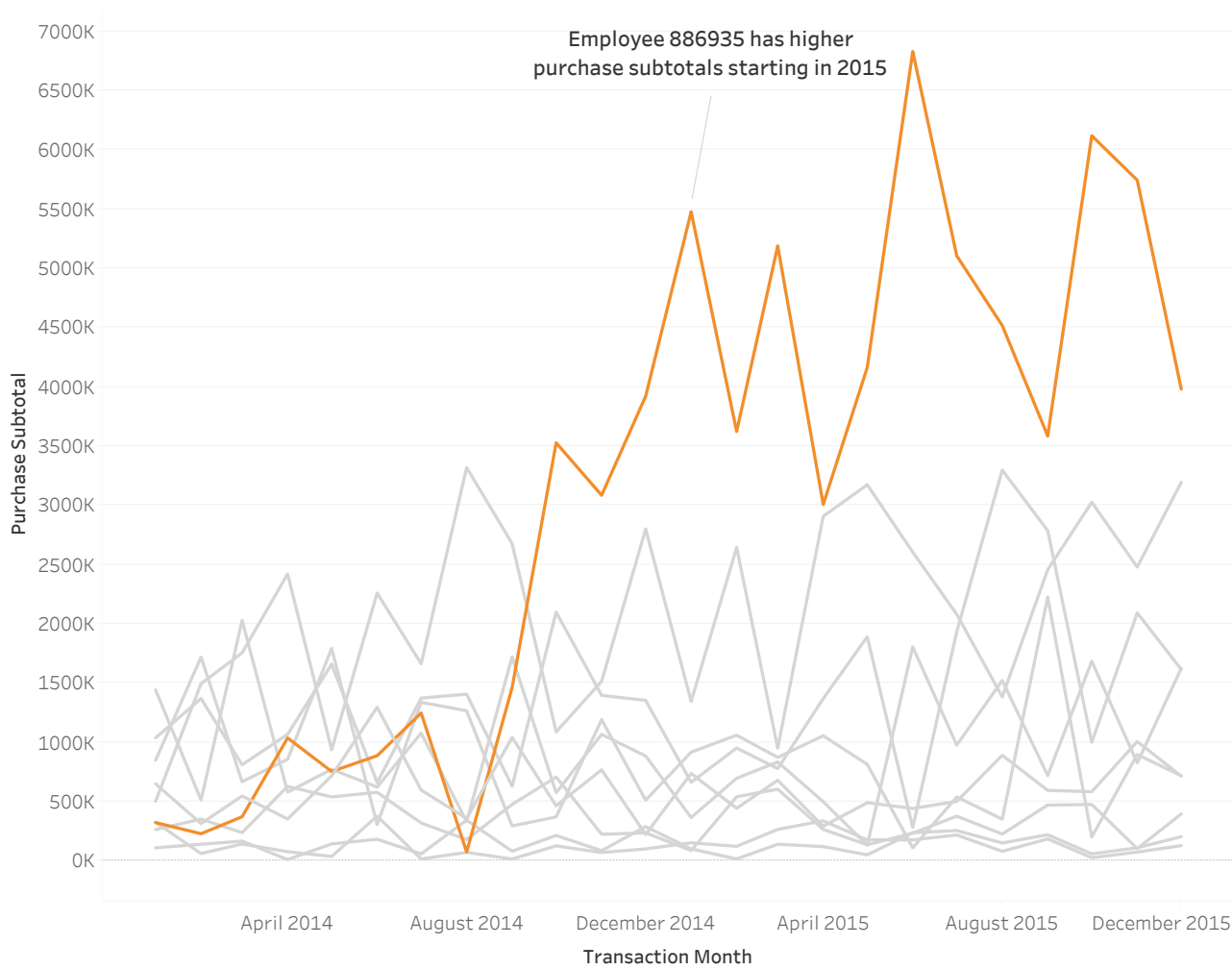
Amanda Shu & Vince Wong

To investigate whether certain employees i..

A comparison of purchase subtotals for each employee month by month confirms that employee with employee ID 886935 has higher purchase totals than the rest of the employees. This increase begins in 2015. While this is not conclusive evidence of fraud, there is reason to further investigate this employee specifically.

Another red flag we examined were abnormal increases in ra..

Monthly Purchase Subtotals By Employee ID in Illinois (2014-2015)



Acme Fraud Assessment

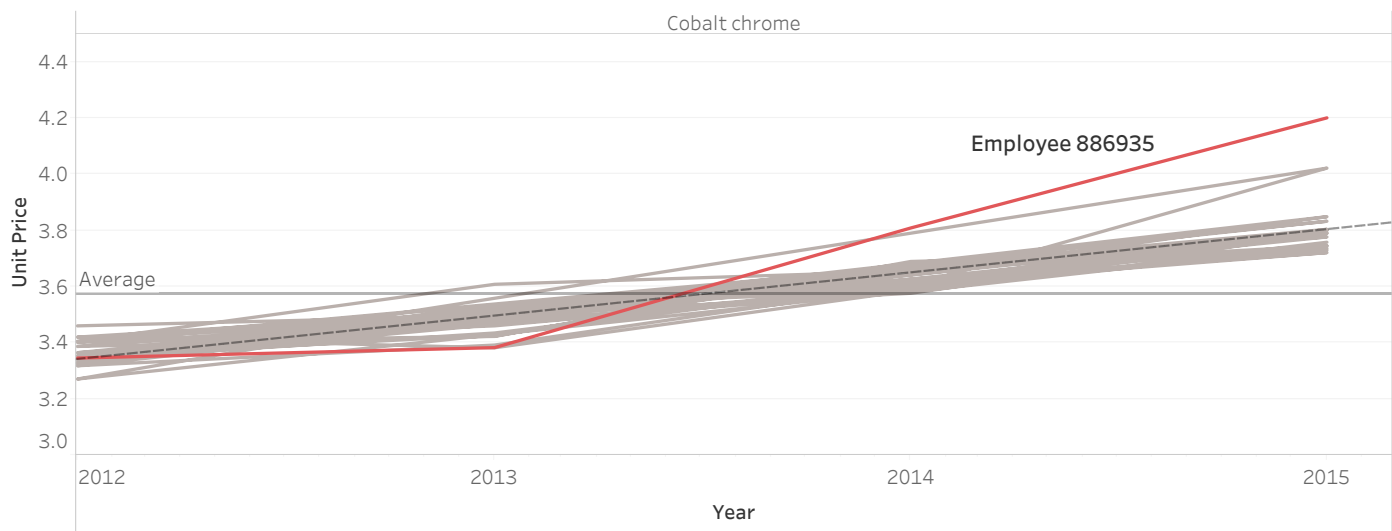
Amanda Shu & Vince Wong

A comparison of purchase subtotals for each employee m..

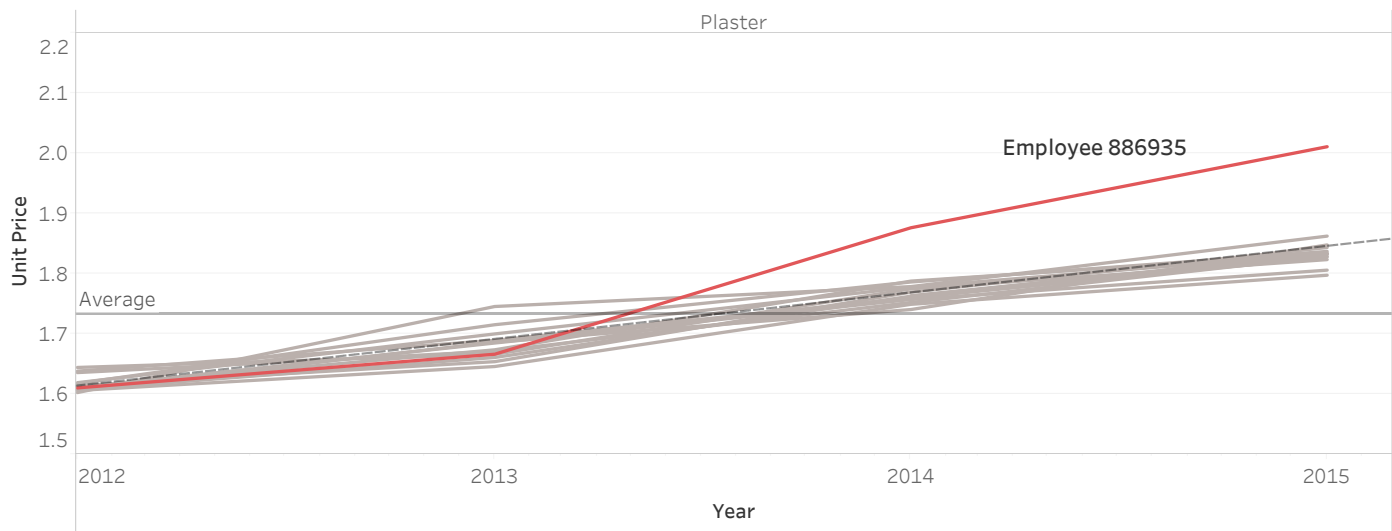
Another red flag we examined were abnormal increases in raw materials purchases unit costs. From 2012 - 2015, employee with employee ID 886935 purchased cobalt chrome and plaster. We observe a clear divergence from the trend between 2014 and 2015 when the average unit price for the materials increased much quicker compared to the average unit prices of the other employees.

In 2014, employee with employee ID 886935 began purchasing tit..

Average Employee Unit Prices for Cobalt Chrome From 2012 - 2015



Average Employee Unit Prices for Plaster From 2012 - 2015



Acme Fraud Assessment

Amanda Shu & Vince Wong

Another red flag we examined were abnormal in..	In 2014, employee with employee ID 886935 began purchasing titanium and stainless steel. The average unit price from the employee of interest is much higher than the company wide average for the respective materials.	Another red flag to consider is any abnormal increase in inv..
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Average Employee Unit Prices for Titanium From 2014 - 2015



Average Employee Unit Prices for Stainless Steel From 2014 - 2015



Acme Fraud Assessment

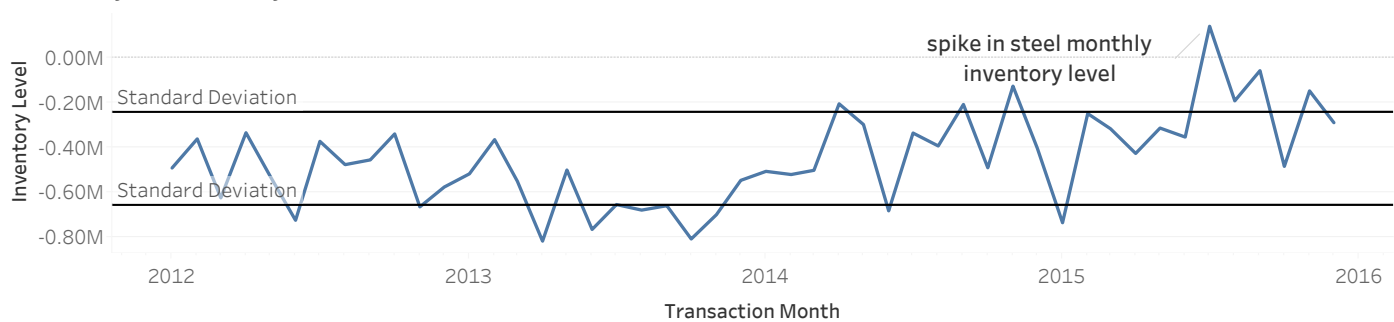
Amanda Shu & Vince Wong

In 2014, employee with employee ID 886935 beg..

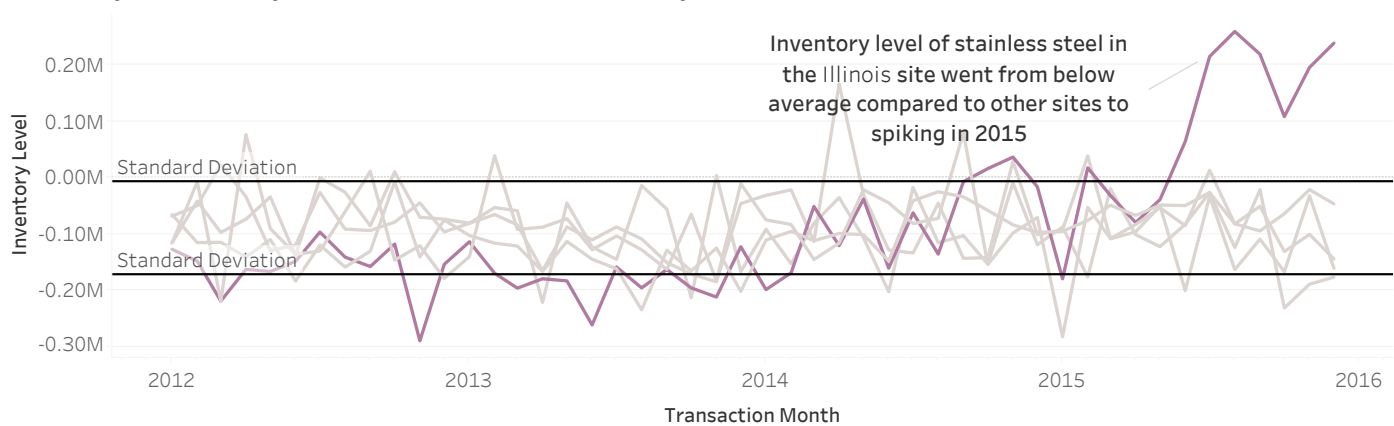
Another red flag to consider is any abnormal increase in inventory levels. The inventory level was calculated by subtracting the quantity of material needed for products from the quantity of each material purchased. While plotting the monthly trend of inventory level for each material, we found a couple abnormalities. Firstly, we notice that the spike in steel inventory levels in 2015 can be attributed to employee 886935 in Illinois.

A similar trend is seen with titanium.

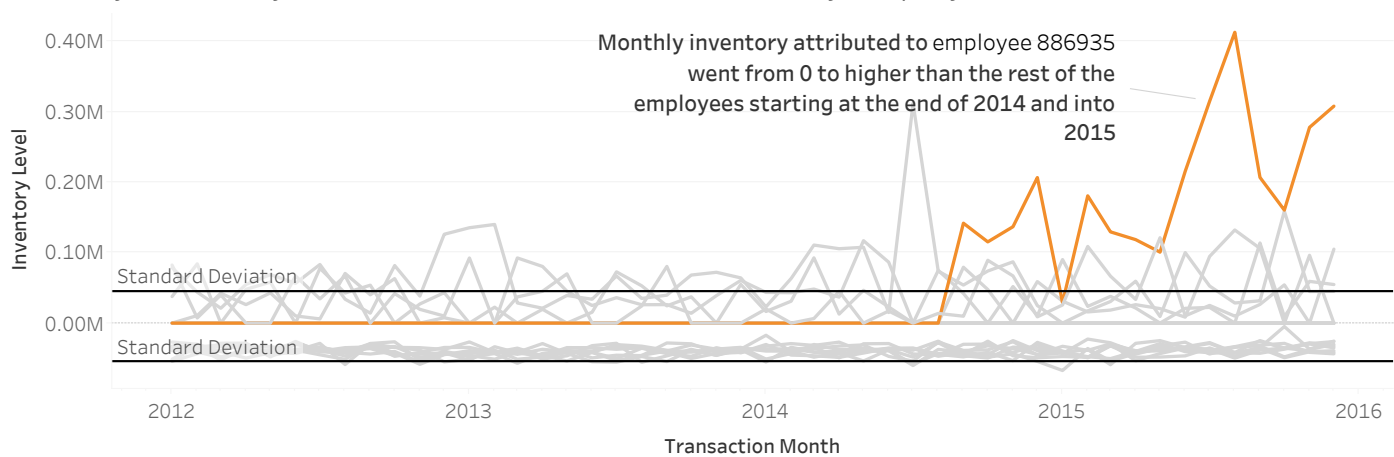
Monthly Inventory Level of Stainless Steel



Monthly Inventory Level of Stainless Steel by Site



Monthly Inventory Level of Stainless Steel in Illinois by Employee



Acme Fraud Assessment

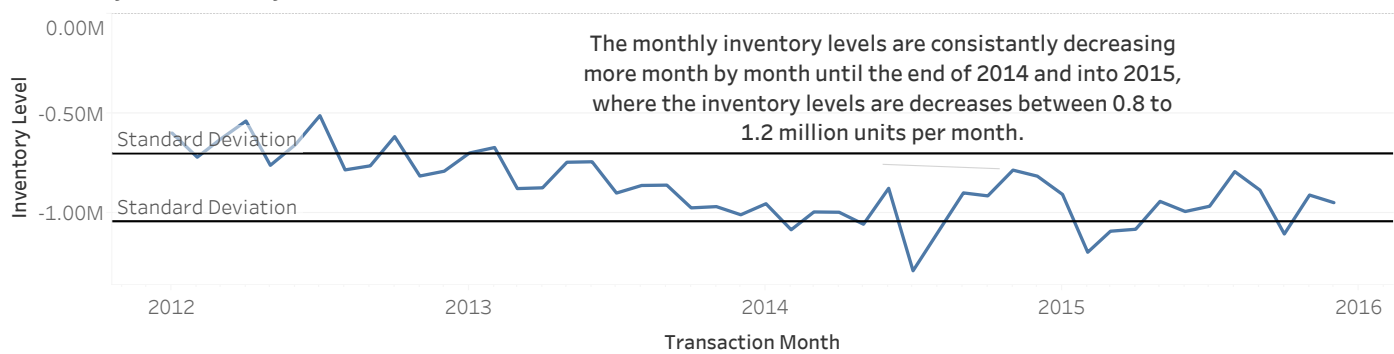
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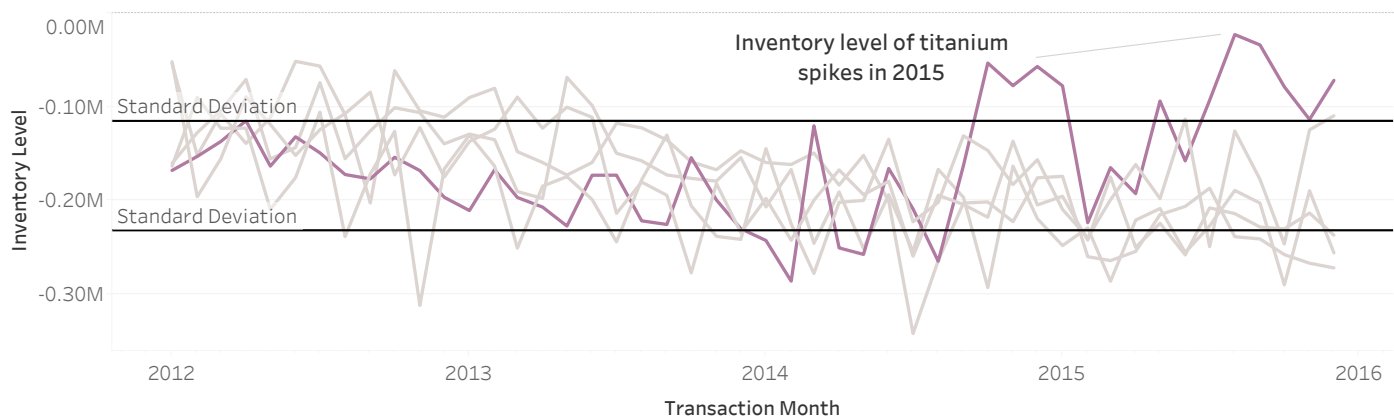
A similar trend is seen with titanium.

As well as plaster. Overall, our analysis indicates pote..

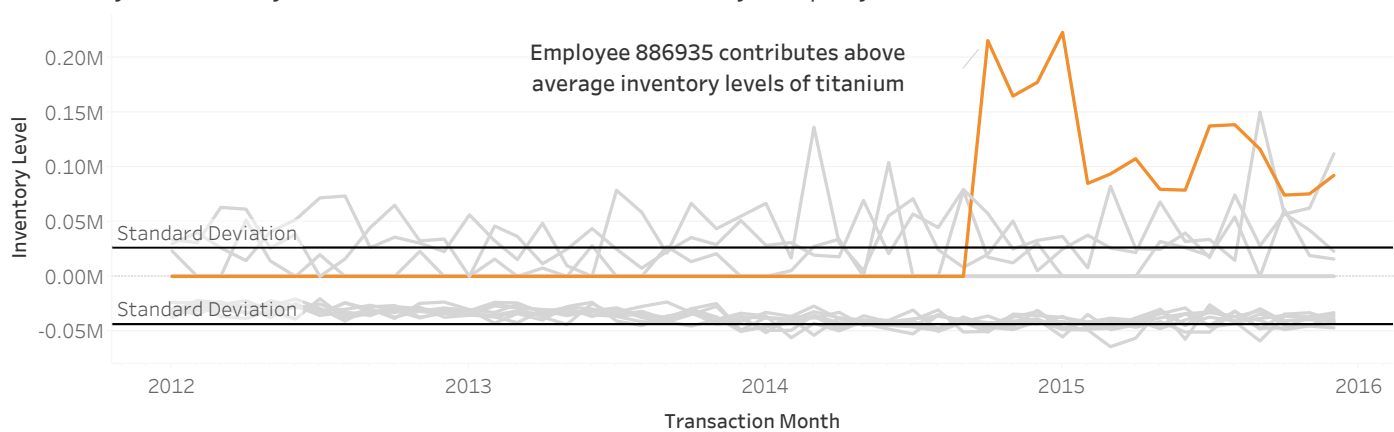
Monthly Inventory Level of Titanium



Monthly Inventory Level of Titanium by Site



Monthly Inventory Level of Titanium in Illinois by Employee



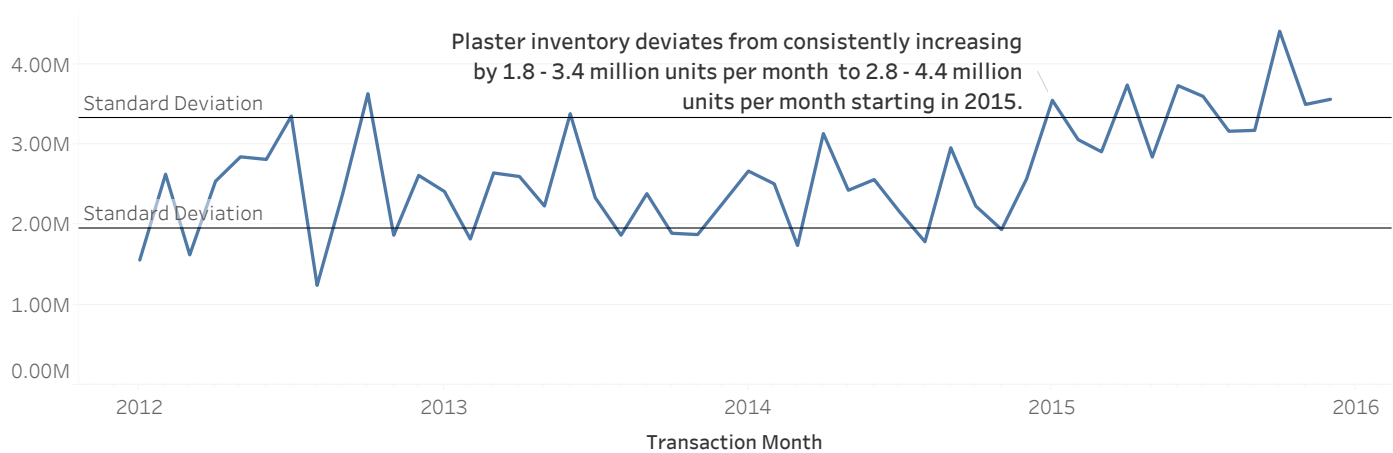
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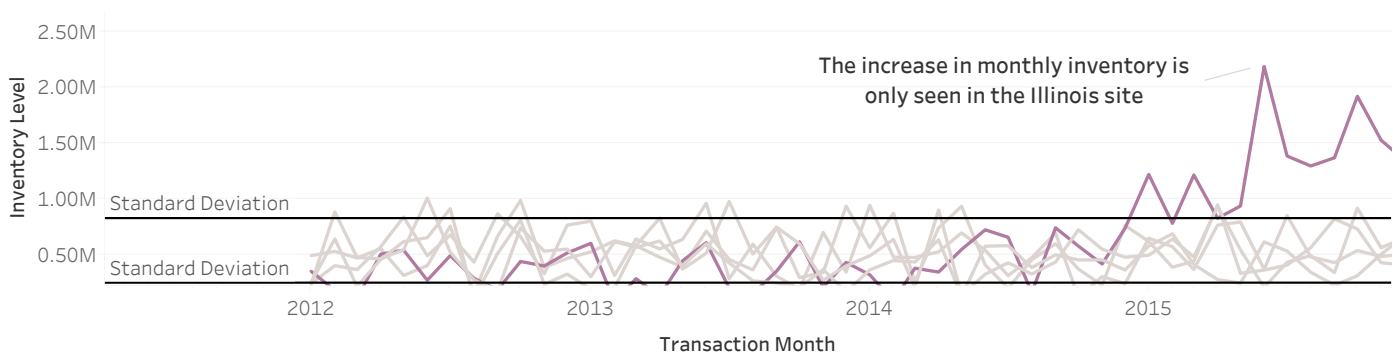
A similar trend is seen with titanium.

As well as plaster. Overall, our analysis indicates potential fraudulent purchase activity in the Illinois site, specifically with the employee with employee ID 887935. We find abnormally high unit prices and inventory levels for the materials steels, platinum, and plaster for this employee. Analysis was done for each product and material; however, for conciseness, we only included the products or materials that showed important trends or raised suspicion.

Monthly Inventory Level of Plaster



Monthly Inventory Level of Plaster by Each Site



Monthly Inventory Level of Plaster in Illinois by Employee

