

# Power BI

# Inhoud

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# 1 Power BI - Getting Started Guide

Abstract: The growth of data increases each day, as does the need for self-service business intelligence that can turn data into decision-ready insights. But too often, the tools necessary to extract those insights are just as hard to handle as the data. **Microsoft Power BI** for **Office 365** is a collection of new features and services that, together, enable you to visualize data, share discoveries, and collaborate in intuitive new ways. Familiar tools including **Excel** and **SharePoint** form the foundation of **Power BI**, with deeper integration and powerful new capabilities. **Power BI** builds on your existing knowledge of **Excel**, amplifying your understanding and ability to capitalize on the everexpanding world of valuable, yet sometimes unwieldy, data.



## 2 Introduction

Welcome to the **Power BI** Getting Started Guide. This guide is designed to walk through the collection of selfservice business intelligence (BI) features included in **Power BI**. While each new feature is compelling in its own right, the value of **Power BI** is how its features and services work together, and how the insights are securely, yet interactively shared.

To facilitate getting you started with **Power BI**, this guide has two main sections, plus an Introduction and a Summary:

- Introduction (the section you're reading right now)
- **Self-Service BI in Excel**
- **Power BI for Office 365**
- Summary – including additional links

Okay, with those details out of the way, let's discuss how people in different roles can use **Power BI**, then briefly look at each **Power BI** feature. We finish this section with a quick introduction to the characters we'll follow through this guide, as they put its features and services to use.

### 2.1 Who will use Power BI?

Any **Excel** user, who has a need for self-service BI capabilities, will find **Power BI** very useful. With its familiar **Excel** interface, **Power BI** is immediately accessible and intuitively connected to the software and services already used by report creators and **Excel** power users alike.

While the focus of this guide is the user, or report creator, other people in different roles also benefit from the features of **Power BI**. These roles tend to fall into three categories: report creator/user, data stewards and IT professionals, and report consumers. Let's look at each in turn.

If you're a report creator – such as a data analyst, data or BI consultant, or a mainstream **Excel** user – you'll likely use **Power BI**'s self-service BI features in **Excel** often, and extensively. Online services that support collaboration, such as distributing interactive reports and sharing workbooks, are also an important central workspace and information hub.

If you're a data steward – such as a data scientist, a data administrator, or an IT professional – the online service features of **Power BI** enable you to provide specific and secure access to data resources. Online service-related elements of certain self-service BI tools – such as enabling the identification, selection, and secure distribution of on-premise and public data feeds – are also significant.

And if you're a **report consumer** – anyone from an aspiring students to a CEO – you can collaborate, share securely, and interact with reports using **Power BI** for smarter, insightful, and more nimble decisions. This includes using an online hub, built right into **Office 365**, specifically tailored for collaborative BI.

### 2.2 What Features are Included in Power BI?

Let's take a look at the features and services that are included in **Power BI**.

### 2.3 Self-Service BI in Excel

These features are part of the familiar **Excel** environment, and extend its functionality to all sorts of cool dataspecific features and capabilities. Some of these have been available before, some are new, but each is now integrated into **Excel** and into **Power BI online services**. These client tools are:

- **Power Query** – easily discover and connect to data from public and corporate data sources. This includes new data search capabilities, as well as capabilities to easily transform and merge data from multiple data sources so that you can continue to analyze it in **Excel**. In **Excel 2016**, It is fully integrated into the **Data ribbon** under the **Get & Transform** section.
- **Power Pivot** – continue to create sophisticated data models with that data in **Excel** by creating relationships, custom measures, hierarchies, and **KPI's**. **Power Pivot** models run in-memory so that users can analyze 100's of millions of rows of data with lightning fast performance.
- **Power View** – easily create reports and analytical views through interactive charts and graphs that help you explore and present your data visually in **Excel**.

- **Power Map** – explore and navigate geospatial data on a 3D map experience in **Excel**.

## 2.4 Power BI for Office 365

Insights and visualizations are better when shared. **Power BI** excels at making insights available to everyone who should see them, securing those reports, and enabling them to be seen from anywhere in the world:

**Power BI Sites** – this is the heart of your collaborative **Power BI** experience. Quickly create collaborative **Power BI** sites for your team to share and view reports. Larger workbook viewing is also supported (up to **250MB**) so that users can view and interact with larger workbooks **through the browser**.

**Data Management** – when you create a great query in **Excel** you can share it with others, manage its availability, and see how much it gets used. With the data management features of **Power BI**, not only can you share your own query-creating genius, you can find other queries easily, too. You're collaborating from within **Excel**, and sharing it online. It's powerful.

**Power BI for Mobile** – See the latest reports posted to your **Power BI** site from a rich, immersive app on your mobile device.

So... What's the Story?

When learning something new, a story often helps. It lets you project how you could use **Power BI** to address your own business challenges... and opportunities.

In this guide, we follow Anna (an analyst, or report creator) as she creates a report on stock performance for the Online Contoso Network. The structure of this guide follows how a self-service **B**

**I** project often progresses – it starts with data discovery, mash-ups, and report creation, then continues to posting and highlighting, collaborating, and sharing. During her adventure, Anna exercises the features of **Power BI**. She also learns something interesting – and unexpected – about a certain subset of stocks during the economic downturn of 2009 – by visualizing the data in ways she hadn't before. So let's jump in, and see what Anna can do with **Power BI**.

## 3 Self-Service BI in Excel

**Power BI** features in **Excel 2013** make discovering and visualizing data easy. These four features – **Power Query**, **Power Pivot**, **Power View**, and **Power Map** – work seamlessly together.

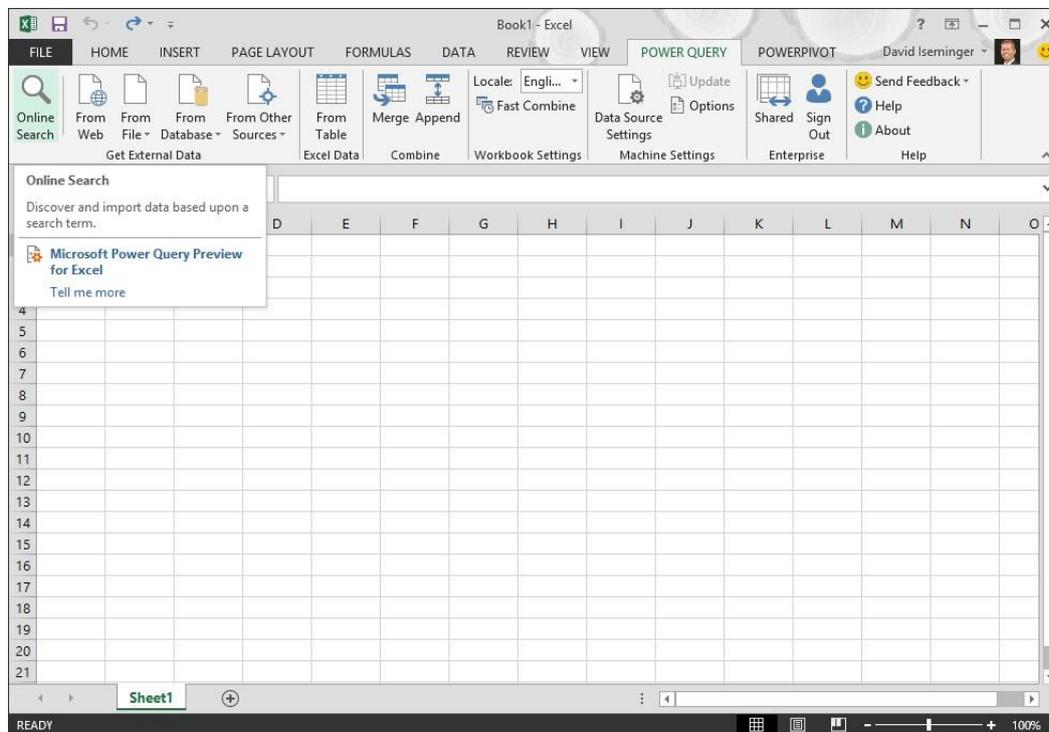
With **Power Query**, you can search the entire cloud for data, both public and private. Using multiple data sources, you can filter, shape, merge, and append that data using **Power Query**... without bringing any of it into **Excel**. You get a view into the data, shape it how you want, and can then send it directly to the Data Model in **Power Pivot**. And even then, you can create new calculations and fields in **Power Pivot** to get just the dataset you want.

**Power View** uses the Data Model to bring that data to life. Create reports, then let others interact and drill into them, changing visualizations on the fly as they select report elements.

To show how all this comes together, from scratch, let's follow Anna as she creates her report.

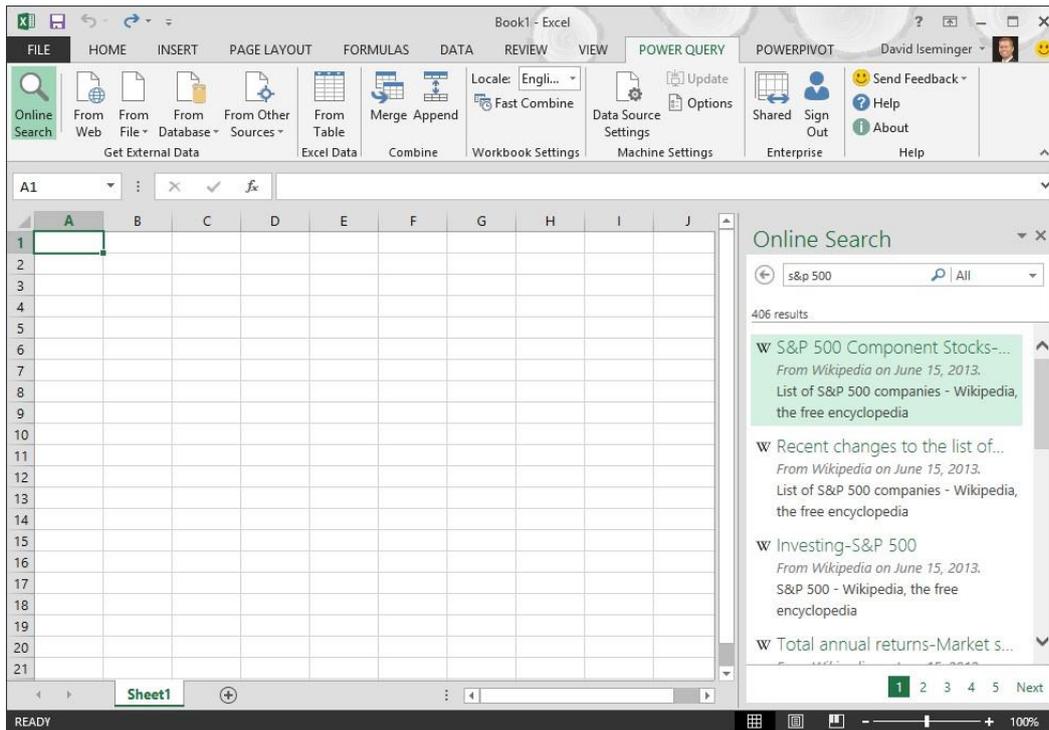
### 3.1 Power Query

Anna starts with a blank **Excel 2013** workbook, and goes to the **Power Query** tab. **Power Query** enables users to search, combine, refine, shape, and download data from all sorts of different sources and types. On the **Power Query** tab, Anna begins with a search.

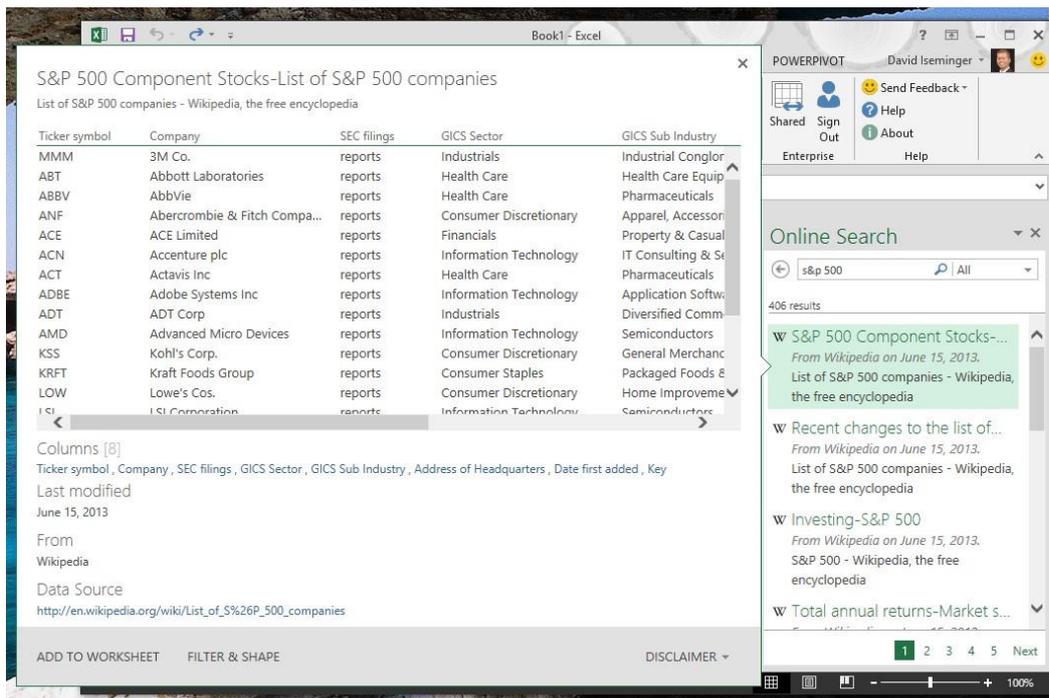


The Online Search pane appears. She decides to start with a search for the S&P 500 – which she thinks is a good cross-section of the stock market. If she can find a list, and associated data, she believes she can create reports that'll be interesting and representative.

To her surprise, all sorts of results show up in the Online Search pane. The first result from her online search is a listing of the S&P 500 components from a web page on Wikipedia.



When she hovers over that first search result, information about that data source is presented.

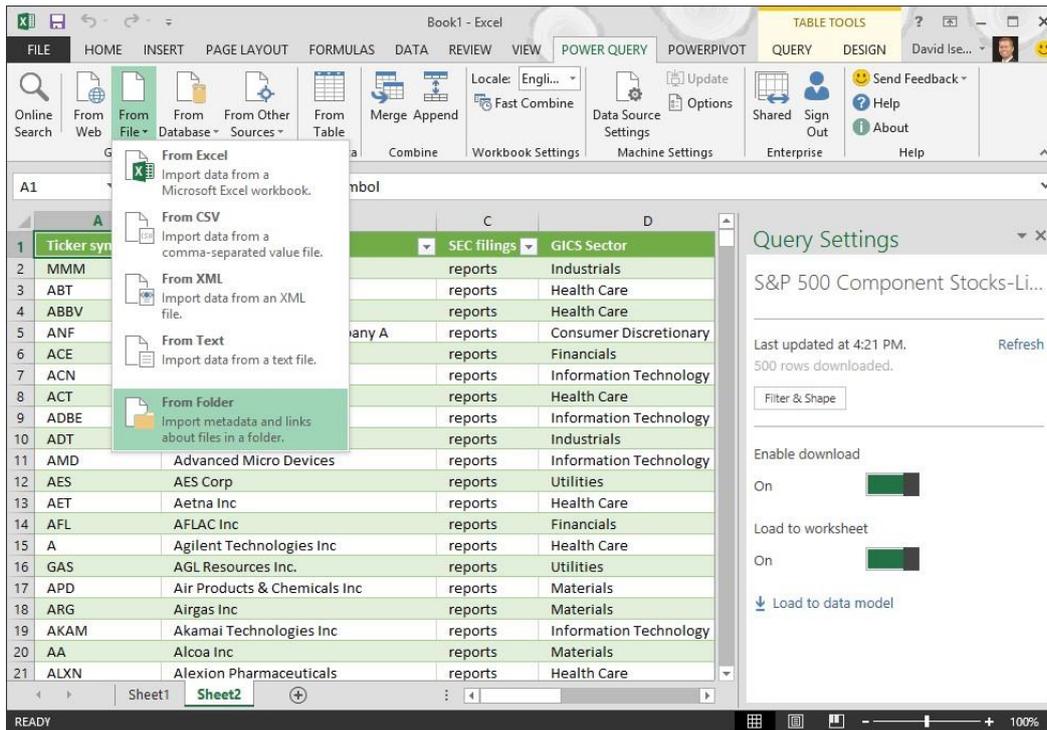


That looks like it'll work. She selects

- Add To Worksheet

from the bottom of the pop-out information pane, enabling her to download the data into **Excel**.

Now she needs data to mash-up against the S&P 500 list. She finds daily stock data from a few years back – during the downturn – and wants to load it into **Power Query** to shape and view.



She points the query to the folder where the data resides.

### Folder

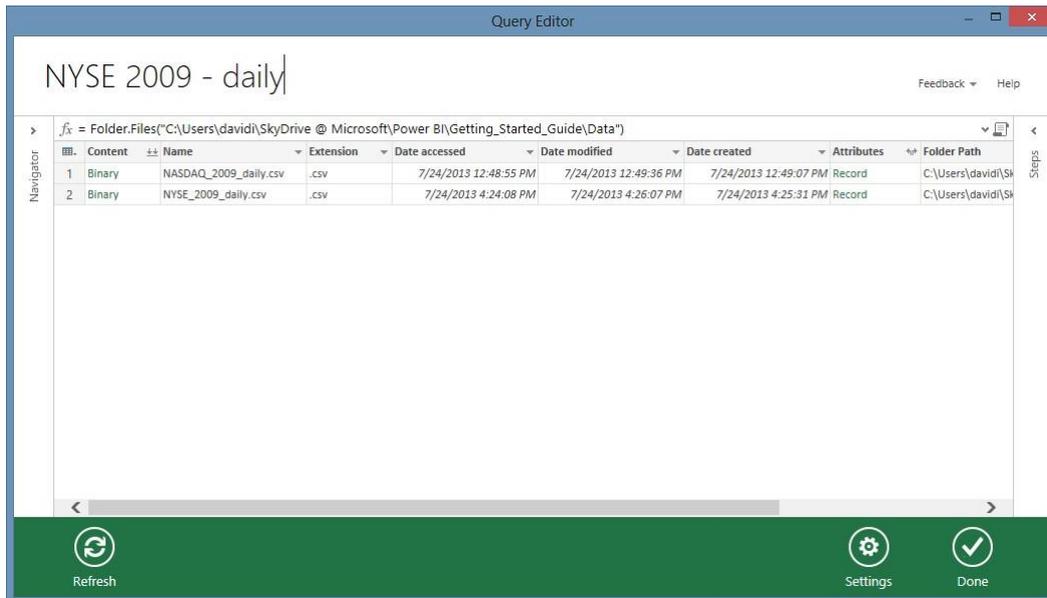
Choose a folder.

Folder Path

C:\Users\David\SkyDrive @ Microsoft\Power BI\Getting

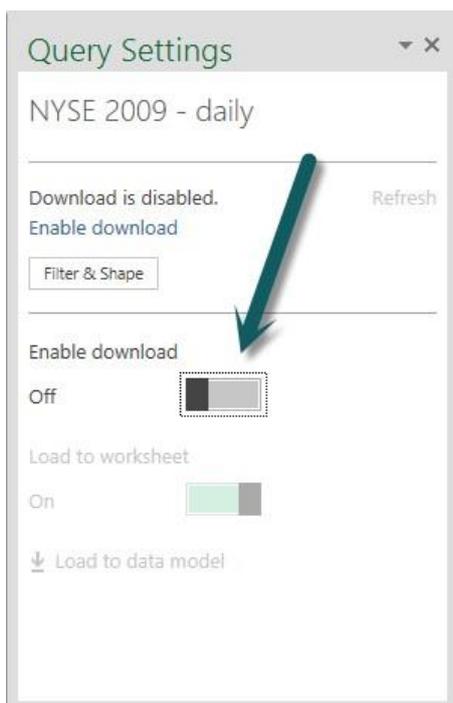
OK Cancel

**Power Query** then brings up the **Query Editor** window. The default name of the query is Query1, but she renames it to fit the data: NYSE 2009 – daily. Renaming it will come in handy when she want to use the query with other data sources, or when she wants to share the query with others.



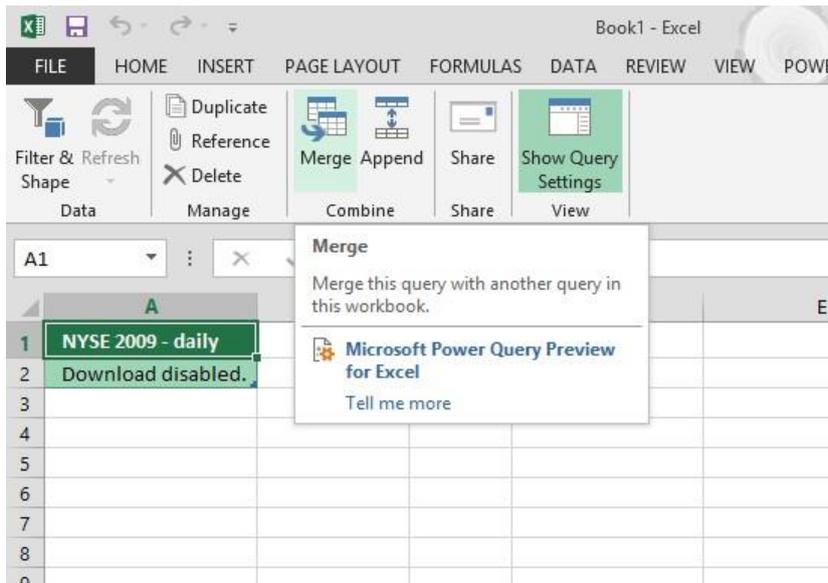
The data set from those two files is large – almost 75 megabytes – so she doesn't want to download it all to her workbook. She just want to see the columns, decide how to filter and shape the data, and then will only bring down the subset she's going to use.

She clicks **Done** in the bottom of the Query Editor window, and then slides **Enable Download to Off**.



Now that she has daily stock data, and the S&P 500 data, she can merge them. By merging the data, Anna only brings in the data she needs. In this case, she only needs the daily stock ticker data for stock symbols that are part of the S&P 500.

To do that, Anna uses **Power Query** to merge the data.



**Power Query** lets you choose the primary table, and which columns are matching columns, from available queries in the workbook. In this case, the matching columns are the Ticker symbols.

x

## Merge

Select your primary table and column(s) to match:

S&P 500 Component Stocks-List of S&P 500 companies

Ticker symbol	Company	SEC filings	GICS Sector	GICS Sub Industry
MMM	3M Co.	reports	Industrials	Industrial Conglomer
ABT	Abbott Laboratories	reports	Health Care	Health Care Equipme
ABBV	AbbVie	reports	Health Care	Pharmaceuticals
ANF	Abercrombie & Fitch Company A	reports	Consumer Discretionary	Apparel, Accessories
ACE	ACE Limited	reports	Financials	Property & Casualty

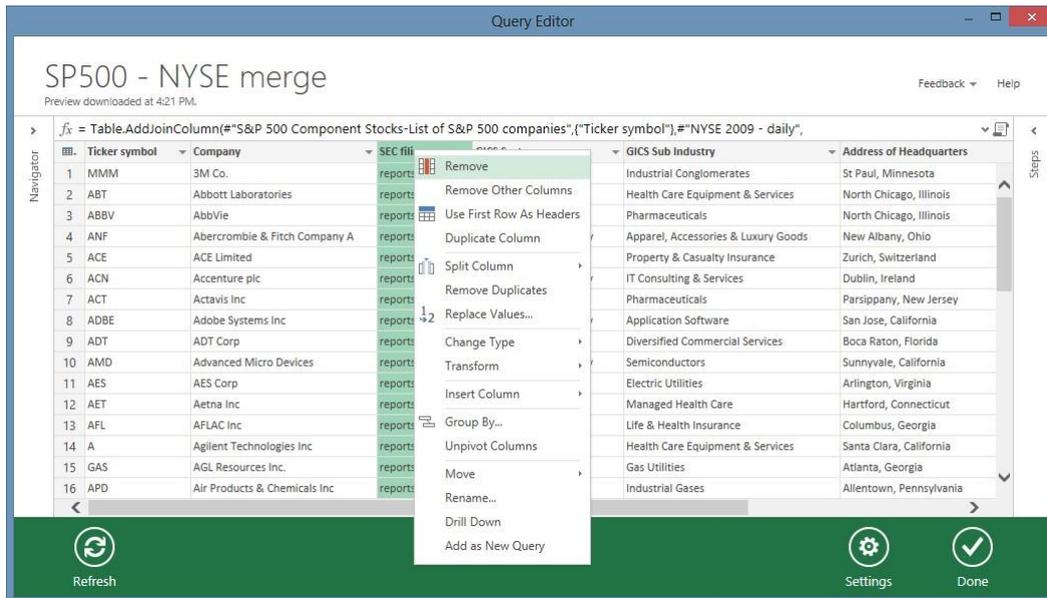
Select a table and matching column(s) to be merged. This table will become a new expandable column.

S&P 500 Component Stocks-List of S&P 500 companies

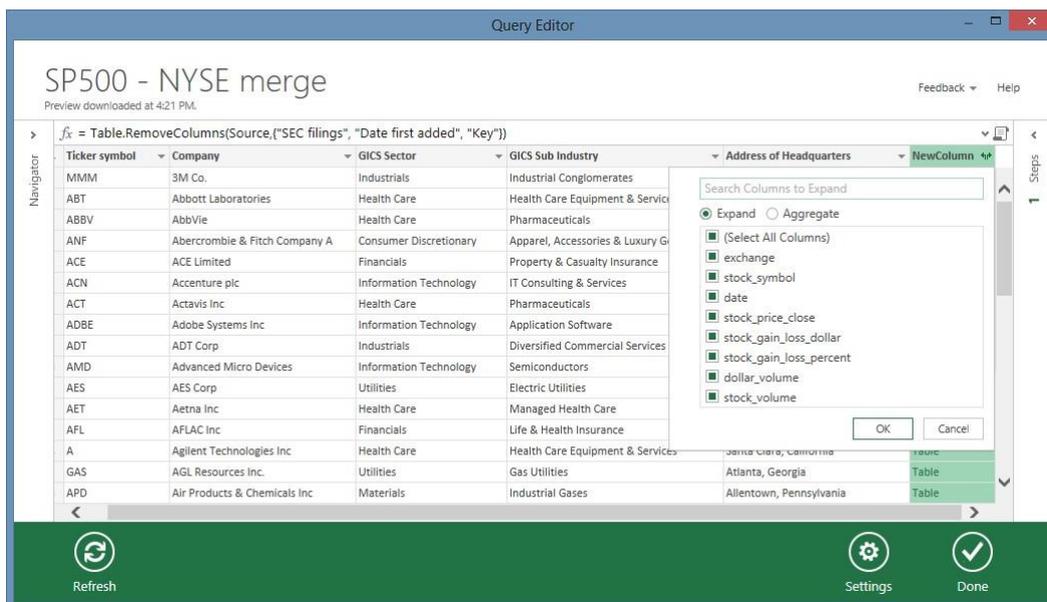
NYSE 2009 - daily

OK Cancel

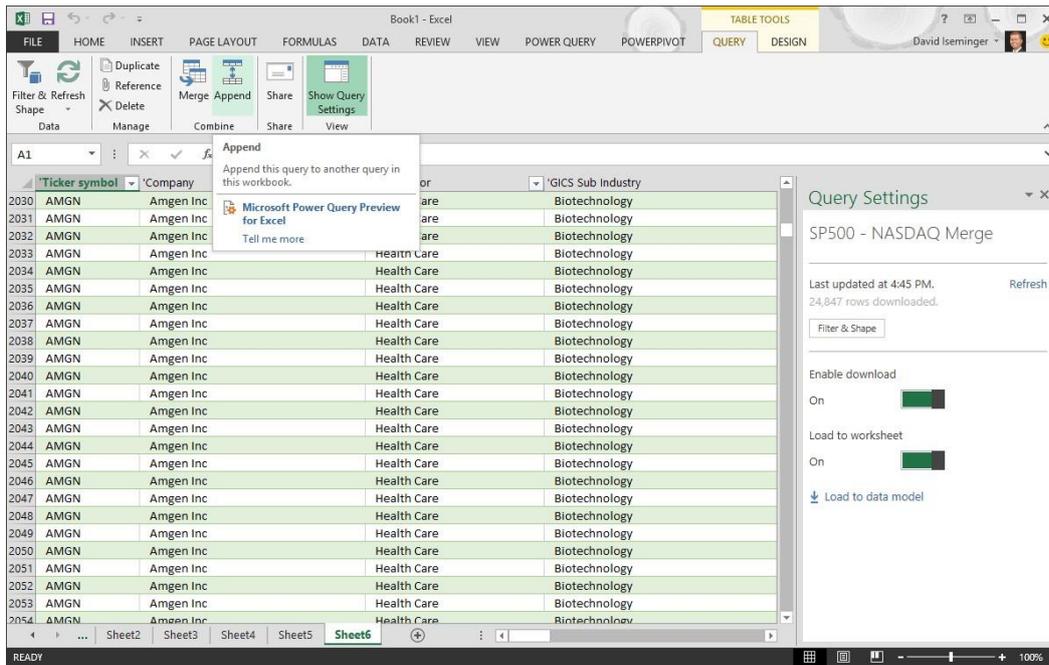
She renames the query from Merge1 to SP500 – NYSE merge. In the Query Editor window, Anna can shape the data to meet her needs. For example, she doesn't need the column describing SEC report filings, so she removes it.



The table with which the S&P 500 data was merged appears as expandable columns, displayed at the end of the available columns. When she clicks on the icon that appears in NewColumn, all the columns from the NYSE 2009 – daily merge appear, available for her to choose to include.



She follows similar steps with the NASDAQ data file. At this point she has a query that merges the S&P 500 with NYSE data, and another query that merges the S&P 500 with NASDAQ data. But she wants them all to be in the same dataset. She wants to append those two queries, so on the Query toolbar in Table Tools, she chooses Append.



A window appears that lets her select the primary table, and the table to which she wants to append the data. Fortunately she has been naming her queries all along, so it's easy to determine which queries she wants to append.

## Append

Select the primary table to which you want to append more data:

SP500 - NYSE Merge

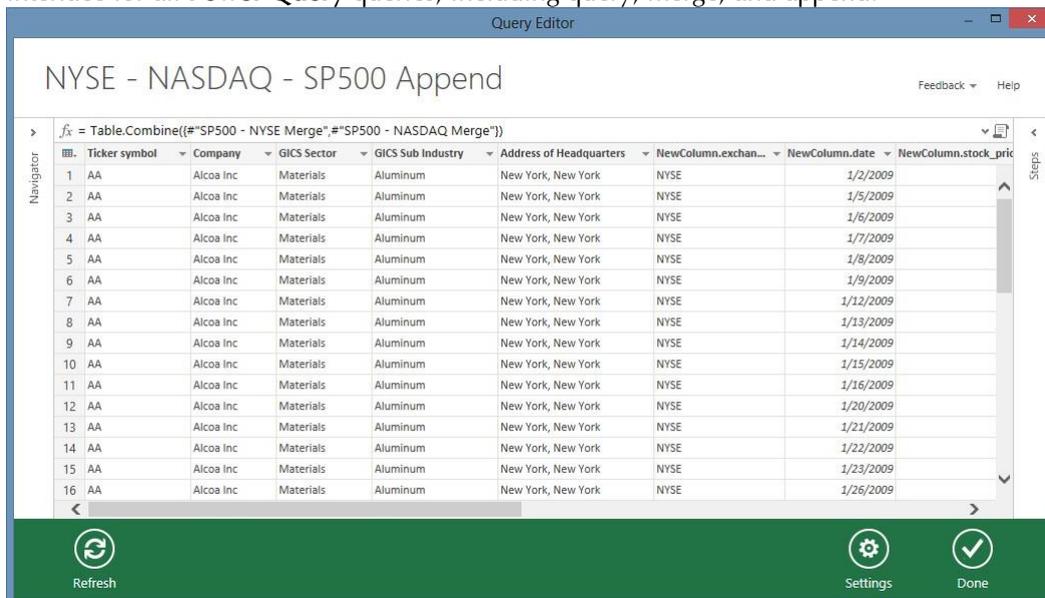
Select the table to append with the primary table:

SP500 - NASDAQ Merge

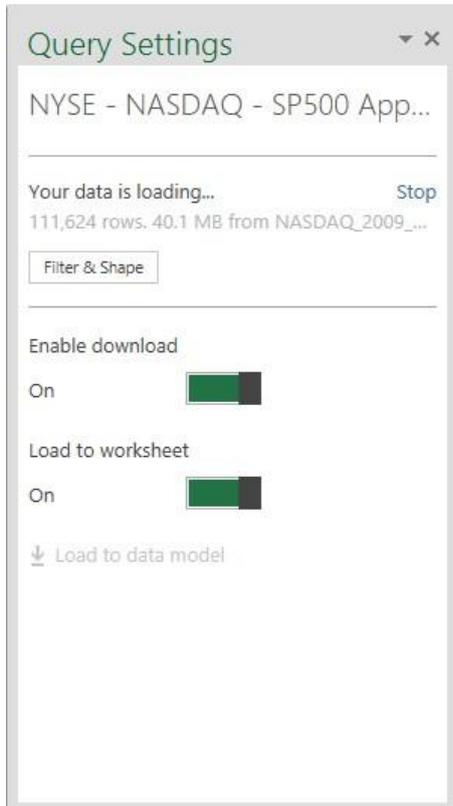
OK

Cancel

The Query Editor window appears, and she names this query too. The Query Editor is the consistent interface for all **Power Query** queries, including query, merge, and append.



This is the end result of the data she's been looking for – a set of NYSE and NASDAQ daily data, shaped to take out columns she doesn't need, and filtered to include only data for symbols in the S&P 500. She's ready to download the data, so she sets the Enable download slider to On.



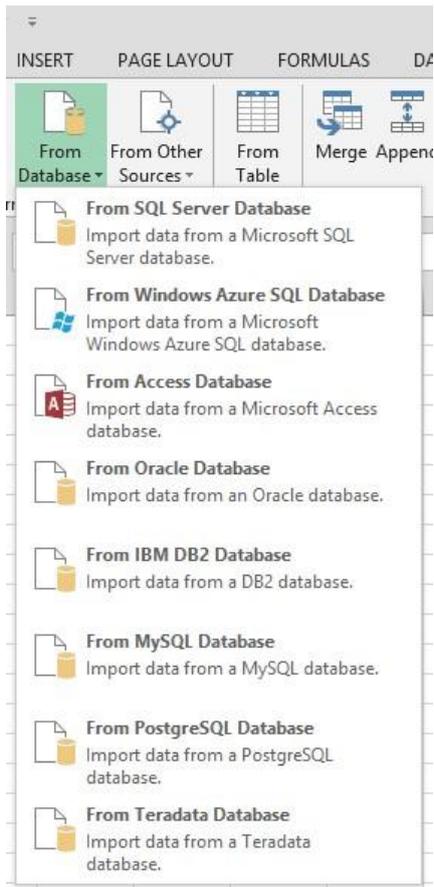
With the data brought into **Excel**, she checks to make sure the data type of each column is correct. For example, Anna sets the Date column to the Date data type. She renames a few columns too, so they're easier to read.

	F	G	H	I
	Exchange	Date	NewColumn.stock_price_close	NewColumn.stock_gain
	NYSE	1/2/2009	12.11	
	NYSE	1/5/2009	11.86	
	NYSE	1/6/2009	12.12	
	NYSE	1/7/2009	10.89	

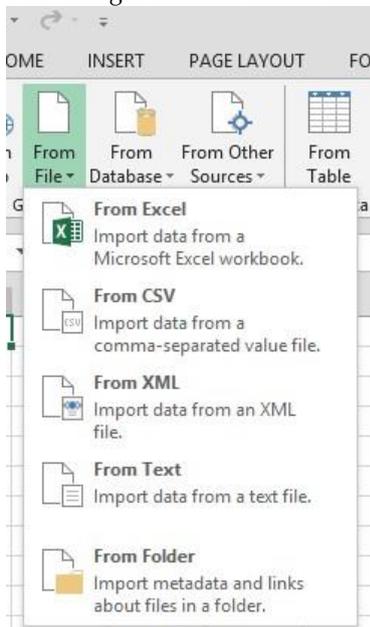
When she's done, she selects **Load to data model** from the **Query Settings** pane, and her shaped, filtered, and merged data gets loaded into the Data Model, which will bring her to next feature of **Power BI: Power Pivot**.

**Power Query** summary: with **Power Query**, you can search for data across your organization and across the Internet. Once you find the data you want, you can shape, filter, merge, and append different data sets from various sources, all without having to bring the data into **Excel**. Once your query is shaped and filtered how you want it, you can download it into a worksheet in **Excel**, into the Data Model, or both.

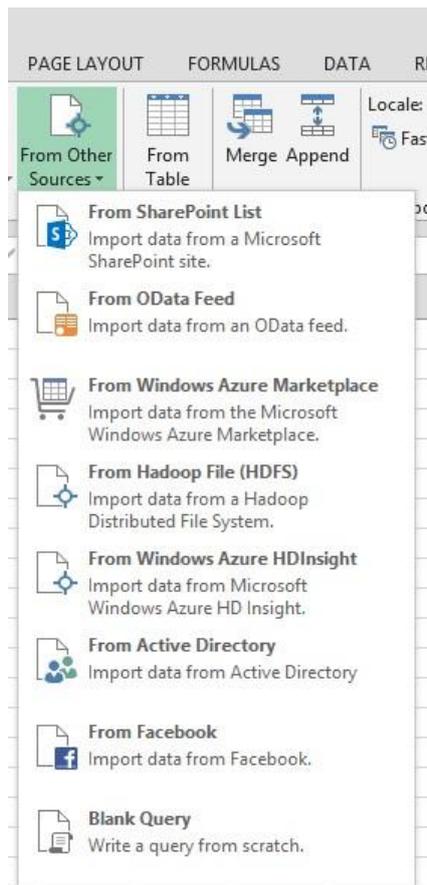
There are all sorts of compatible data sources, as the following images show. You can get external data from databases:



You can get external data from various files, like the CSV files Anna is using.



And you can get external data from all sorts of other data sources as well.



When you have just the dataset you need, shaped and formed and properly merged, you can save the query that created that perfect dataset, and share it with others. We'll see how Anna does that in the **Power BI** for **Office 365** section.

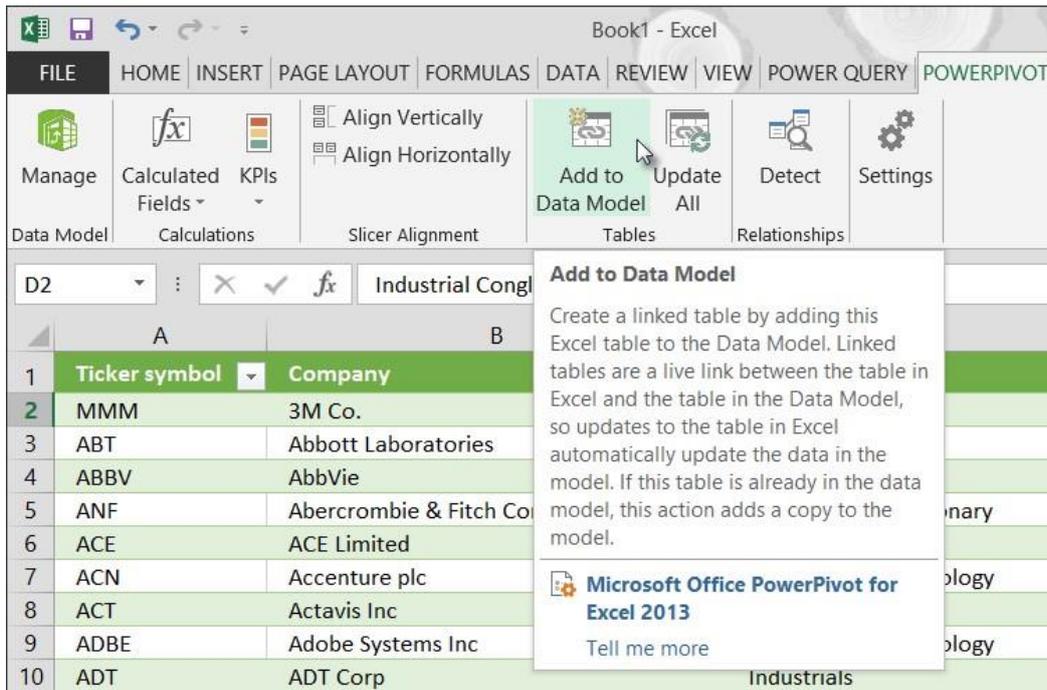
For more detailed information on **Power Query**, check out the following links.

- **Power Query** Help Content
- **Power Query** – Search Public Data

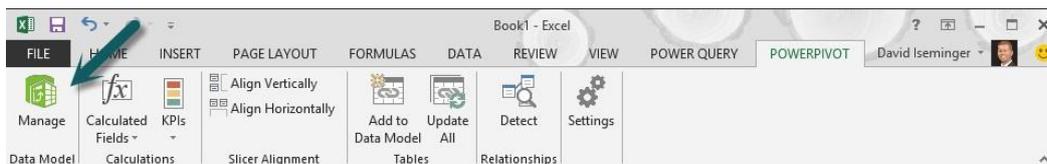
### 3.2 Power Pivot

With **Power Pivot**, you create your own data model from various data sources, modeled and structured precisely to fit your needs, that you can refresh from its original sources as often as you want. Anna now has her data loaded into the **Power Pivot**, the powerful self-service data modeling feature of **Power BI**. **Power Pivot** enables you to create and manage a collection of tables and relationships, right inside **Excel**.

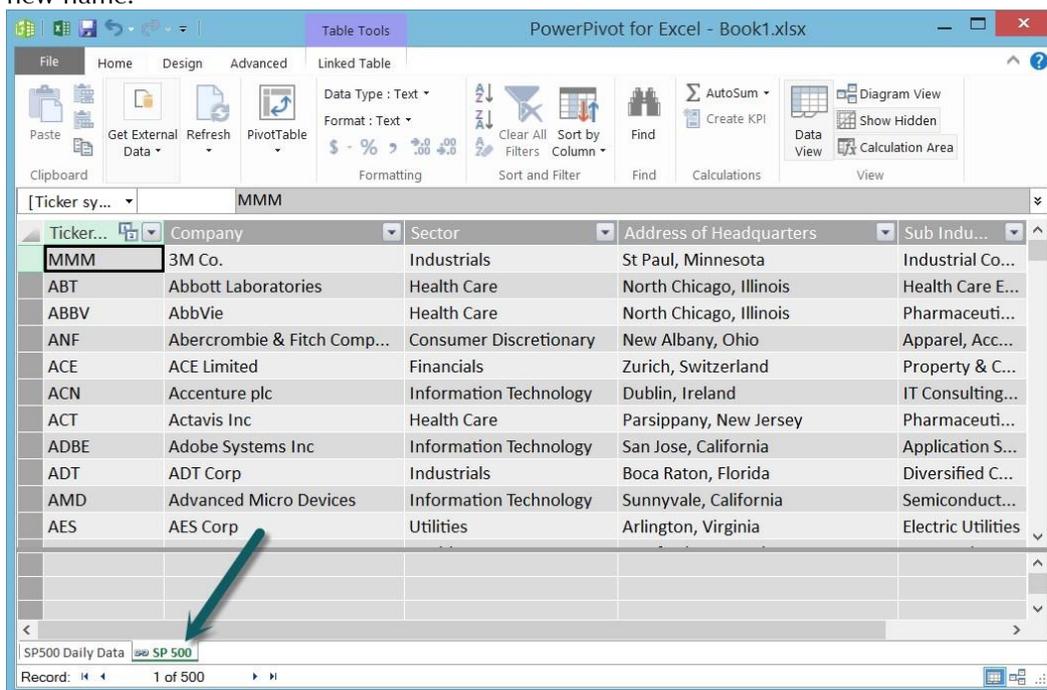
Anna loaded the NYSE and NASDAQ daily data into the data model, but she also wants to load the base S&P 500 table, too. Doing that is easy. She selects the **Excel** worksheet tab where she loaded the S&P 500 list, then from the **Power Pivot** tab on the toolbar, selects Add to Data Model.



When Anna adds the table to the Data Model, **Power Pivot** opens in a separate window, and displays the table she added to the model. She can also open the **Power Pivot** window by selecting the Manage icon from the **Power Pivot** toolbar.



In **Power Pivot**, tables in the Data Model appear in tabs, similar to how they appear in **Excel**. Anna decides to rename the table she just added to SP 500, so she double-clicks on that tab and types in the new name.

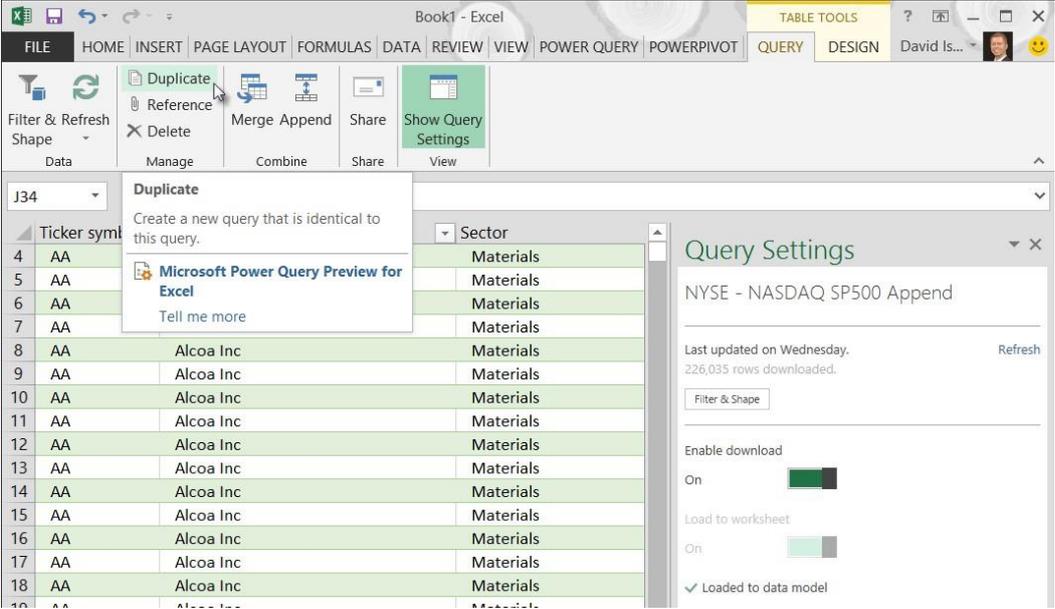


As Anna looks through the data in the model, she decides she’s missing an important perspective – annual performance. She could take the first day’s data – such as price –and the last day, and simply look at the difference. That would be pretty easy, and fast.

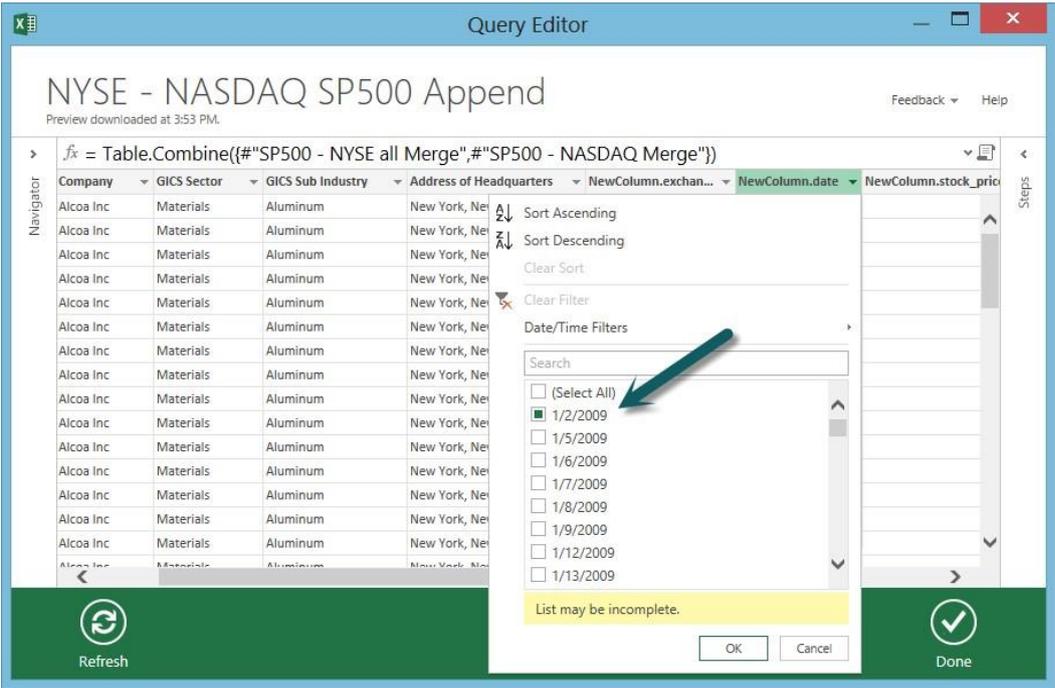
She already has a query that merges and appends all the daily data. She needs a version of that same query that distills the data further – to only the first day and last. She goes back to **Excel**, and finds her query.

Switching between **Power Pivot** and **Excel** is as simple as selecting the **Excel** window. There’s no need to close the **Power Pivot** window.

Back in **Excel** Anna finds the query, navigates to the Query tab in Table Tools, and selects Duplicate. This enables Anna to start with the query she created to append the merged NYSE and NASDAQ data, then filter it to only include the first and last trading days of the year.



The Query Window appears, and from there, she constrains the Date field to include only the first trading day.



She starts to select the last trading day, too, but pauses. To get the calculations she wants, data from the first and last trading day will need to be in one record, or row, in the model. No problem; she'll just create this query, get the first day's data, duplicate the query to get the last day's data, and merge the data from both queries into one table. With the ability to duplicate a query, modify it, then merge the data and bring it into the **Power Pivot** Data Model, she decides this is the quickest approach.

When she's done, she has a new table in the Data Model that contains the first and last day's closing price data. From **Power Pivot**, she renames the tab SP500 Annual Data, then changes the names of a few of the columns for clarity, such as First Day Close for the first day's price data, and Last Day Close for the last day's data. Renaming those columns will benefit her later on, when she creates reports from the data.

The screenshot shows the PowerPivot for Excel interface with a table containing stock data. The table has columns for Ticker, Company Name, Address, First Day Close, and Last Day Close. The data is sorted by First Day Close in descending order.

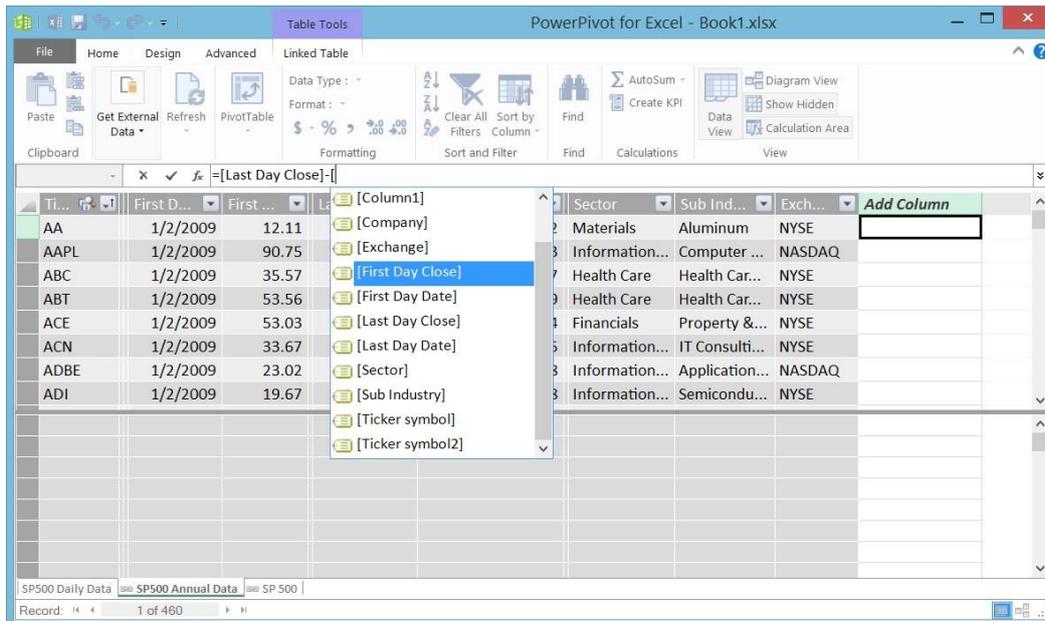
Ti...	Com...	Adre...	First D...	First Day Close	Ti...	Last Day...	Last Day Close
AA	Alcoa Inc	New York,...	1/2/2009	12.11	AA	12/31/2009	16.12
AAPL	Apple Inc.	Cupertino...	1/2/2009	90.75	AAPL	12/31/2009	210.73
ABC	Ameriso...	Chesterbr...	1/2/2009	35.57	ABC	12/31/2009	26.07
ABT	Abbott L...	North Chi...	1/2/2009	53.56	ABT	12/31/2009	53.99
ACE	ACE Limi...	Zurich, S...	1/2/2009	53.03	ACE	12/31/2009	50.4
ACN	Accentu...	Dublin, Ir...	1/2/2009	33.67	ACN	12/31/2009	41.5
ADBE	Adobe S...	San Jose, ...	1/2/2009	23.02	ADBE	12/31/2009	36.78
ADI	Analog ...	Norwood,...	1/2/2009	19.67	ADI	12/31/2009	31.58
ADM	Archer-...	Decatur, Il...	1/2/2009	29.19	ADM	12/31/2009	31.31
ADP	Automat	Roeland	1/2/2009	40.41	ADP	12/31/2009	42.82

### 3.3 Creating Calculations

Now that Anna has annual data in the Data Model, she can calculate the overall gain, in both dollars and percent, for each stock. In **Power Pivot**, you can create new columns in any table, and use formulas in those columns that perform many different functions. These calculations are commonly called calculated fields.

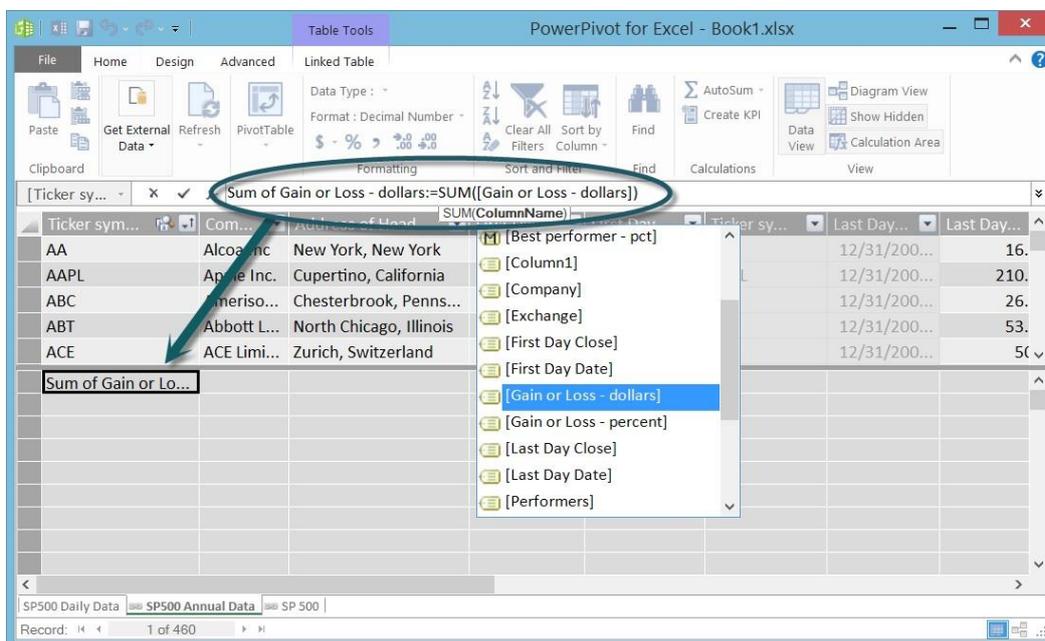
In **Power Pivot**, calculated fields use Data Analysis Expressions (**DAX**) formulas. DAX formulas are very similar to formulas in **Excel**, and work in **Power Pivot** and in PivotTables. If you're familiar with creating formulas in **Excel**, you'll be right at home with **DAX**.

The first formula Anna creates calculates the annual gain, or loss, in dollars. She begins by selecting a cell in Add Column, then types her formula in the **DAX** formula bar. As she types, **Power Pivot** makes suggestions based on available tables and fields in the Data Model.



When the formula is complete, the results are calculated for each row in the table. Anna adds some other columns, including percentage gain for the year.

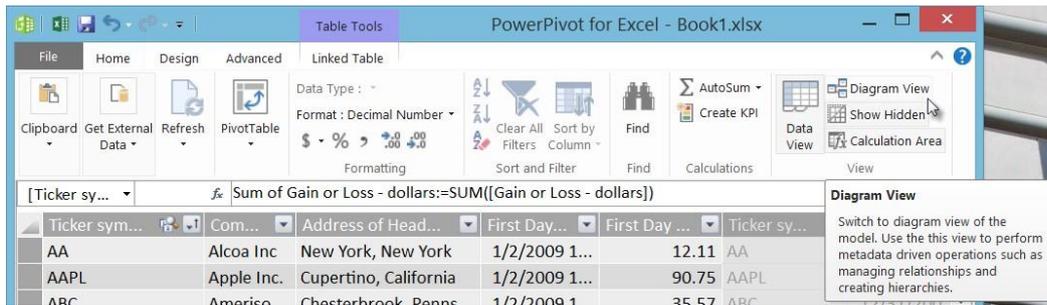
In addition to new columns, Anna wants to create some calculated fields that provide aggregate sums, for one example. She does this by selecting a cell in the Calculation Area of **Power Pivot**, which is the collection of cells between the table data and the tabs. Calculated fields can go in any cell in the Calculation Area.



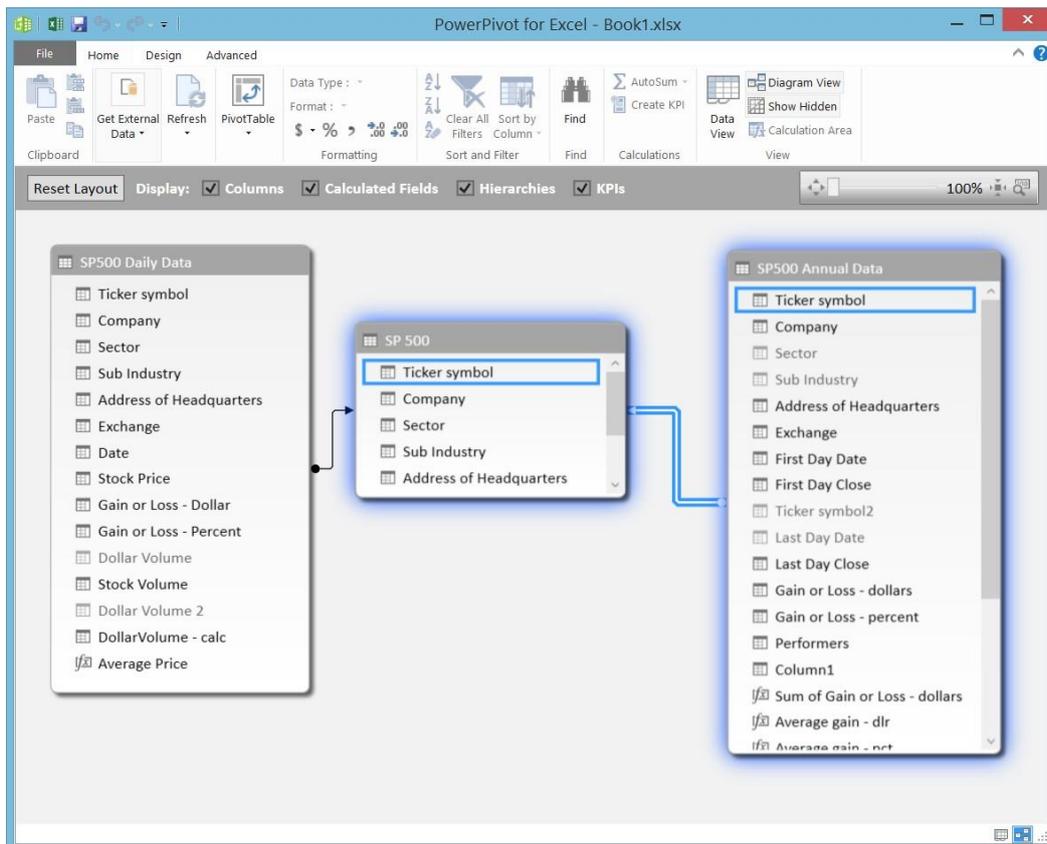
### 3.4 Creating Relationships

In **Power Pivot**, you can also define relationships between tables. Relationships establish a connection between tables, based on one column in each table that has similar or identical data. Relationships let you create reports that include data from related tables.

Anna creates a relationship between the SP 500 table and each of the other two tables she has in the Data Model based on ticker symbol. She can do this by simple drag-and-drop, in the Diagram View in **Power Pivot**. In **Power Pivot**, she selects Diagram View from the View section of the Home ribbon.



To create a relationship, she drags the field of the primary table to the corresponding field in the table with which the relationship should be established. A line connects the tables, indicating the relationship. She can select the line to highlight the fields in the relationship.

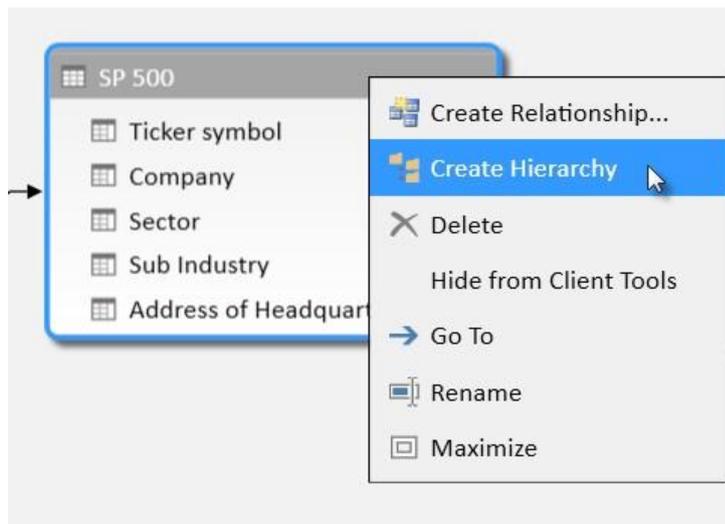


### 3.4.1 Creating Hierarchies

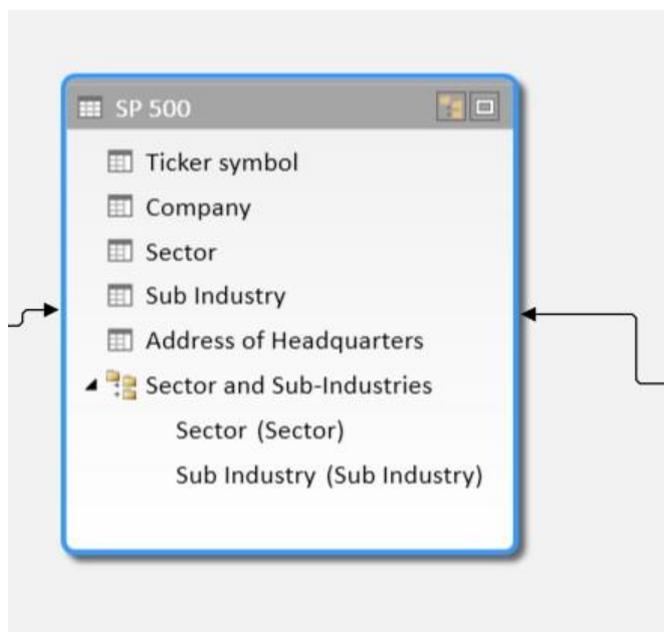
In **Power Pivot**, hierarchies are groupings of data elements that share a logical upper-lower relationship. For example, a geographic hierarchy might be state, county, and city; state is hierarchically above county (and contains many counties), county is above city (and contains many cities).

Using hierarchies in **Power Pivot** enable the creation of reports that can drill-down into data. Anna decides that looking at the Sector and Sub-Industry as a hierarchy would be interesting, especially if she can create a report that would let people drill-down into a given Sector. There are multiple ways to create hierarchies in **Power BI**; Anna decides to create a hierarchy in the Diagram View of **Power Pivot**.

To create a hierarchy in the SP500 Annual Data table, Anna right-clicks the table in Diagram View, and selects Hierarchy from the menu that appears.



She names the hierarchy Sector and Sub-Industries, and includes the Sector field and the Sub Industry field from the SP 500 table. The order in which the fields are arranged establishes the hierarchy.



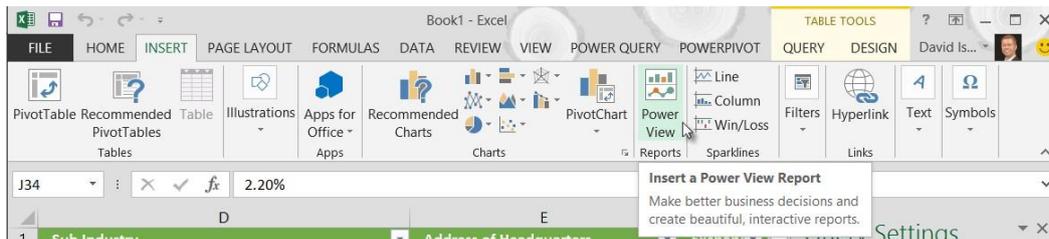
With the relationships established, and the hierarchy created, Anna is ready to start building reports. She wants the reports to be dynamic and engaging, with lots of cool visuals. And she wants them to be interactive, so when she posts them, her coworkers can review and analyze the data in ways that are meaningful – or most interesting – to them. The self-service **Power BI** feature that gives her all that, and more, is **Power View**.

**Power Pivot** summary: In **Power Pivot**, you can customize, extend with calculations and hierarchies, and manage the powerful Data Model that is part of **Excel**. **Power Pivot** works seamlessly and automatically with **Power Query**, and with other features of **Power BI**, so that you can manage and extend (with calculations and hierarchies) your own custom database (the Data Model) in the familiar environment of **Excel**. **Power Pivot** includes any data you include from **Power Query**, plus any other data you add to the model. In addition, the entire Data Model in **Power Pivot** – including tables, columns, calculations, hierarchies, and any other customizations – are exposed as report-ready elements in **Power View**.

### 3.5 Power View

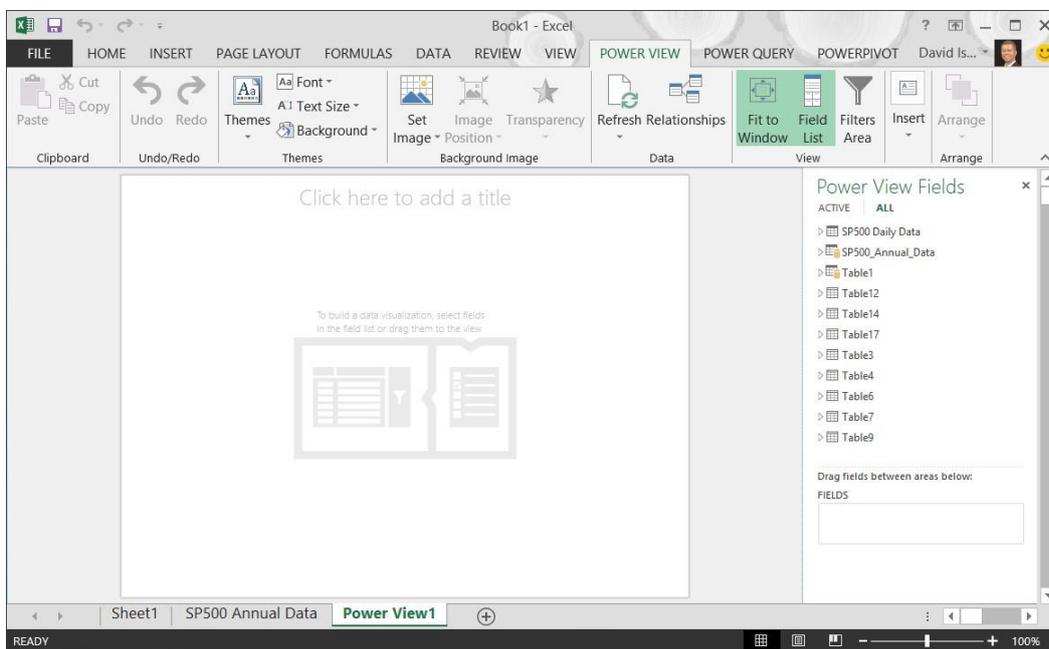
In **Power View**, you can create engaging, interactive, and insightful visualizations with just a few clicks. All sorts of visualizations are capable in **Power View**, and the reports created in **Power View** are easily shared with others, and interactively analyzed by report consumers.

To create a new **Power View** report in **Excel**, Anna selects the **Power View** button, found in the Reports section of the Insert ribbon in **Excel**. A new worksheet tab is created.

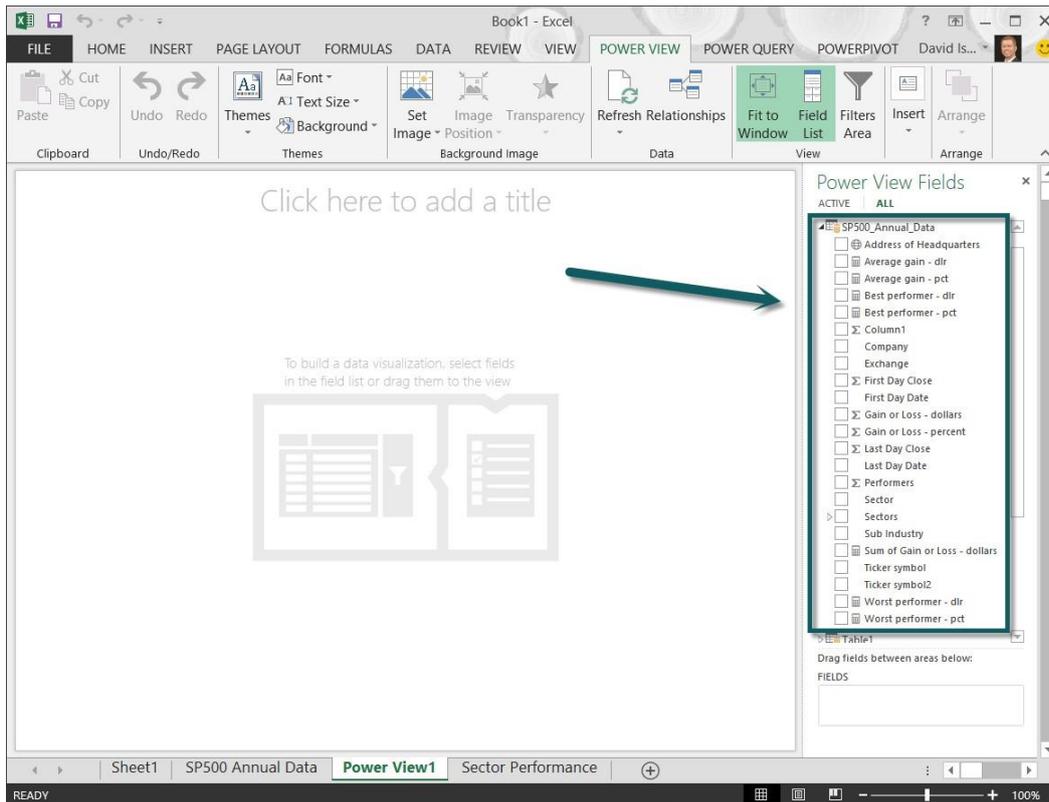


Note that the **Power View** tab in the ribbon only appears when a **Power View** report is the active tab. With the new **Power View** report sheet created, the **Power View** tab appears in the ribbon and Anna is ready to create a report.

### 3.5.1 The first report

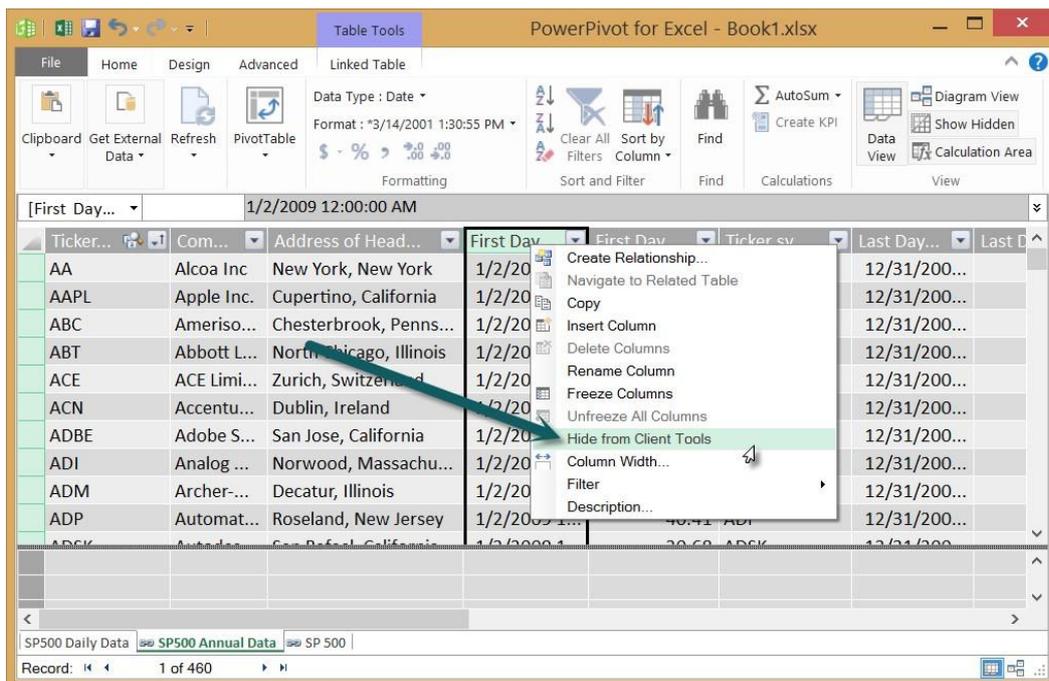


In her first report, Anna wants to show individual sector performance, and how the sectors compared on each exchange. She starts by going to the **SP500\_Annual\_Data** table in the **Power View** Fields pane, and clicks the down arrow to view its available fields.

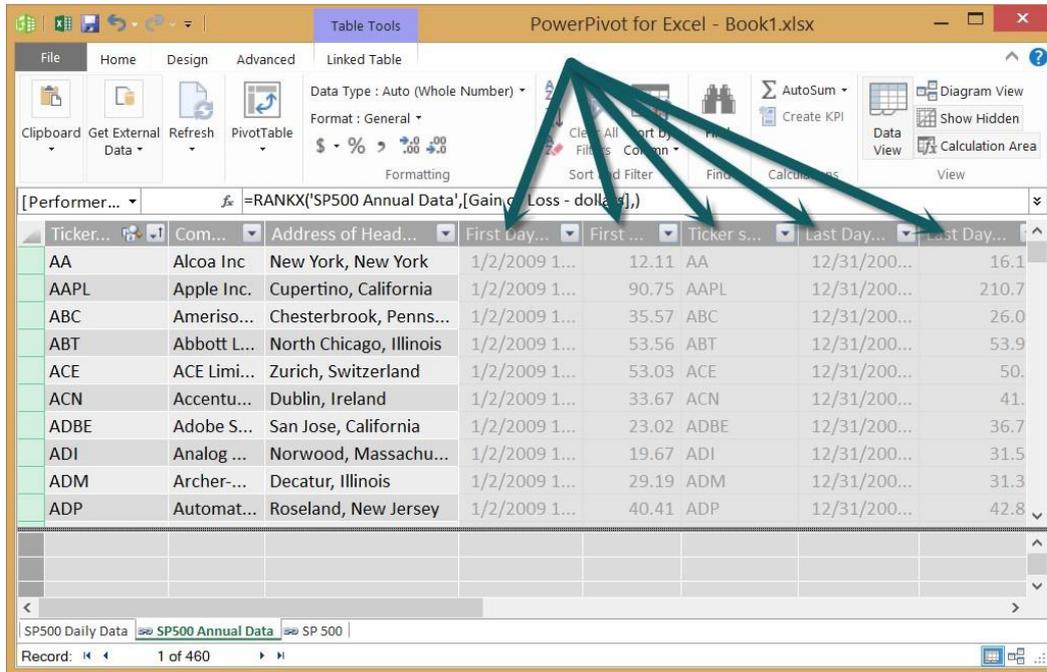


That's a lot of fields, many of which she doesn't need to create her reports. She may have gotten a bit carried away with all the calculated fields she created in **Power Pivot**. It's a little bit confusing to have all those available fields, and she doesn't want to hunt through them each time she's looking for a field to add to a visualization.

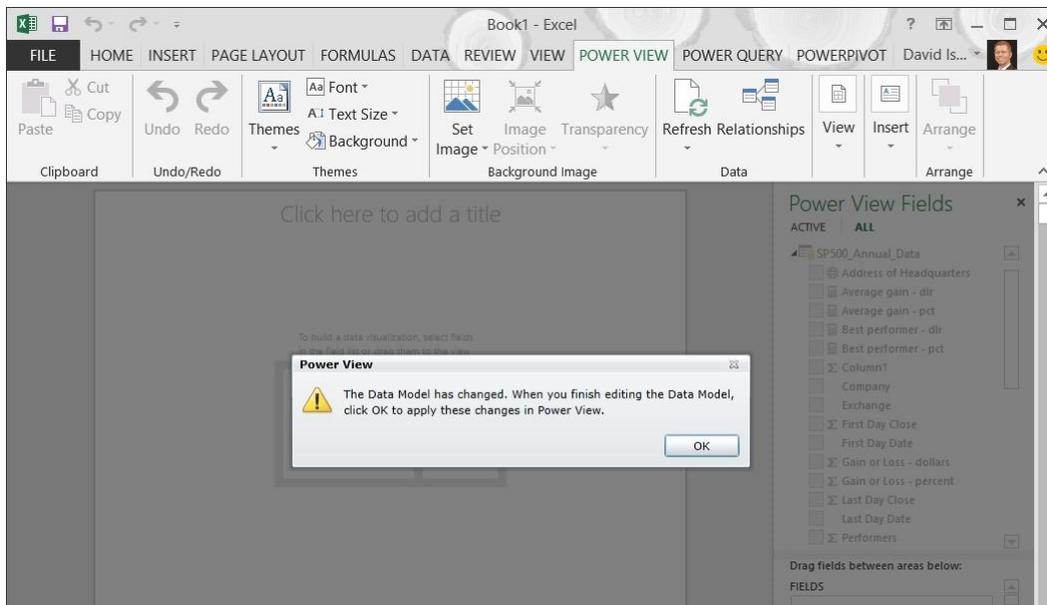
She can address this by hiding certain columns, or fields, and thereby prevent them from showing up in the table when she's creating reports in **Power View**. She selects the Manage button from the **Power Pivot** ribbon to launch **Power Pivot**. She selects the table that contains the SP500 Annual Data, right-clicks the column she wants to hide, and selects Hide from Client Tools.



The underlying data is still in the table – and still in the Data Model – but the field will be hidden from client tools such as **Power View**. She hides a few more columns she won't need for creating reports. When a column is hidden from client tools, it becomes grayed out in **Power Pivot**.

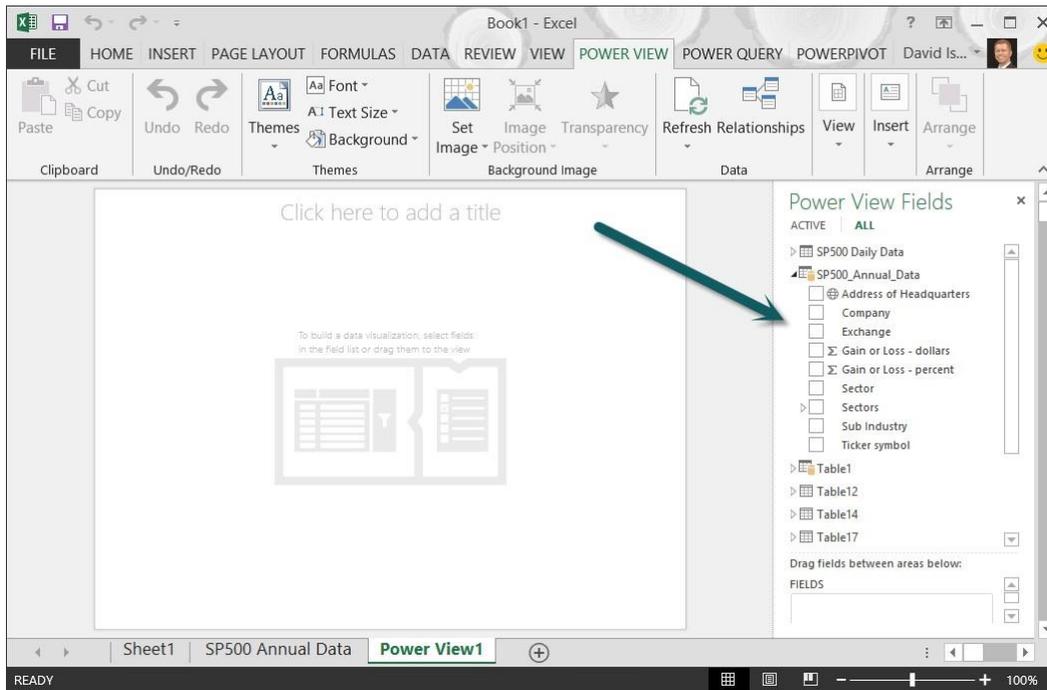


When Anna goes back to **Excel**, she sees a notification that the Data Model has changed. This notification appears any time she makes modifications to the Data Model, whether she's hiding fields, creating new calculations, or removing custom columns.



Anna smiles at this – because it means she can continue to modify and customize her Data Model, even after she thinks she's created the right set of data, and the best collection of calculated fields. She can customize all she wants, while creating her reports, and **Excel** makes sure the Data Model and all her reports are synchronized and current.

She selects OK, and reviews the list of available fields in the SP500\_Annual\_Data table. She decides the fewer number of available fields is much more manageable.



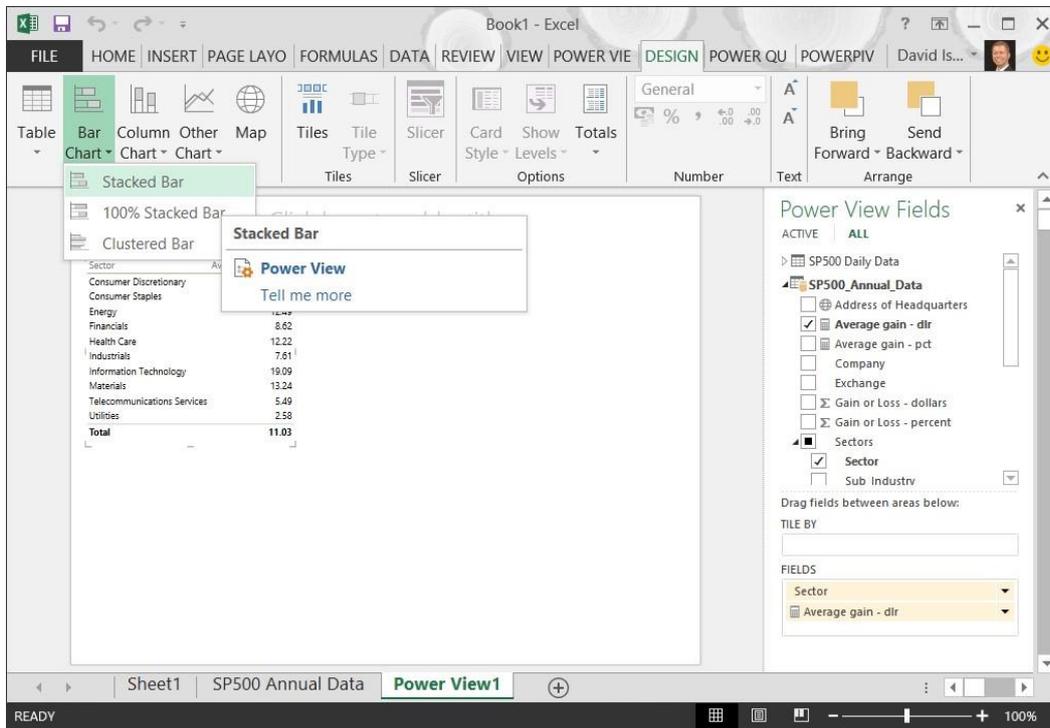
If she needs a field she's hidden, she can go back to **Power Pivot** and unhide the field just as easily, using the same steps. When a hidden column is selected in **Power Pivot**, the right-click menu option changes to Unhide from Client Tools.

In each of the following reports, Anna learns something about **Power View** that makes creating her reports easier to create, more effective, and more engaging for her report consumers. The First Report – Sectors

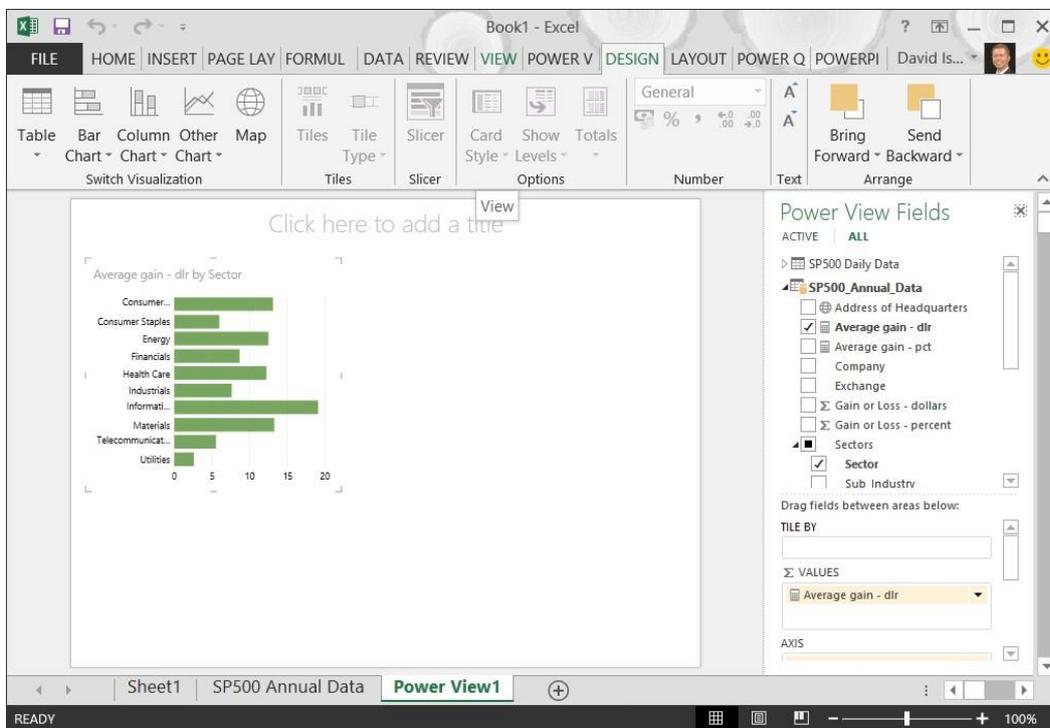
To get started with her first report, Anna drags the Gain or Loss – dollars field from the **Power View** Fields pane onto the report canvas. A table is created. Then she drags the Sector field onto the table she just created. **Power View** creates the following table.

Gain or Loss - dollars	Sector
981.54	Consumer Discretionary
190.66	Consumer Staples
462.14	Energy
697.99	Financials
598.75	Health Care
456.45	Industrials
1221.69	Information Technology
357.54	Materials
27.44	Telecommunications Services
77.31	Utilities
<b>5071.51</b>	

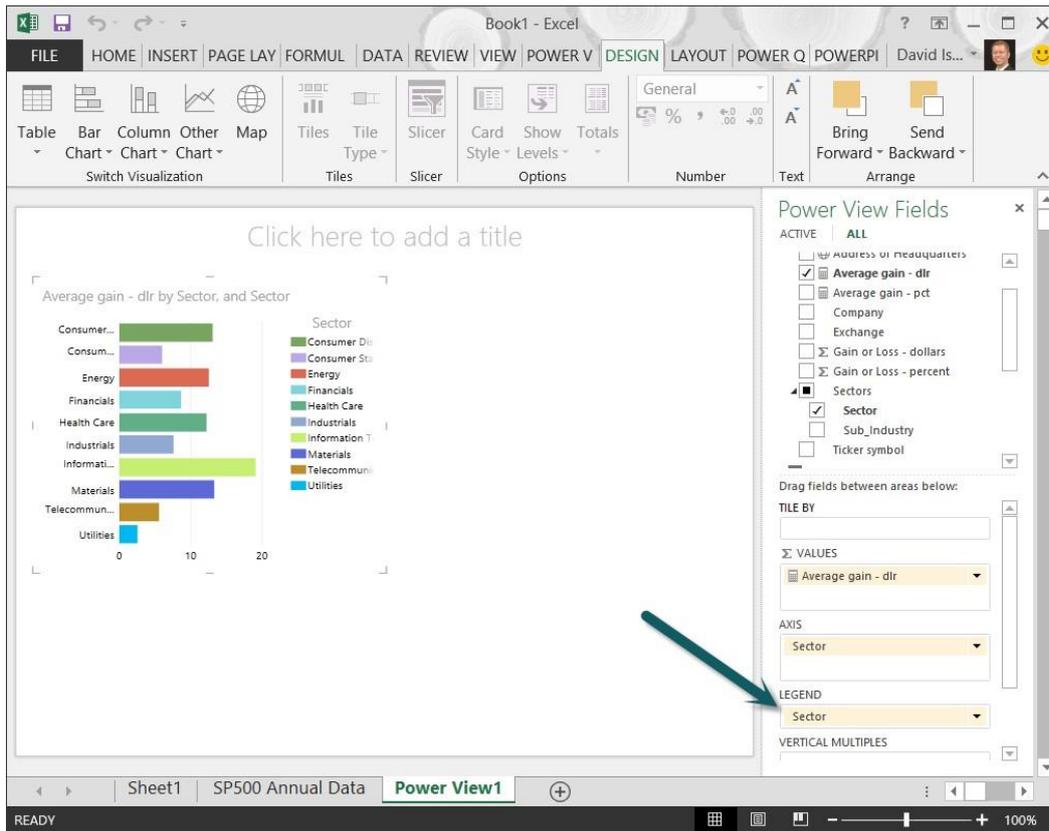
**Power View** automatically creates a sum of the gains. Anna decides it would be more interesting to see the average gain for each sector, at least in this report, so she adds that field instead. She wants to see this as a bar chart, so she selects the table, then selects Design > Switch Visualization > Bar Chart > Stacked Bar from the ribbon.



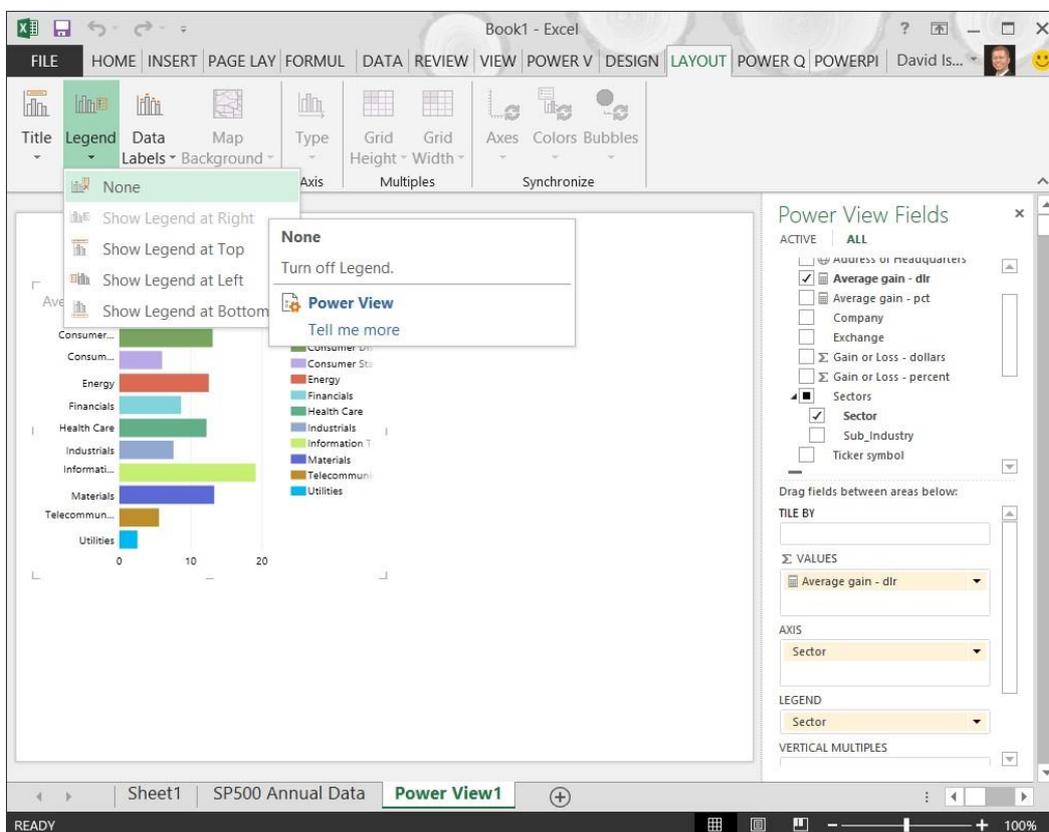
Now she's getting somewhere. But they're all the same color, and she wants each sector to be its own color.



She needs to change the legend for her Stacked Bar chart. She wants a different color for each sector, so she selects her Bar Chart visualization, grabs the Sector field again, and this time places it into the Legend section of **Power View** Fields. There, that's better.



She already has the sector name to the left of each bar, so she doesn't need to display the legend on the visualization itself. To remove that legend, with her chart selected, she goes to Layout > Labels > Legend and then selects None.

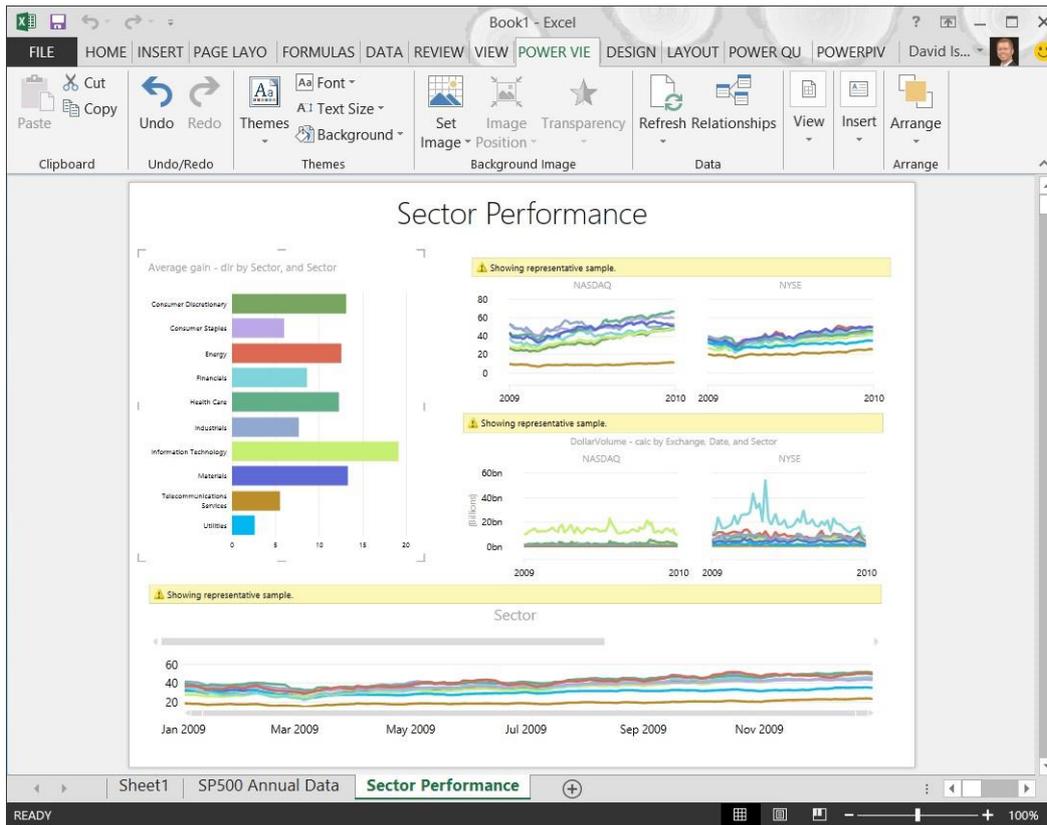


The coloring of the Bar Chart is still using Sector as a legend, but the legend itself isn't being displayed in the visualization. Great – that's just what she wanted.

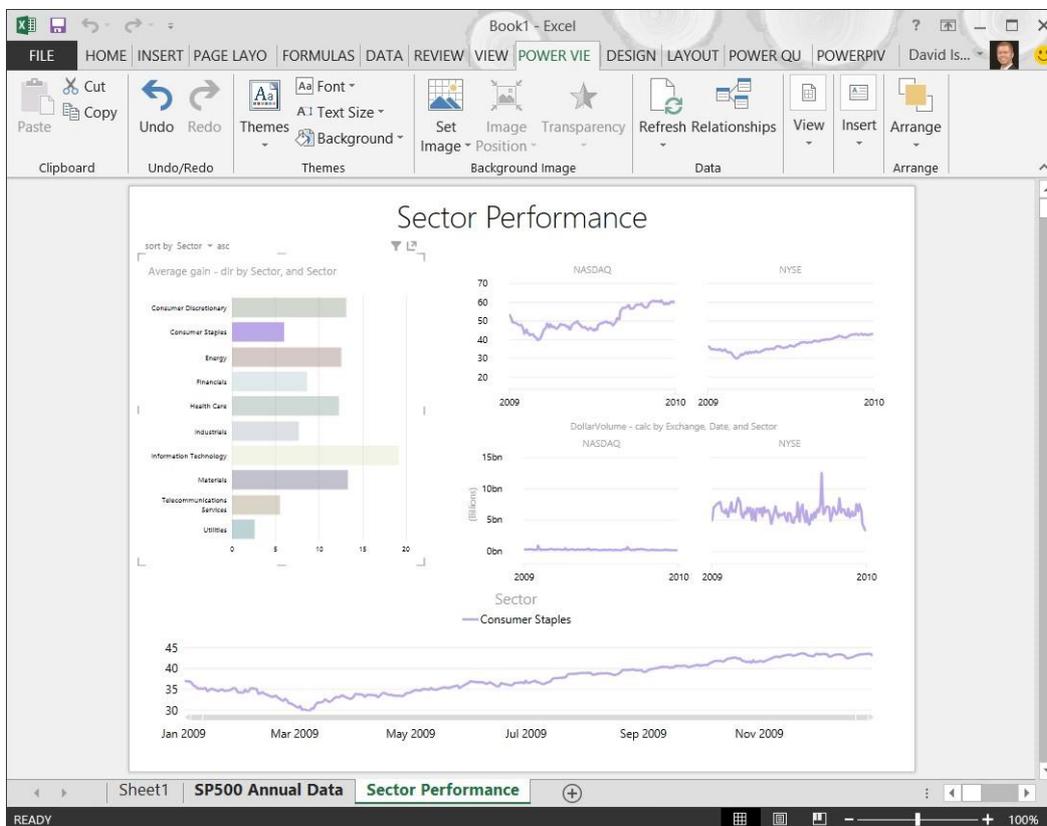


Let's jump ahead a little bit. Anna is getting the hang of creating charts for this report; she creates a handful on this report page to highlight each sector, and how it performed annually, and throughout the year. She's pretty happy with the report page now, and types in the title Sector Performance on the report itself. She likes to keep the workbook tabs clean too, so she also renames the tab itself to Sector Performance.

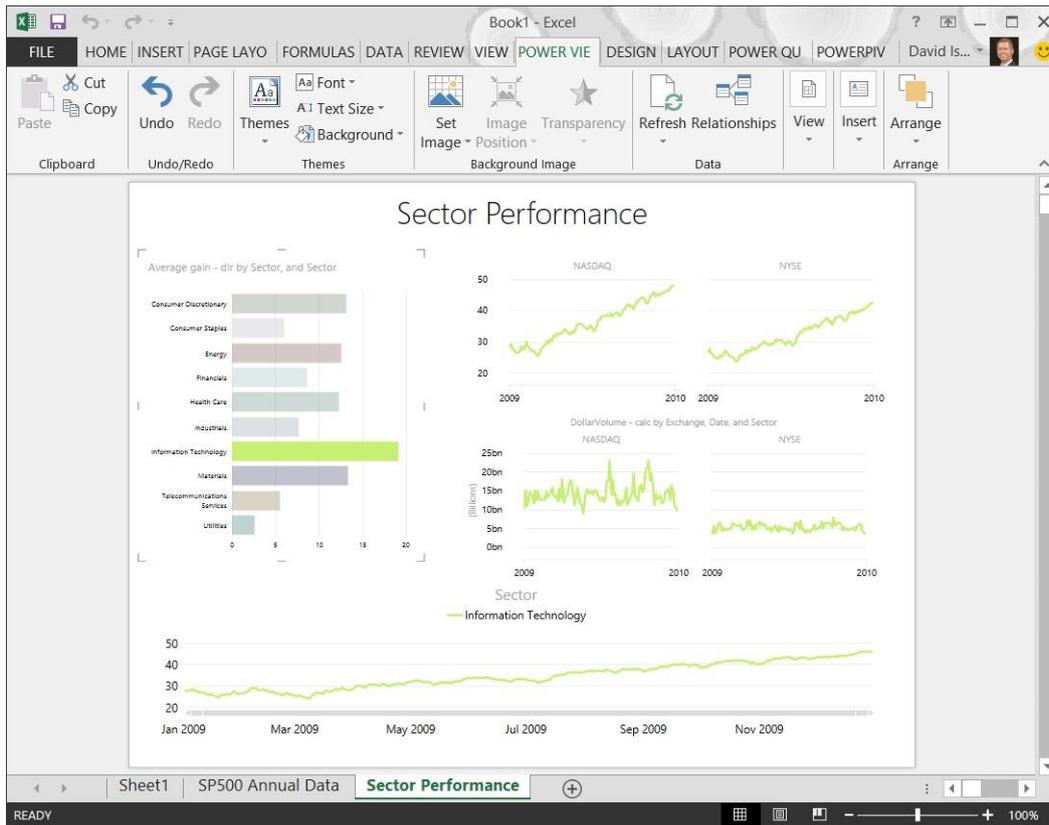
When the page is first displayed, all sectors are shown in each visualization. That's a little bit busy, as the following screen shows, but just wait.



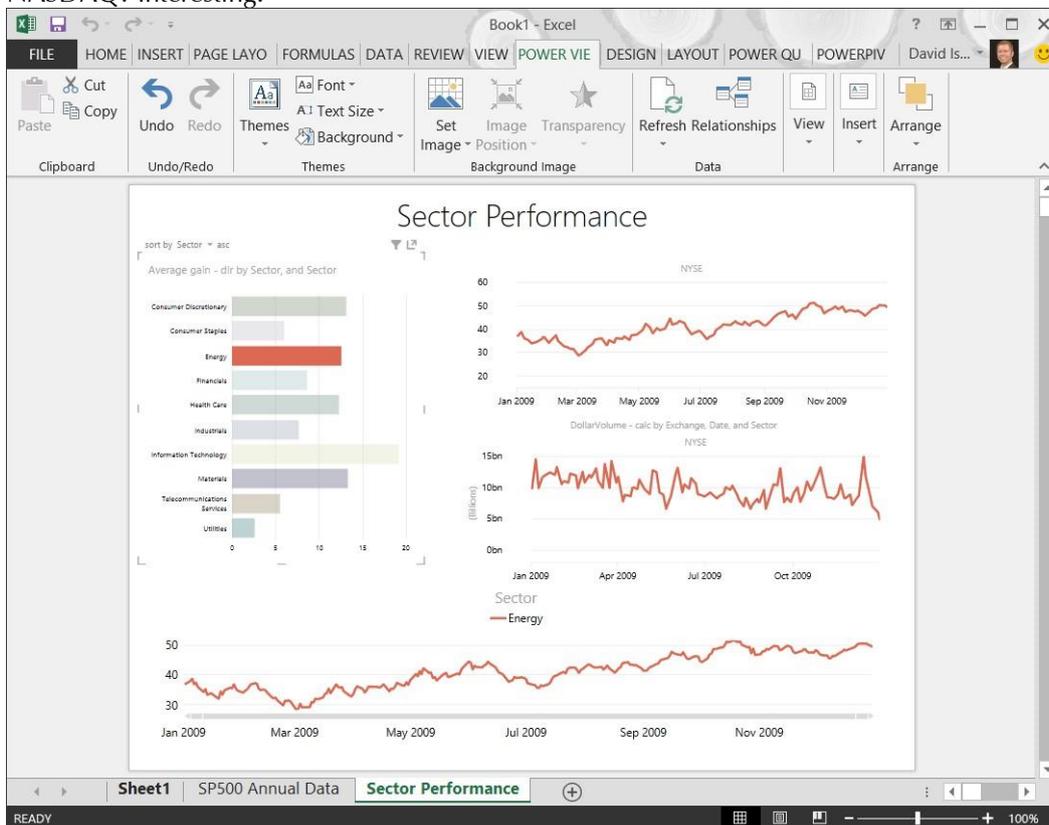
When a Sector in the bar chart is clicked or tapped, the entire report is refined to show just that Sector, and each visualization shows how that Sector performed. Here's the Consumer Staples sector.



Notice that the color of each line graph also reflects the color of the Sector selected in the Bar Chart. That's because Anna selected the same field – Sector – for the legend of each line chart. Here's what the Information Technology sector looks like, when selected from the Bar Chart.



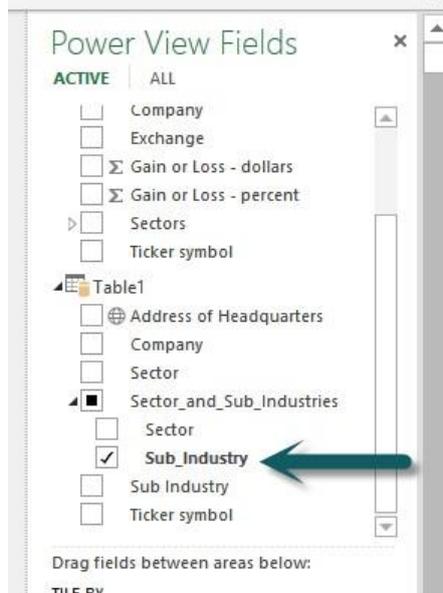
And one more sector - Energy. Notice that the chart in the upper right, which displays the daily dollar volume of traded securities for the sector, no longer has a graph for NASDAQ. Why is that? With a little investigation, Anna learns that's because there are no NASDAQ-traded securities in the Energy sector, so **Power View** automatically removed that chart from the visualization. No Energy securities traded on NASDAQ? Interesting.



Anna knows that anyone viewing this report will also be able to select a Sector, and the report will display the filtered results, just like what she's seeing. That will be a great presentation tool, she thinks. This report page is done, she decides. On to the next report, the next visualizations, and the next insights.

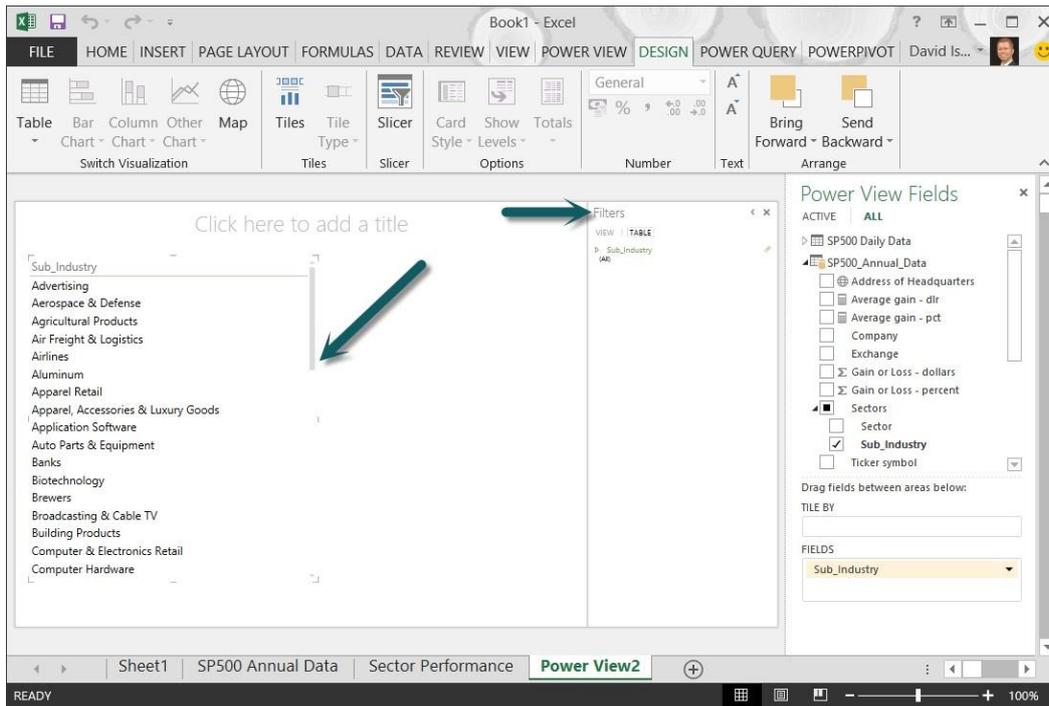
### 3.5.2 The Second Report – Consumer Staples

Now Anna wants to look deeper into one of the Sectors. This report follows a similar format, but goes one layer deeper in the Sector hierarchy: Sub-Industry. Anna drags the Sub-Industry field from the Sector hierarchy onto the report canvas. It's good to point out that when you create a hierarchy, each level of the hierarchy is still available individually for creating reports.

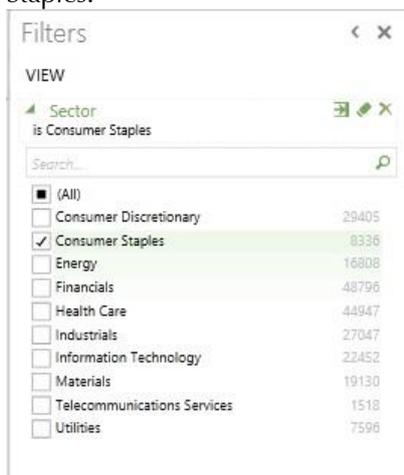


For example, in this second report, Anna grabbed the Sub-Industry field and dragged it onto the canvas. That worked to get started, but she has way too many Sub-Industries to display. And really, she only wants the Consumer Staples sector.

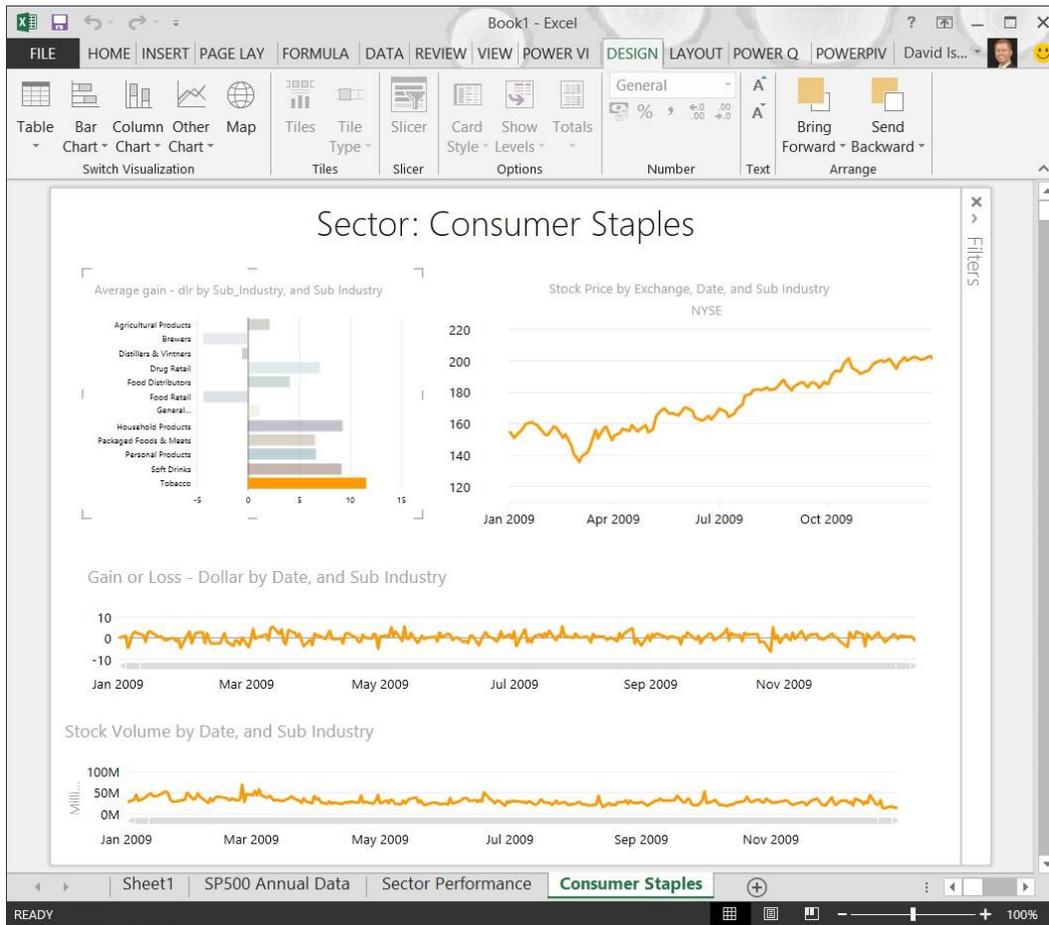
Notice, in the following screen, that **Power View** provides a scroll bar in the table so Anna can view the rest of the data in the table. Also notice the Filters pane in **Power View**. The Filters pane can be used to filter the selected Table, or the entire View (the entire **Power View** report).



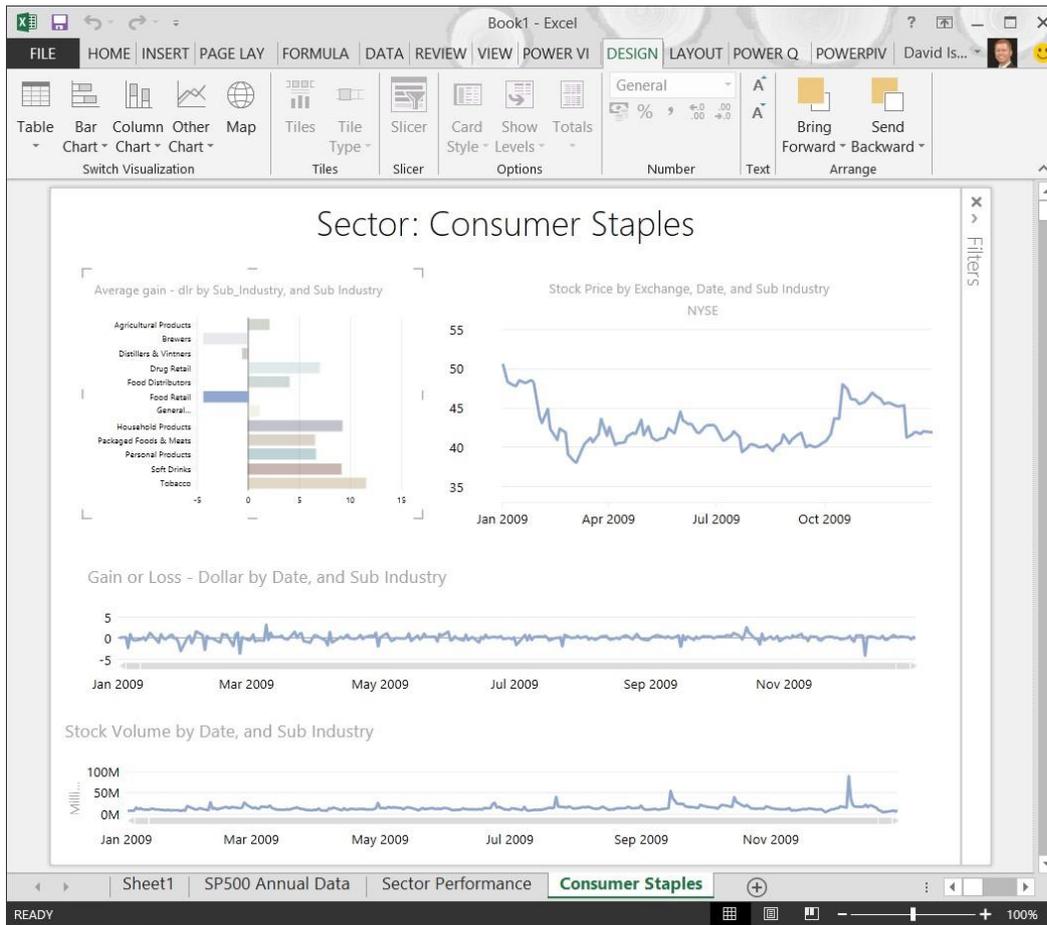
Anna wants the entire report to contain only data on the Consumer Staples sector, so she drags Sector to the View section of the Filters pane. She then clicks the down arrow next to Sector, and selects Consumer Staples.



We'll jump ahead again. Anna creates a few more visualizations, and when she's done, has a report that analyzes its Sub-Industry performance for the Consumer Staples Segment. She renames the **Power View** tab in **Excel** to Consumer Staples. Similar to her first report, selecting one of the Sub-Industries in the Bar Chart filters visualizations in the rest of the report.



She checks another Sub-Industry, to make sure the charts behave the way she wants. Sure enough, they look just as she expected.



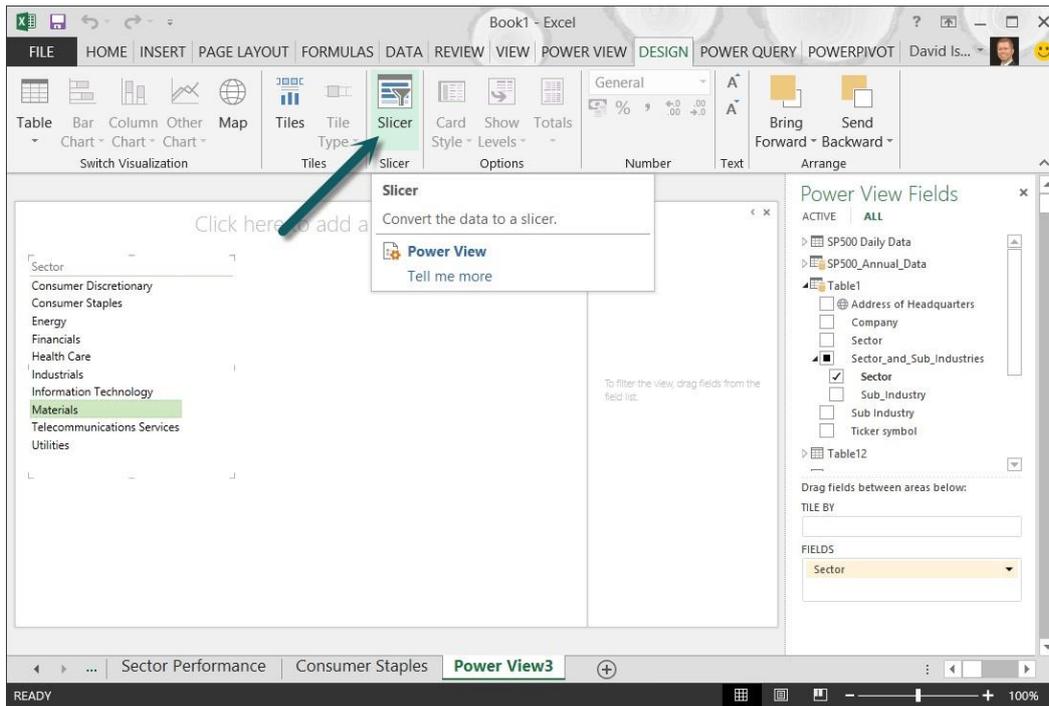
She decides this report looks good. On to the next report.

### 3.5.3 The Third Report – Sub-Industry Performance

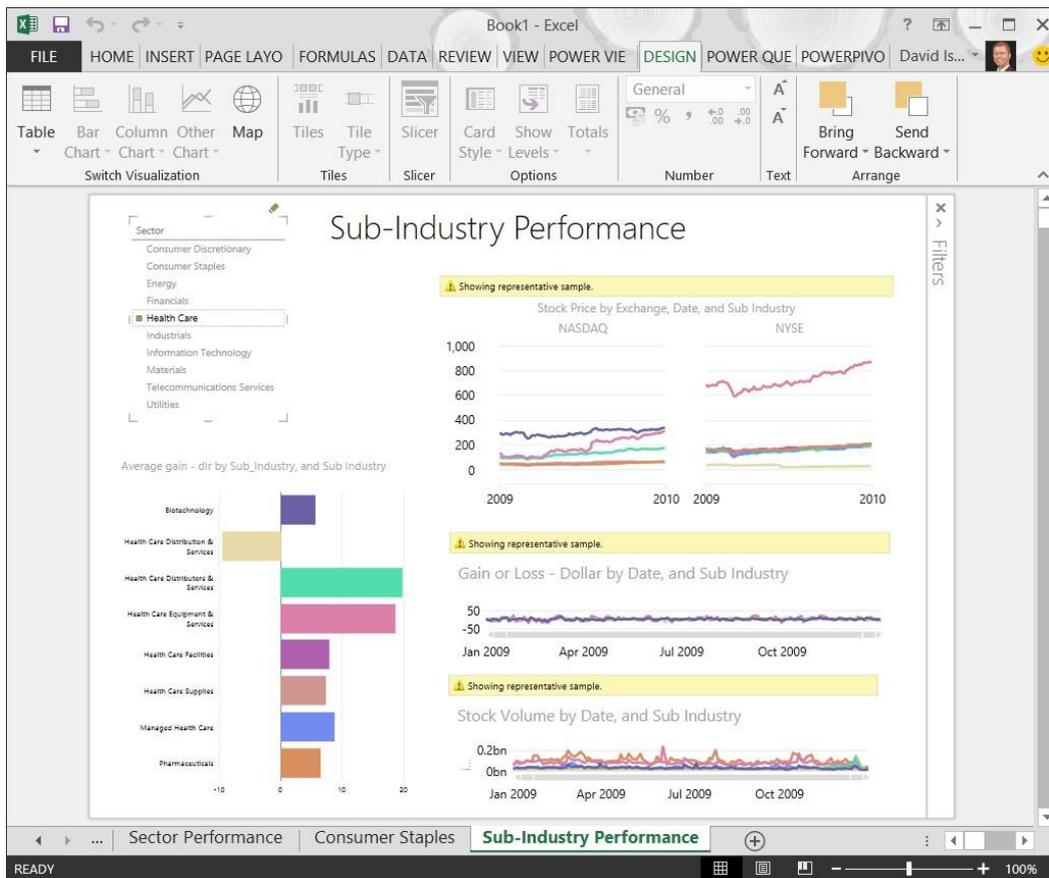
Anna feels pretty good about her Consumer Staples report, but she's not sure she wants to create a different **Power View** report for each Sector. She's guessing there's a way to get all Sectors, and each associated SubIndustry, onto one report.

This is a job for slicers. Slicers in **Power View** behave similarly to Slicers in **Excel** – they filter all visualizations at once.

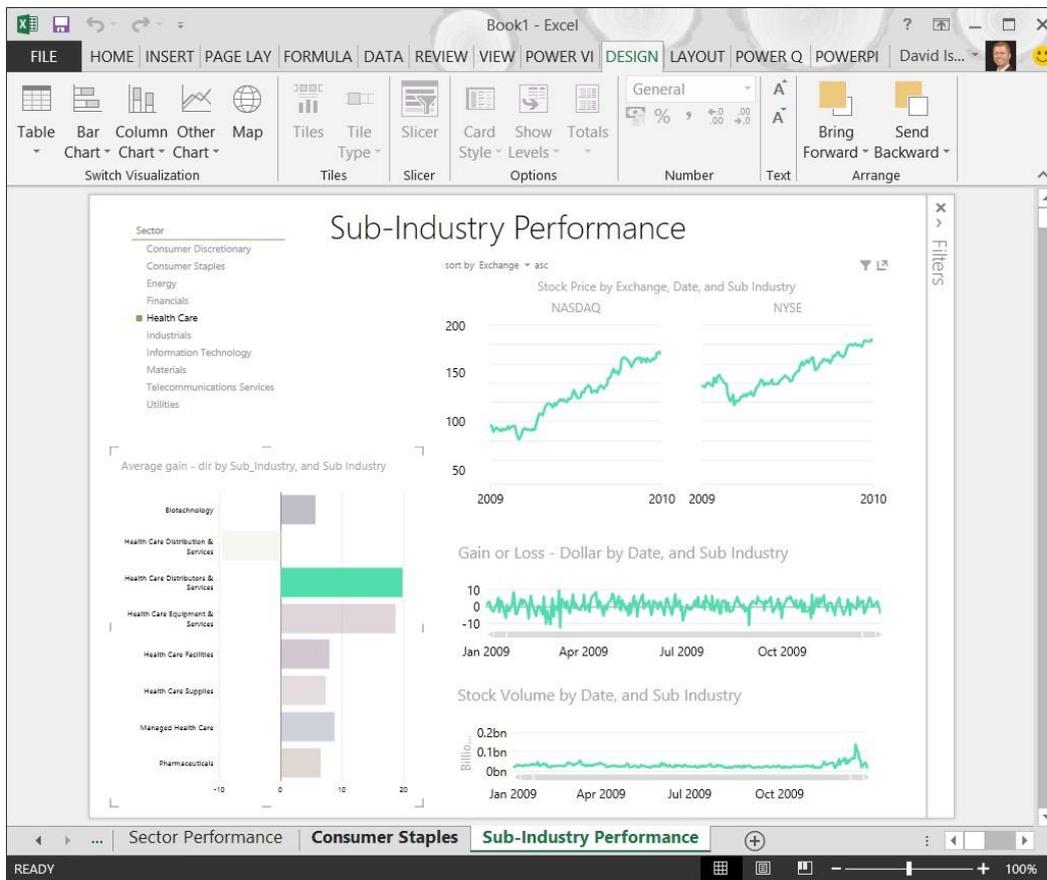
To create a Slicer, Anna drags the field by which she wants to slice the data – in this case, the Sector field in the SP 500 table – onto the canvas. A **Power View** table is created based on that field. Then, with the table selected, she selects Design > Slicer > Slicer from the ribbon.



She creates a few more visualizations, including a Bar Chart that will display each Sub-Industry, enabling report consumers to select a Sector, then a Sub-Industry, to visualize its performance. When she finishes the report, she names it Sub-Industry Performance, shown in the following screen.



When report viewers interact with the report, they can select a Sector from the slicer (upper left), and then select a Sub-Industry from the Bar Chart (lower left), and the daily line charts will reflect the performance of that SubIndustry. For example, the following screen shows the Health Care Sector, and its Health Care Distributors & Services Sub-Industry.

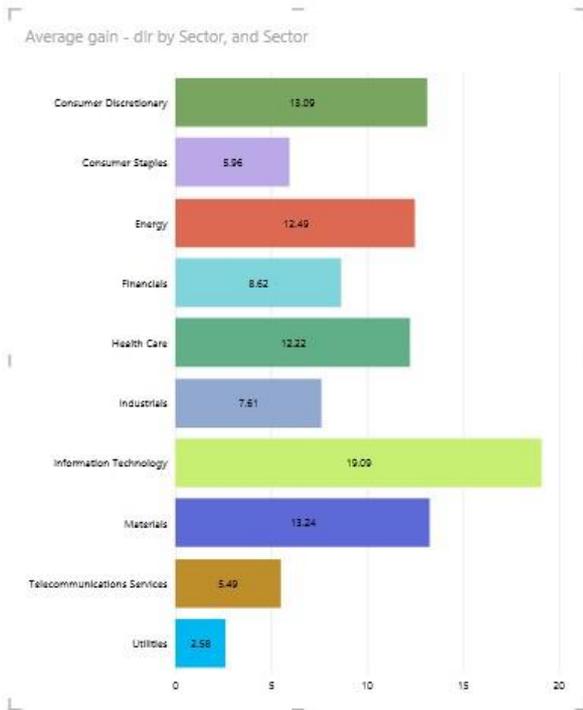


This report looks good to Anna. But she also thinks her coworkers will want to drill-down into a given Sector, look at the numbers, and compare them to others. She also thinks they'll want to compare the average dollar growth to the average percentage gain... side-by-side. She creates another **Power View** report, and gets started.

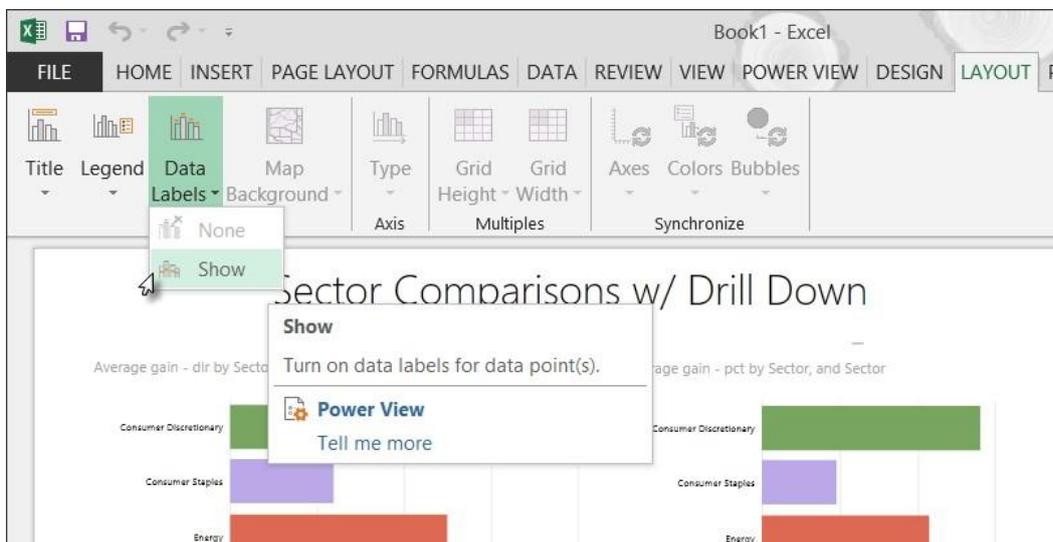
#### The Fourth Report – Sector Comparisons

For this report, Anna makes use of the hierarchy she created in **Power Pivot**. She creates a new **Power View** report – this time by selecting **Power Pivot > Insert > Report**. She drags the Sectors hierarchy from the SP500 Annual Data table onto the canvas.

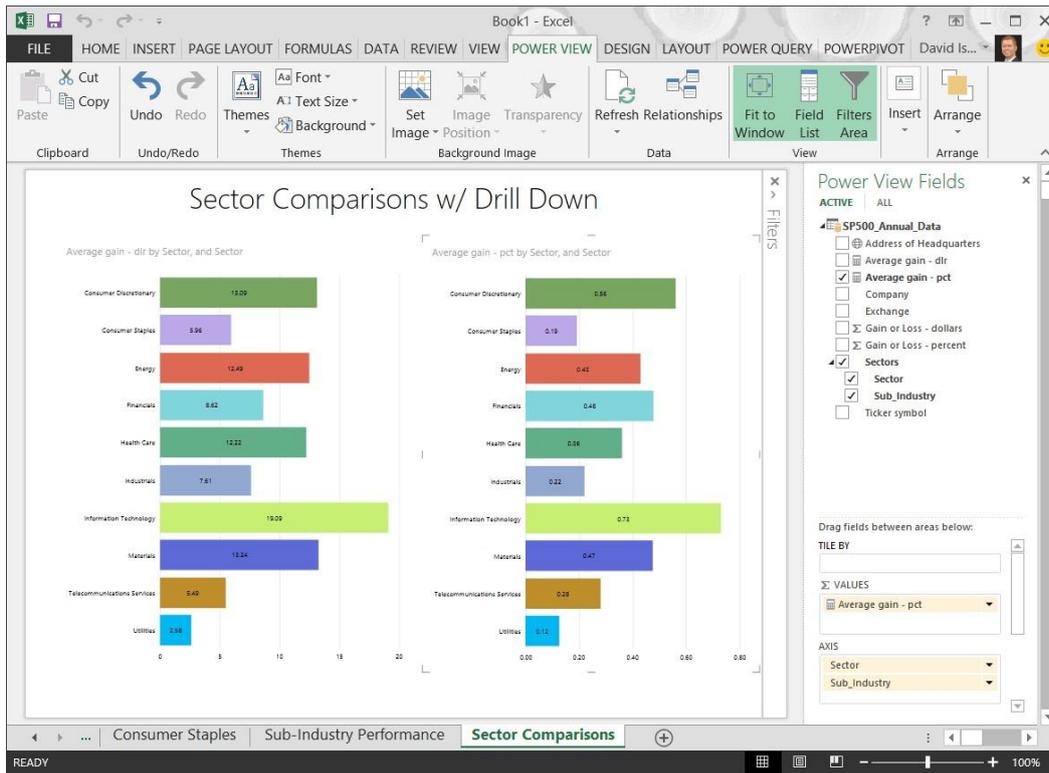
She adds Sector to the Legend area of **Power View** Fields, and then Average Gain - dlr, then changes the visualization to a Stacked Bar chart. The following image shows the result.



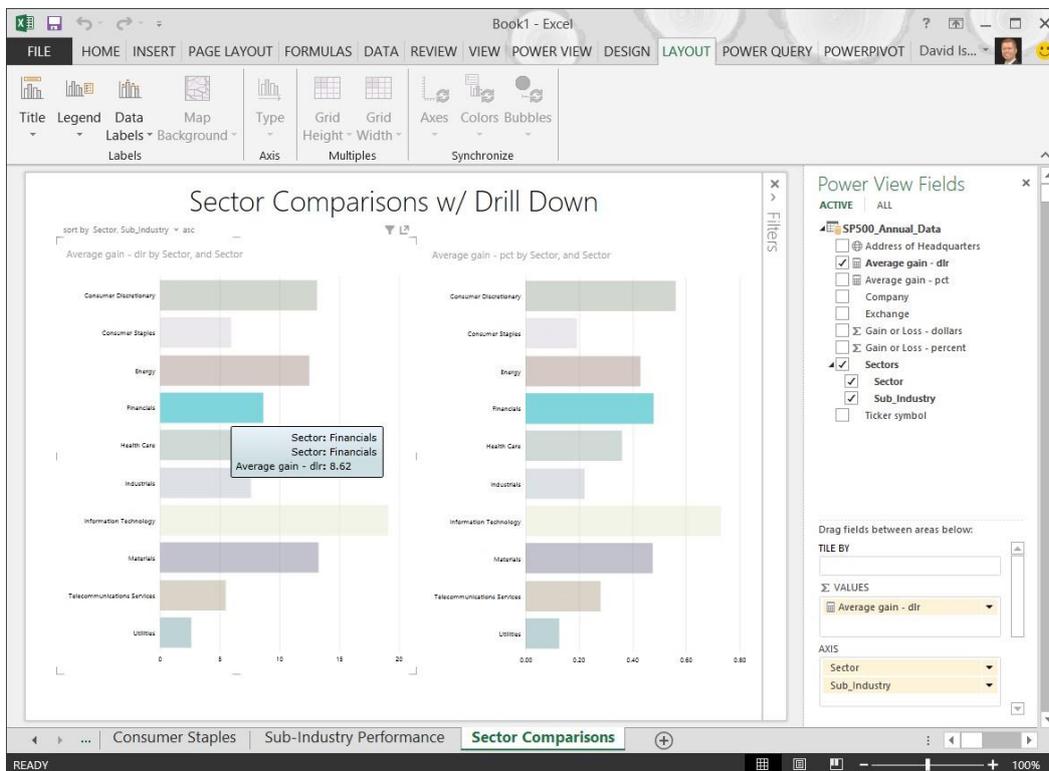
She makes a similar chart for Average Gain – pct, and aligns them side-by-side. She names the **Power View** tab and the report to Sector Comparisons, and titles the report Sector Comparisons w/Drill Down. Anna decided the visualizations would be better if each bar also included a value. She goes to Layout > Data Labels, and selects Show.



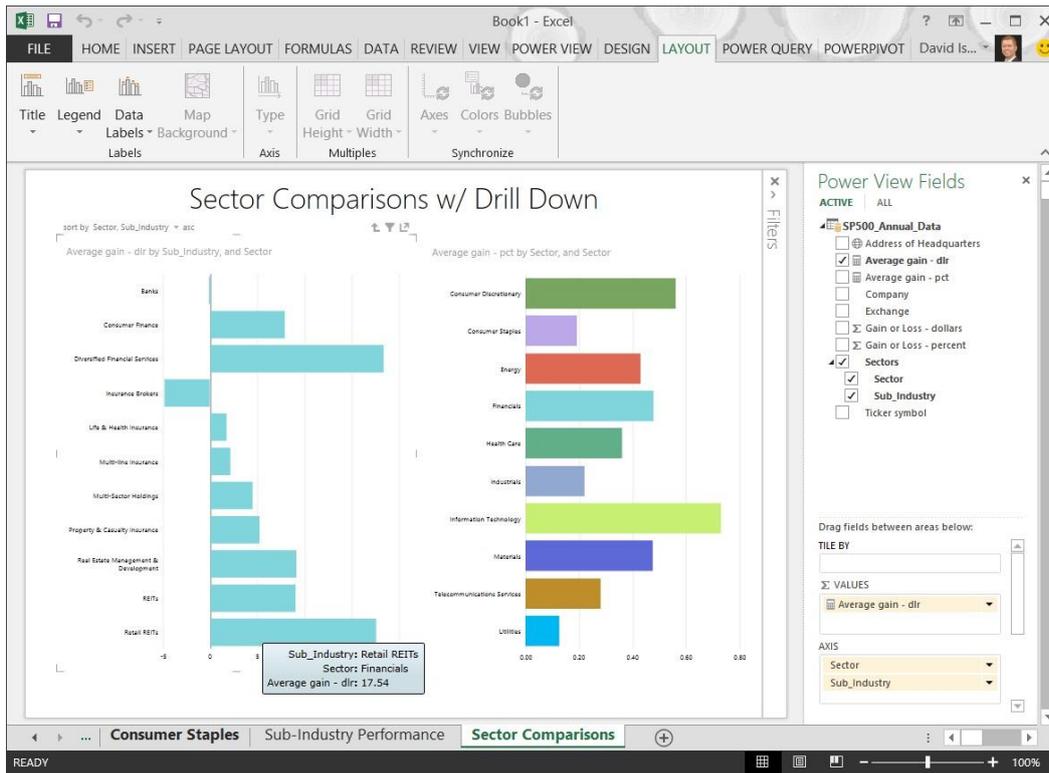
She adds Data Labels to both reports. The **Power View** report now looks like the following.



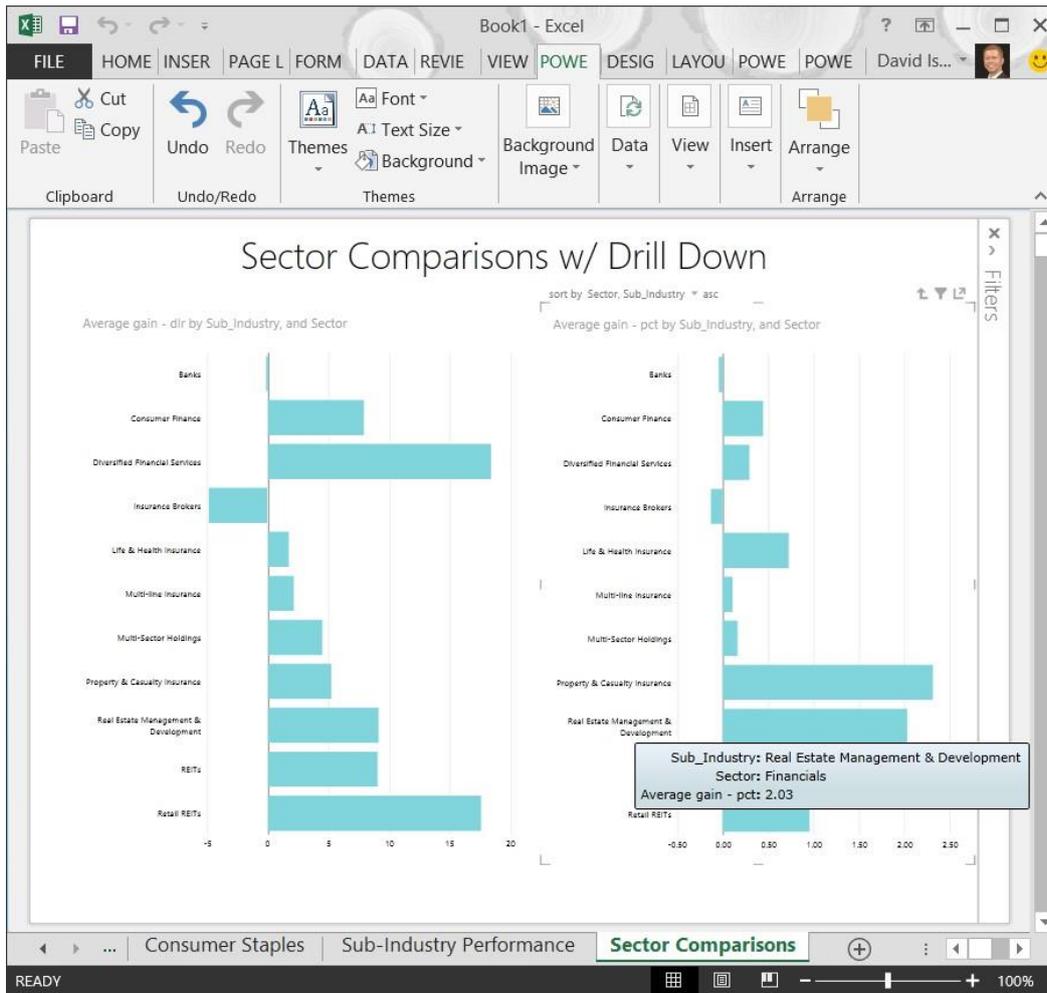
Like other reports, the charts stay synchronized when a sector is selected. And when hovering over a data point, a banner appears that displays information about that data point, as shown here.



But the most interesting aspect of this chart is the ability to drill-down into the hierarchical data. Since Anna created a hierarchy, and included it in the visualization, she (and anyone viewing this report) can double-click any Sector and drill-down into the Sub-Industry details.



When she drills-down into the Financials sector, and looks at Retail REITs, she finds something: in the middle of the global downturn, which was initiated by sub-prime mortgages and a dive in real estate values, the real estate industry (at least the three Sub-Industries of the Financials Sector, below) were growing better than most. That struck her as interesting, and unexpected.



When she's ready to drill-up, or go back up a level in the hierarchy, Anna selects the drill-up icon, found in the upper right corner of the visualization.

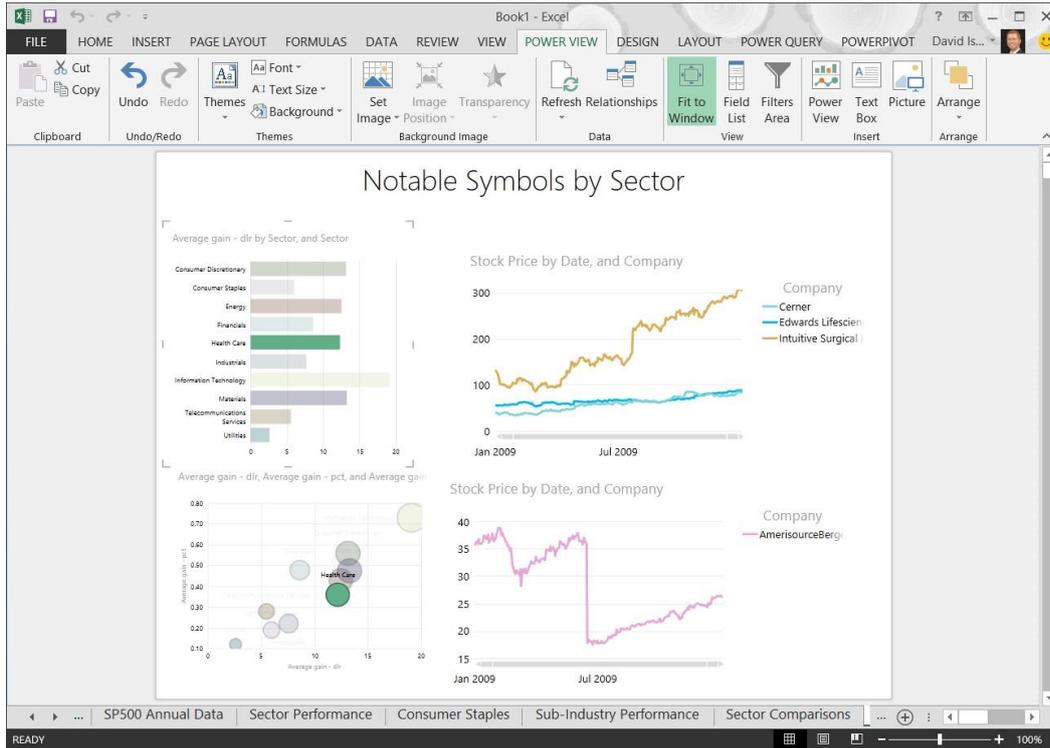


She likes this pair of visualizations. She decides to leave it at that, and go on to her last report.

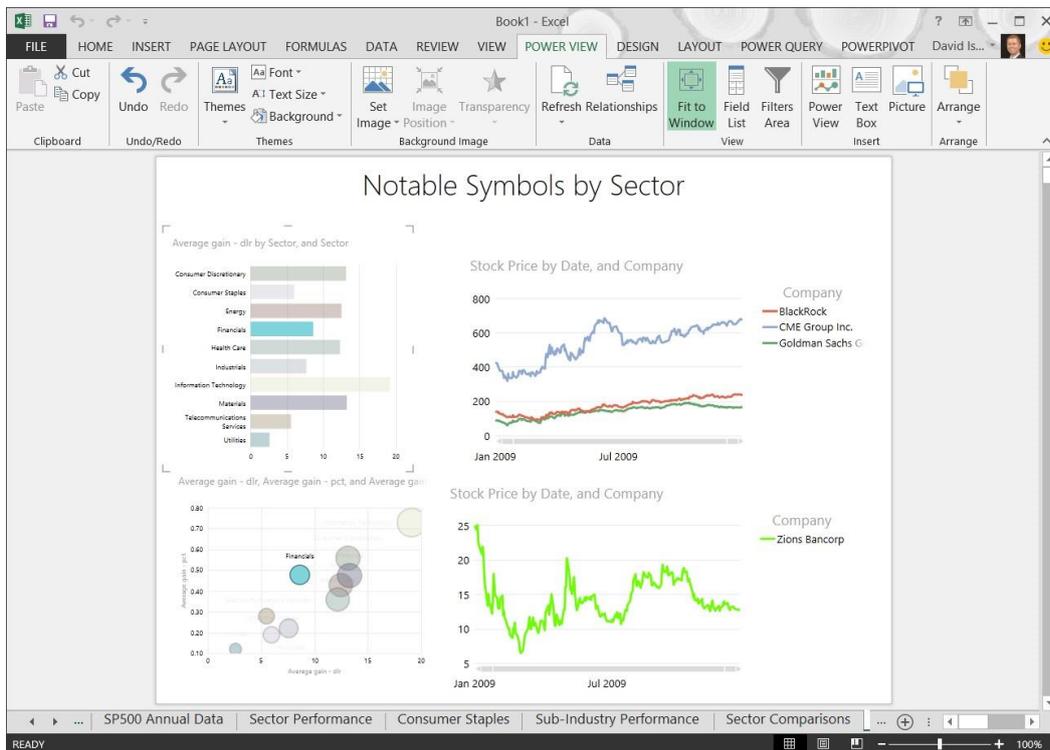
### 3.5.4 The Last Report - Performers

One perspective missing from her reports is individual stock performance. She doesn't want to show every stock in the S&P 500, but selected stocks – based on performance in their sector – would be interesting.

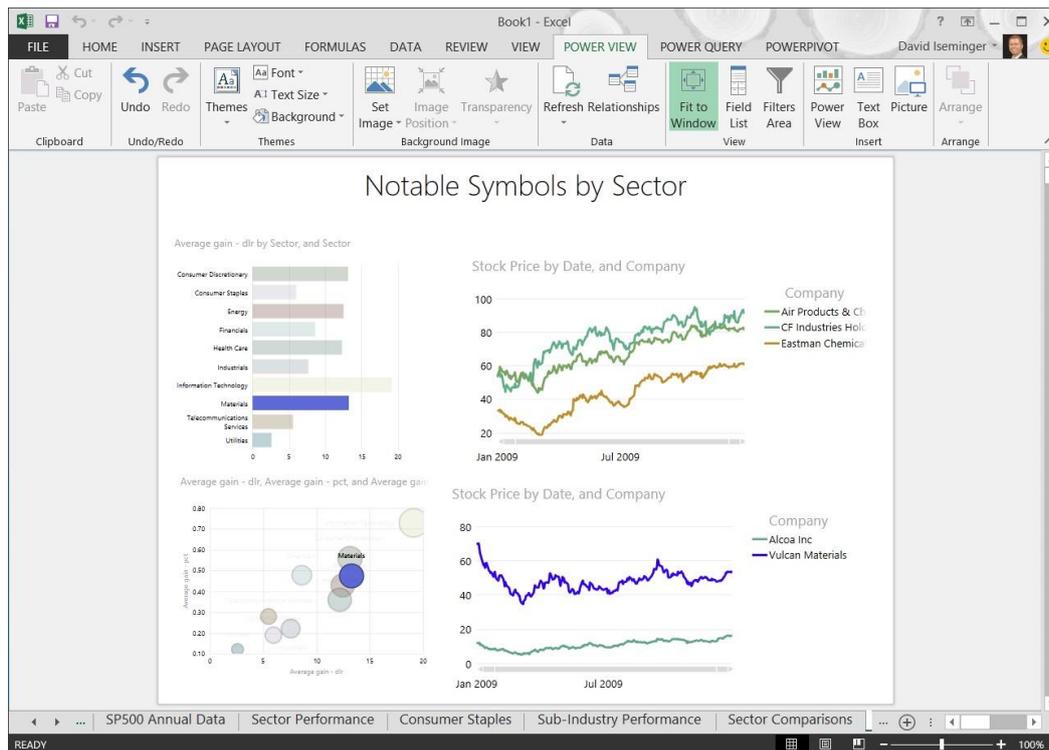
This time we'll look at her finished report first, and review what she did. Here it is, with the Health Care sector selected.



And here it is, with Financials selected.



And the following view, showing the Materials sector.



Anna uses the scatter chart, in the bottom left portion of the canvas, to visualize each Sector's average gain in dollars, and average percentage gain, with each bubble's size based on average dollar gain. As each sector is selected in the Bar Chart, other report visualizations display data that corresponds. In the line charts on the right, selected companies that either performed well, or didn't, are displayed.

There are many other visualizations Anna could create, which would be interesting, but five reports are a good start. Next she wants to share these reports with her colleagues, and see what they think. She knows just the place to put her workbook, share her results, and collaborate: her team's **Power BI** site.

**Power View** summary: With **Power View**, you get self-service visualizations that are easy, interactive, and cool. **Power View** brings the Data Model alive, turning queries into visual analysis and answers. The collection of visualization tools and filtering abilities available in **Power View** make its possibilities limited only by imagination and experimentation.

For more information about **Power View**, check out the following links.

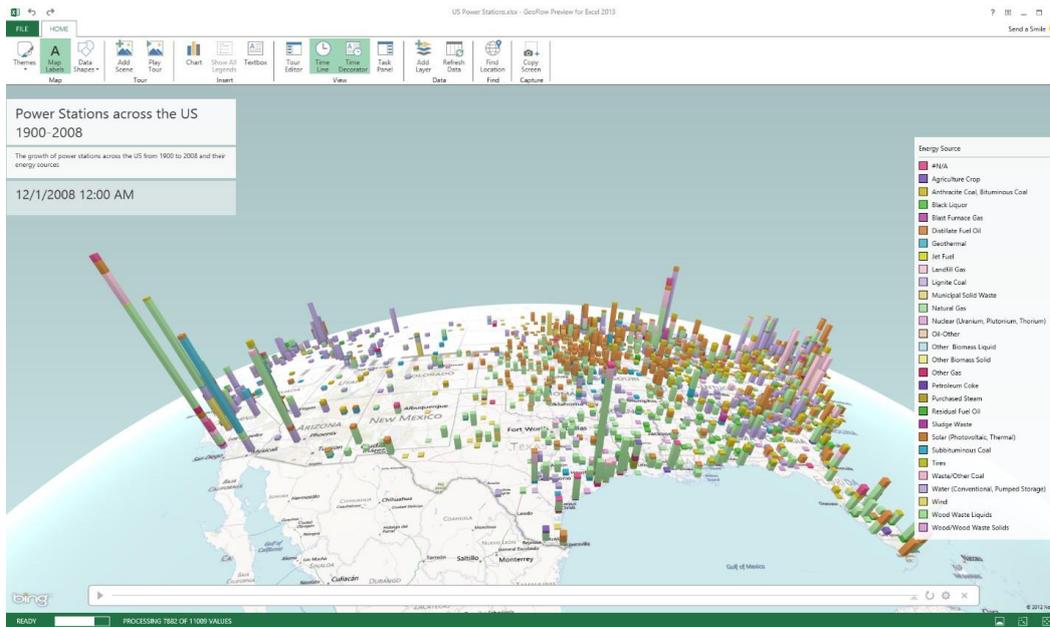
- **Power View**: Explore, visualize, and present your data
- Tutorial: Create Amazing **Power View** Reports - Part 1
- Tutorial: Create a **Power View** report with Windows Azure Marketplace data Video: Getting Started with **Power View**

### 3.6 Power Map

One of the newest additions to **Excel** is **Power Map** – a geocentric and temporal mapping feature of **Power BI** that brings location data into powerful, engaging 3D map visualizations. With **Power Map**, you can create locationbased reports, visualized over a time continuum, that visually tour the data and provide insights like no other.

Anna has some basic location information in her stock and sectors dataset, but she doesn't think it's enough – by itself – to build the compelling kind of **Power Map** visualizations that she knows she could create. She does a quick search on Bing, and sees what other people are doing with **Power Map**. She's amazed, with four visualizations in particular.

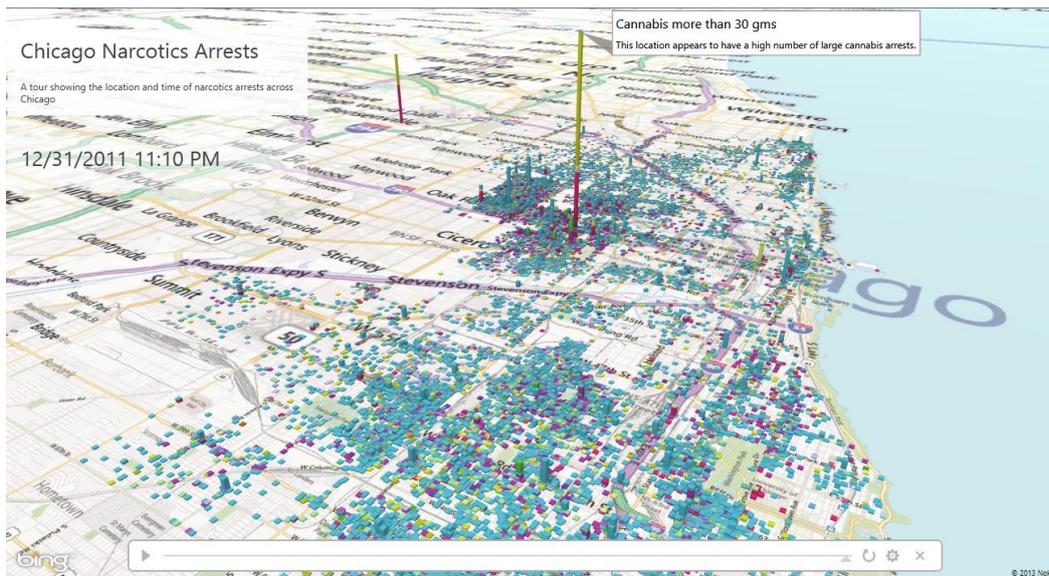
The first **Power Map** visualization she finds shows power stations across the United States, from 1900 to 2008.



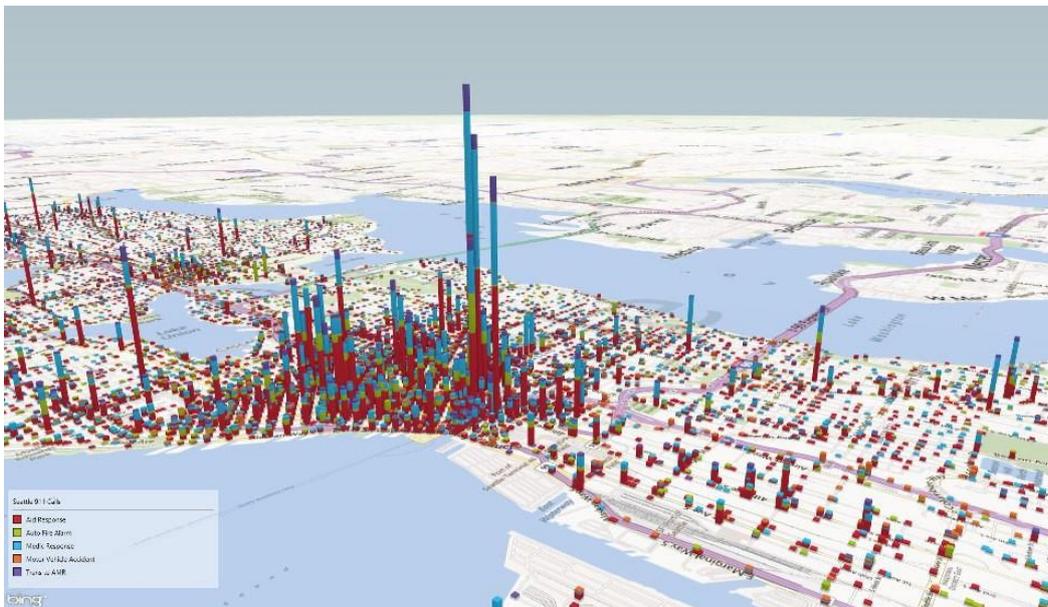
The second visualization shows power consumption in an area near Dallas, Texas, over time.



The third **Power Map** visualization mapped Chicago narcotics arrests.



And the last visualization, well, Anna isn't quite sure what it displays, but it's so cool that she just stares at it for a good, long couple of minutes.



Looking at those **Power Map** visualizations gives Anna all sorts of ideas. What if she could mash-up demographics, or economic data, or employment data, with her stock data? She can think of a handful of interesting scenarios, but those will have to wait until next time.

For now, she needs to publish her workbook and get feedback on what she created.

**Power Map** summary: With the **Power Map** feature of **Power BI**, maps take on entirely new meaning. With its 3D modeling capability and the interactive tours, **Power Map** can take viewers on a flight across the data (it's like a helicopter tour around the 3D data, with you at the controls), taking interactivity to an entirely new level.

With its zoom, pan, and altitude controls, **Power Map** is an amazing data experience outside the interactive tours, as well. Select data points, view the data from space or up-close, and select any data point to get information. You can also create notes that highlight information right on the map, and bring analysis and insights into a 3D visual world.

For more information about **Power Map**, see the following link.

### 3.7 Summary: Excel 2013 Self-Service BI Features

With the collection of self-service BI features in **Excel**, **Power BI** provides the tools you need to find data, shape and filter it how you want, model it, and visualize it. One of the greatest advantages of the **Power BI** features in **Excel** is how easily they integrate – once you have your base Data Model, you can go back to **Power Query** and find more data to mash-up, or go into **Power Pivot** and add new calculations to further your insight and analysis... or to get the exact **Power View** visualization you want.

## 4 Power BI for Office 365

Reports are made to be shared – so are great queries, and new insights. With **Power BI**, your **Excel** workbooks have a home that keeps them safe, and enables you to share them with everyone who should see them – at the office, or on the go.

In this section, you learn how to use **Power BI** sites for sharing workbooks, how to share and manage queries created using **Power Query**, the Data Management capabilities for monitoring and managing query and data source usage and the **Power BI** app for accessing workbooks on the go.

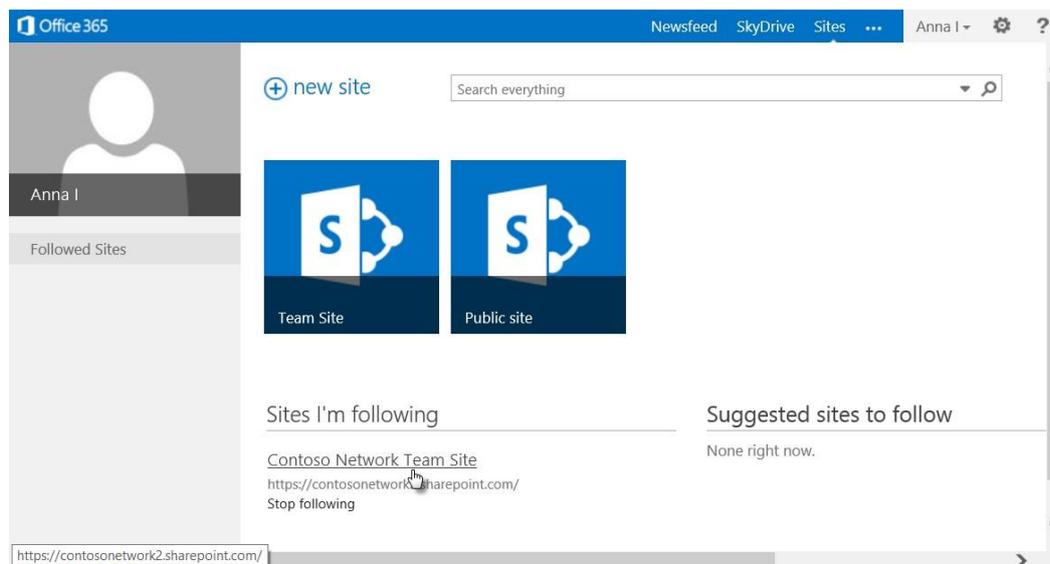
### 4.1 Power BI Sites

With **Power BI** sites, you can quickly create a collaboration hub to share workbooks. Sites are easy to create, and enable users to take full advantage of the **Power BI** for **Office 365** collection of online offerings.

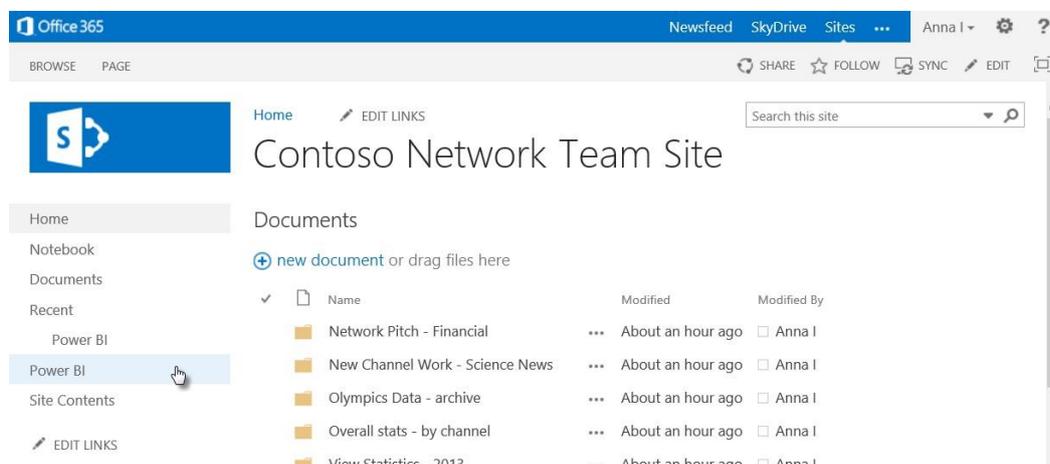
Anna's team has a **Power BI** site already. With her report complete, she's ready to post her workbook onto the team's site.

### 4.2 A Visual Home for Workbooks

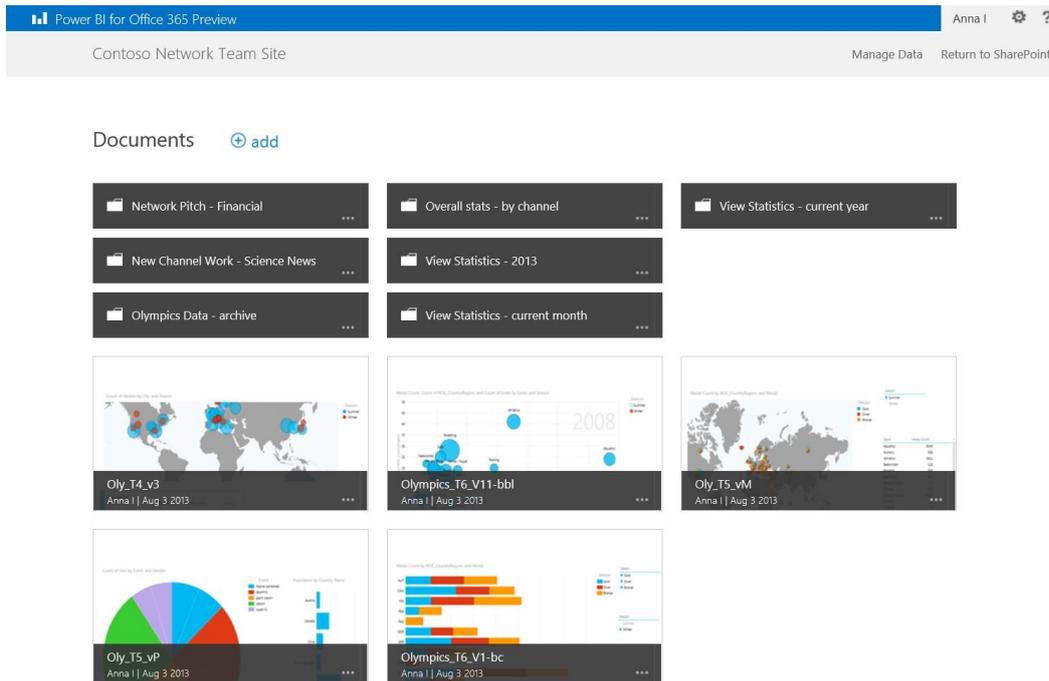
The **Power BI** site used by Anna's team already has a collection of workbooks, which are displayed when she visits the site. She navigates to the team's **Power BI** site by clicking on its link on her **Office 365** page.



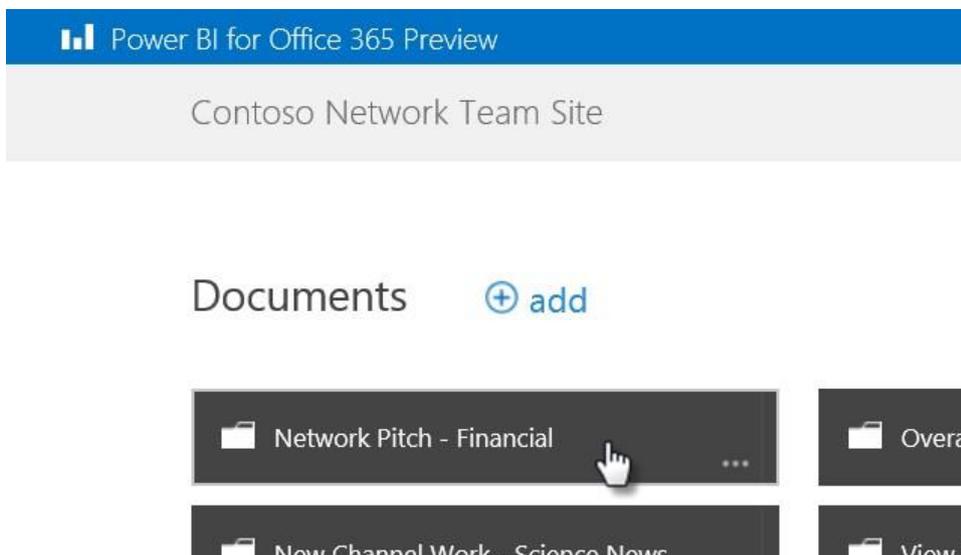
She then clicks on **Power BI**, in the left pane, to navigate to her team's **Power BI** site.



That brings her to the team's **Power BI** site, where many folders and files are already available for viewing, sharing, or modifying.



She wants to upload her workbook into the Network Pitch – Financial folder, so she selects that folder in the **Power BI** site to navigate to the folder.

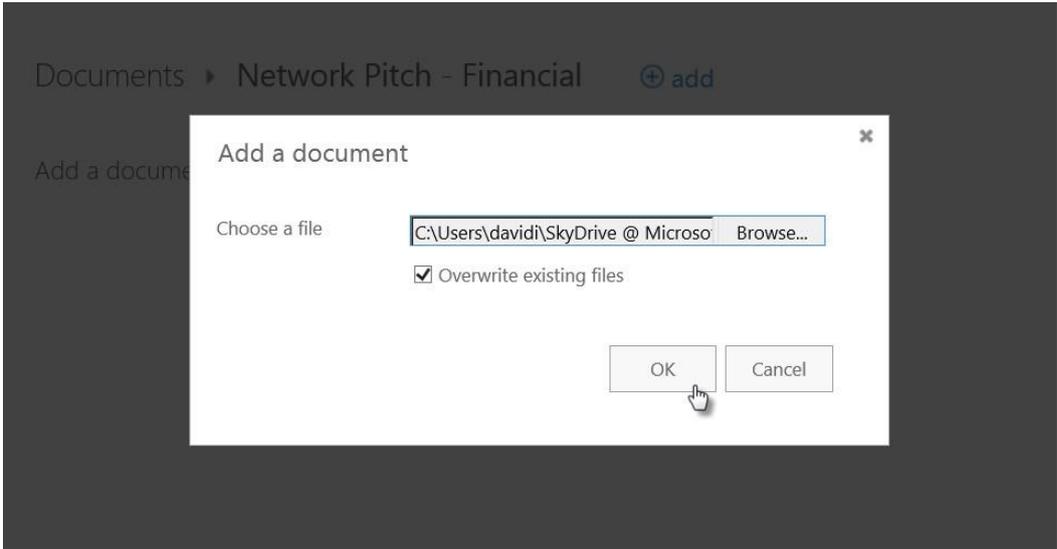


To upload her workbook, Anna clicks add and selects Upload file.

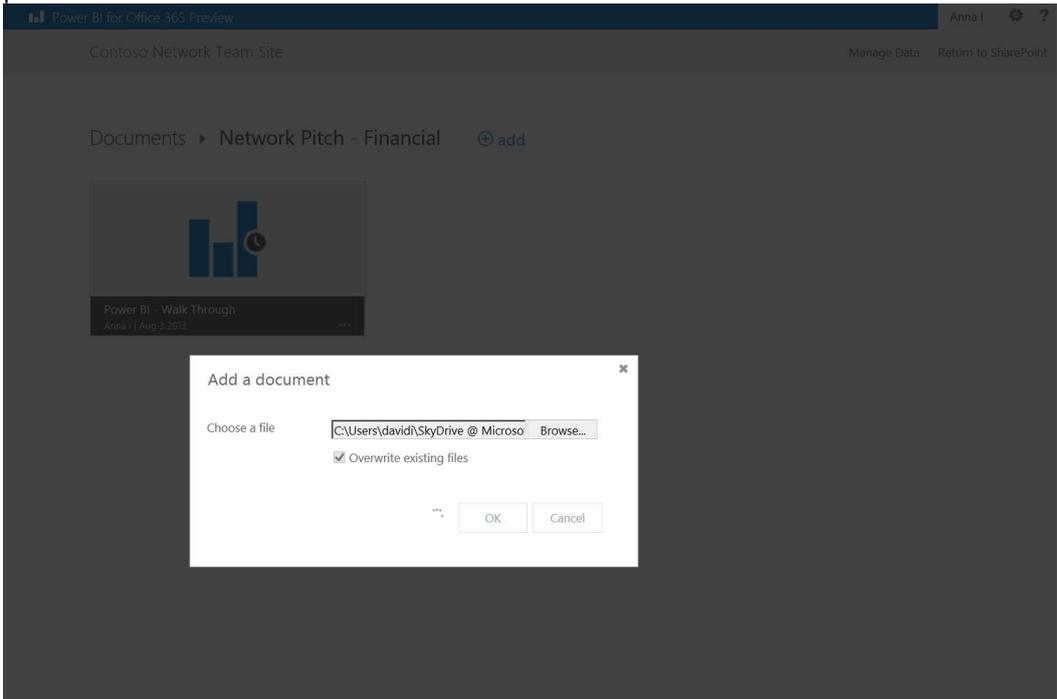


Add a document with the add button above.

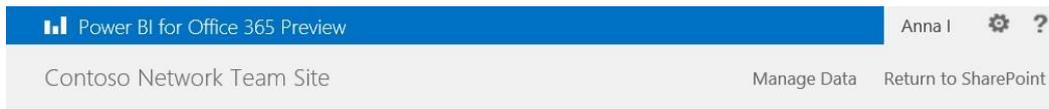
From Add a document, she uses Browse... to specify the location of her workbook.



As the file is being added to the site, an image appears in the background to indicate the upload is in process.



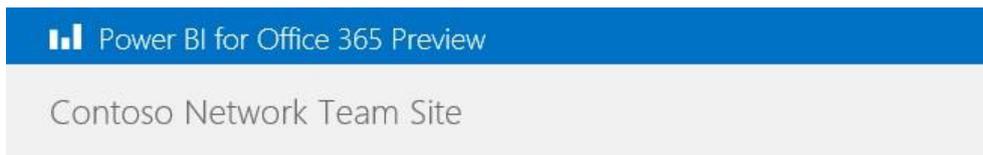
Once the document is uploaded, it appears on the site with a small picture – called a thumbnail – of the sheet that was active when the workbook was last saved.



Documents ▶ Network Pitch - Financial ⊕ add



Anna decides the workbook should be in the top folder of her Team Site. She selects . . . from the bottom of the workbook thumbnail, and selects **Delete**.



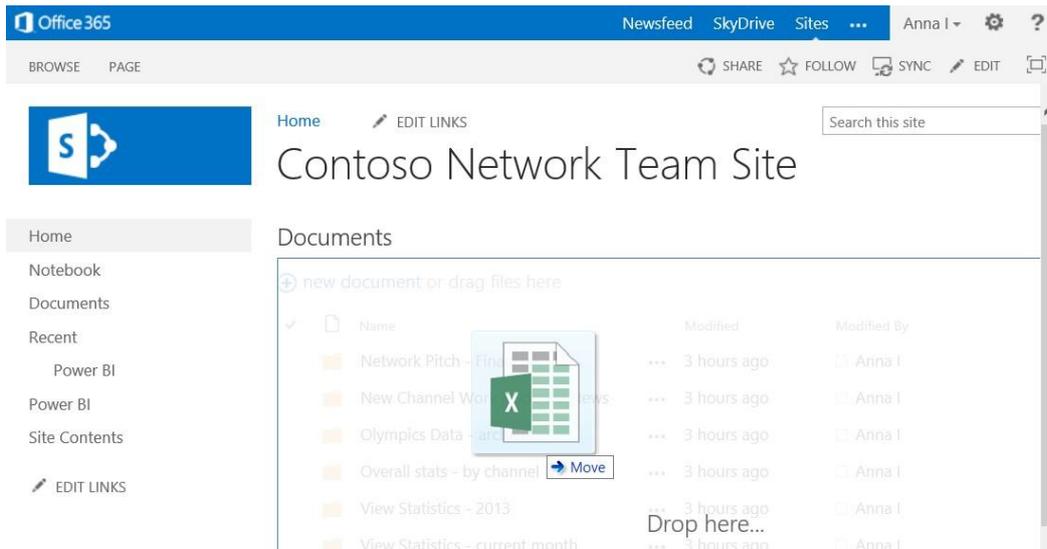
Documents ▶ Network Pitch - Financial ⊕ add



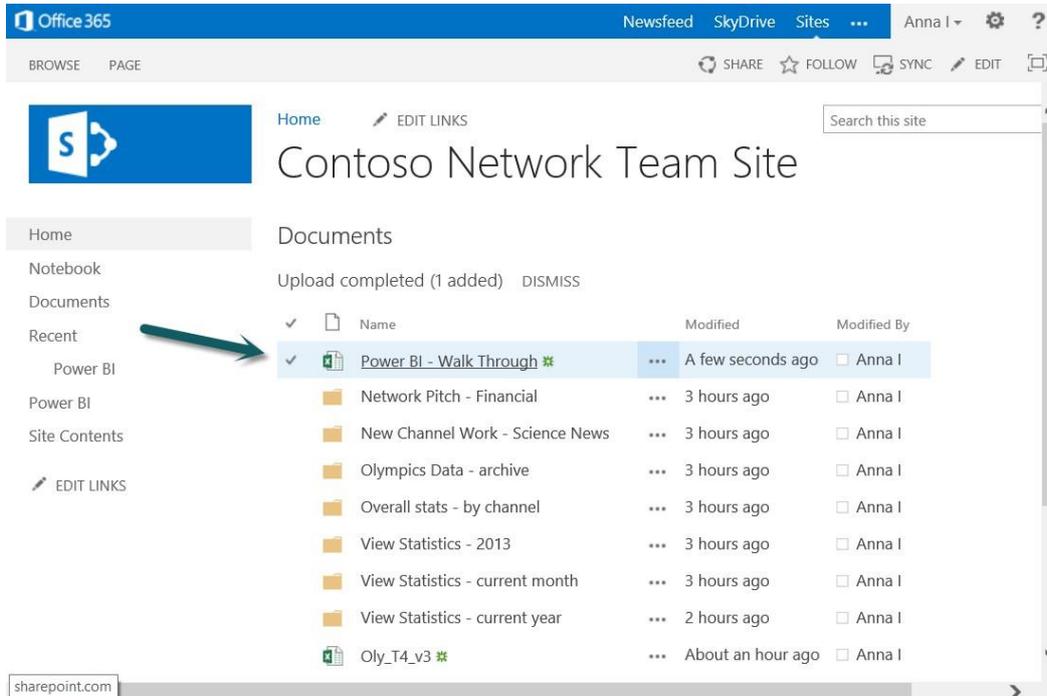
The returns to the Team Site by selecting Return to **Sharepoint**.



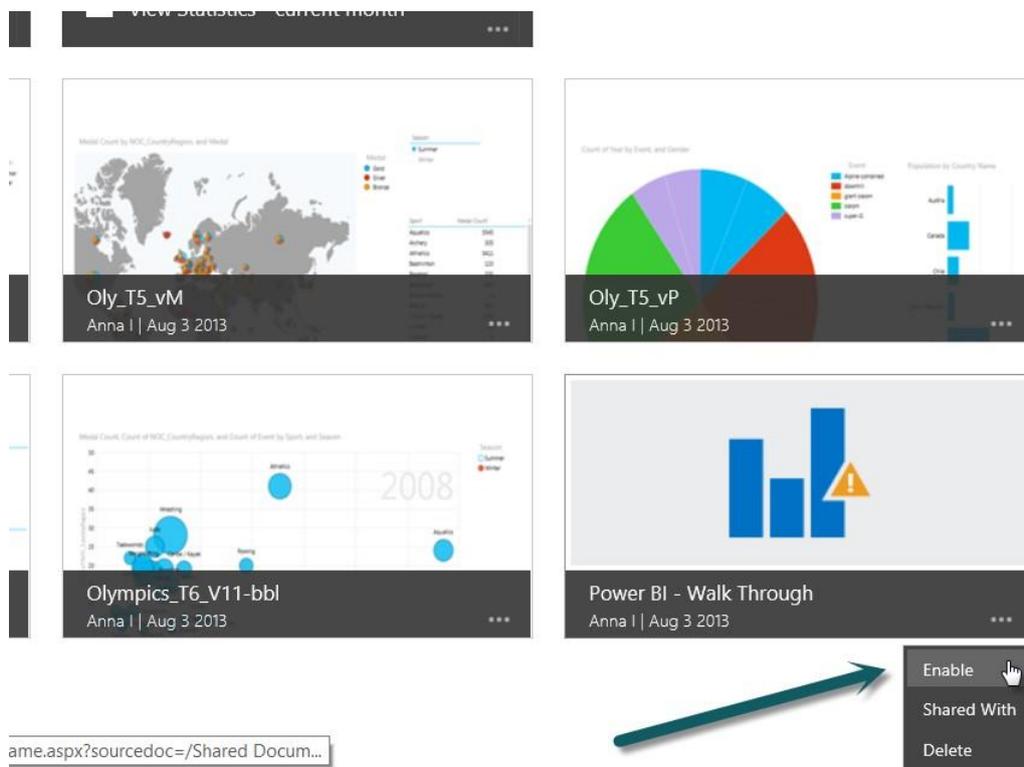
Workbooks appear in a **Power BI** site whether they're added from within the **Power BI** site, as Anna just did, or added directly into **Sharepoint**. Anna drags her workbook to the **Sharepoint** team site, to add it to Documents.



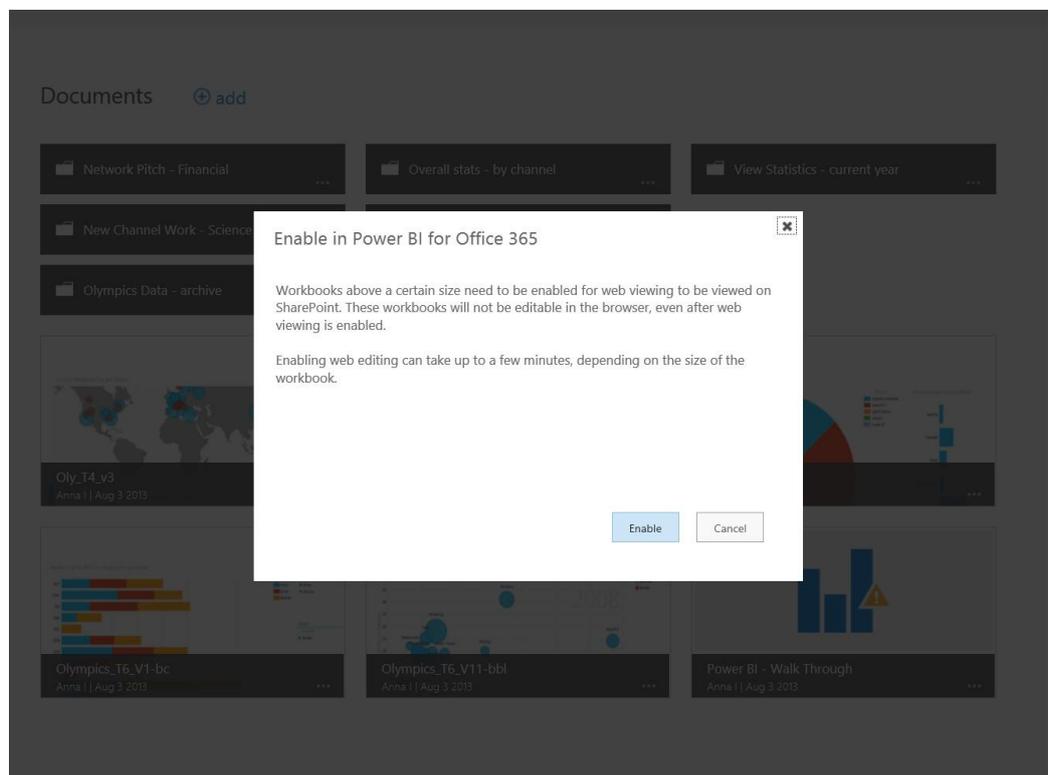
The workbook is added to the documents available on her Contoso Network Team Site.



When she returns to her **Power BI** site, the workbook is on the site, but it doesn't have a thumbnail image showing. That's because Anna added it through **Sharepoint**, and now, she has to enable it for **Power BI**. She selects . . . from her workbook and sees a new menu item: Enable.



When you Enable a workbook in **Power BI**, the thumbnail appears, the maximum workbook size increases to reflect **Power BI**'s large workbook feature, and the workbook can be viewed from the **Power BI** site using **Excel** Web App.



Enabling the workbook takes about a minute, and when complete, the thumbnail is visible.

Power BI for Office 365 Preview Anna I

Contoso Network Team Site Manage Data Return to SharePoint

Documents + add

- Network Pitch - Financial
- Overall stats - by channel
- View Statistics - current year
- New Channel Work - Science News
- View Statistics - 2013
- Olympics Data - archive
- View Statistics - current month

https://contosonetwork2.sharepoint.com/\_layouts/15/WopiFrame.aspx?sourcedoc=/Shared Docum...

Now that her workbook is enabled on the **Power BI** site, she and other coworkers can work with it in **Excel**, or she can open the workbook right in her **Excel Web App**.

Contoso Network > Power BI - Walk Through.xlsx Microsoft Excel Web App Anna I

FILE EDIT WORKBOOK SHARE DATA FIND

### Sector Performance

Sheet1 SP500 Annual Data **Sector Performance** Consumer Staples

With her workbook available on her team's **Power BI** site, she's ready to share and collaborate with others. Her file isn't large, but some of her coworkers have very large **Excel** workbooks. With **Power BI**, large workbooks are right at home on their **Power BI** site.

## 4.2.1 Large Workbooks – up to 250 megabytes

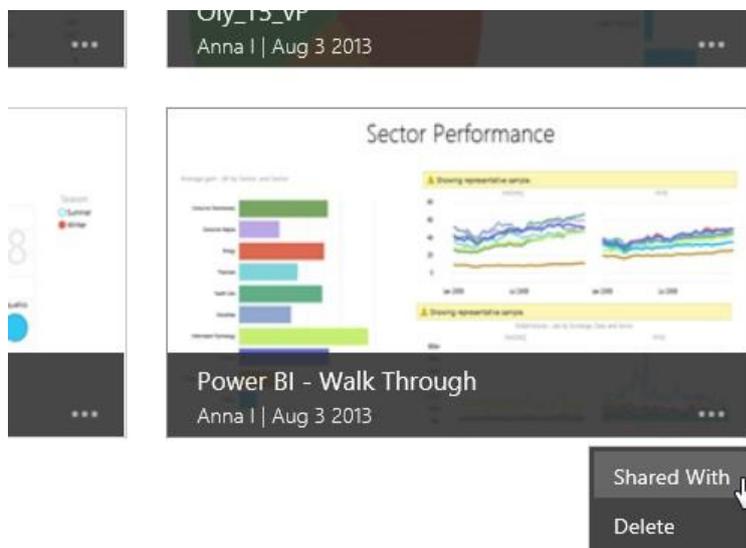
Another benefit of using a **Power BI** site to store and share your workbooks is that workbooks on **Power BI** sites can be up to 250 megabytes.

On sites that do not have **Power BI**, workbooks can be up to 10 megabytes. For more information about the **Power BI** large workbook feature, take a look at the [support page](#) for viewing large workbooks.

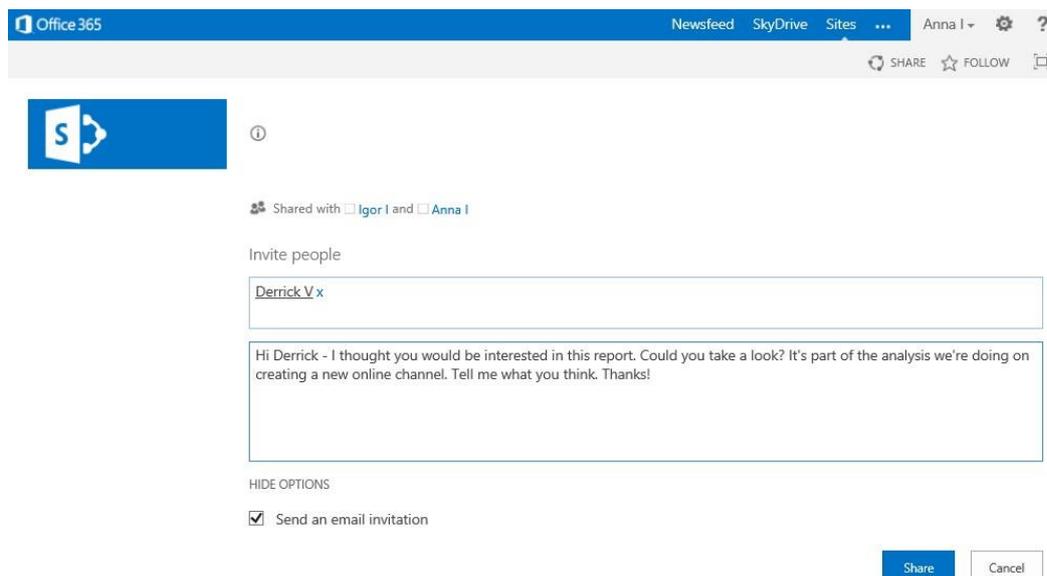
## 4.2.2 Share Your Work

With **Power BI** sites, sharing is built in from the beginning. Any users with permission to access the site can see workbooks as they're displayed on the site, unless permissions are further restricted for a particular workbook or folder.

Anna wants Derrick to take a look at her reports. No problem – Anna goes to her workbook, selects . . . from the lower corner, and selects Shared With.



The following page appears, allowing Anna to invite people to share the workbook. She can invite individuals or groups. As she types Derrick's name, suggestions appear. She makes sure the **Send an email invitation box** is selected, adds a note, and selects **Share**.



Derrick receives an invitation to the workbook, with a link that takes him directly to the workbook on their **Power BI** site.

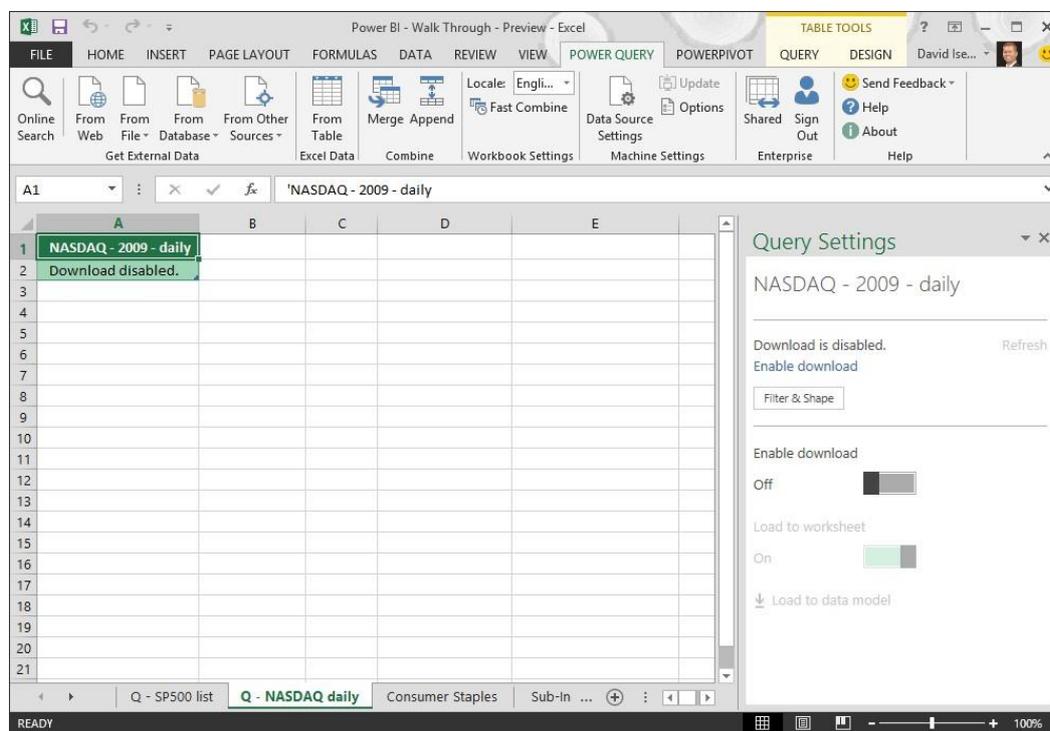
### 4.3 Sharing Queries and Managing Data

Anna already learned that sharing a workbook using **Power BI** sites is easy. Sharing queries in **Power BI** is just as easy.

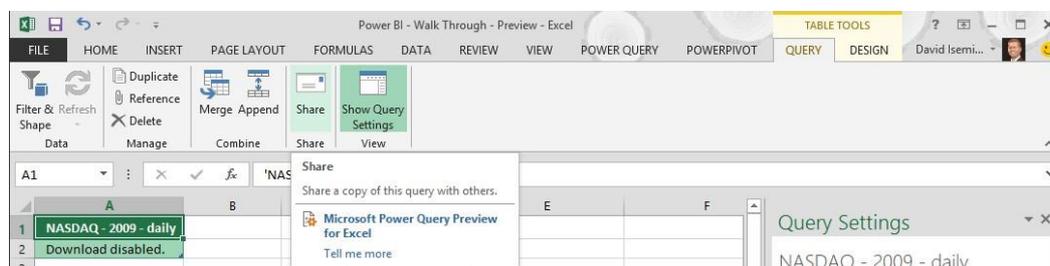
Remember when Anna searched the web for her S&P 500 data? She went through steps to filter, shape, and merge the collection of web and internal data. That collection of data discovery, mash-up, and filtering resulted in customized and useful selection of data. With **Power Query** and **Power BI** for **Office 365**, Anna can simply share her queries... and also find out how they're being used.

#### 4.3.1 Sharing a Power Query

**Power Query** has built-in sharing. In **Excel**, Anna opens the worksheet that contains the query she wants to share – in this case, the worksheet that contains her download of **NASDAQ** daily data for 2009.



On the ribbon, she navigates to Table Tools > Query and selects Share.



A window appears that allows her to name the query, enter a description, and provide a documentation **URL**. She also can choose to include previews of the data the query provides. She changes the name of the shared query a bit, to make it more descriptive, then enters a description.

## Share Query

NASDAQ - 2009 - daily data for all symbols

Daily data for all NASDAQ stocks for calendar year 2009. Large download.

Data sources View in portal

Documentation URL

Include previews

On

Share a copy Cancel

She selects **Share a copy** and the query is published. She wants to make sure it got out there, so without leaving **Excel**, she chooses **Power Query > Get External Data > Online Search** to bring up the **Power Query Online Search** window.

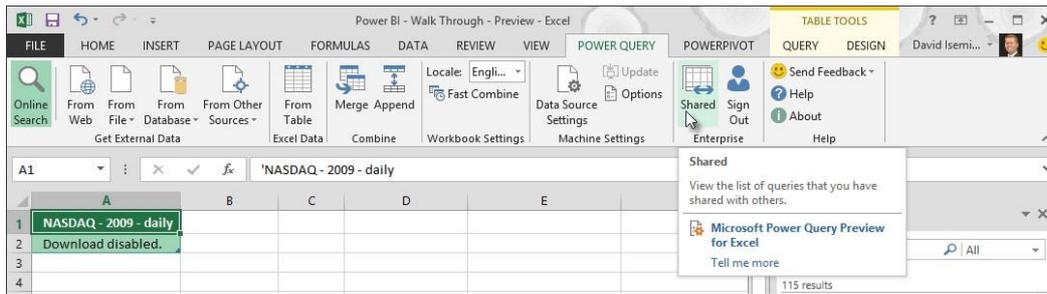
She performs a quick search for **NASDAQ**, and there it is – the recently shared query, with its new name, the description, and a preview of the underlying data.

The screenshot shows the Microsoft Excel interface with the Power Query ribbon active. The 'Online Search' window is open on the right, displaying search results for 'nasdaq'. The top result is 'NASDAQ - 2009 - daily data for all symbols', which matches the query being shared. A preview window is open over the spreadsheet, showing the following data:

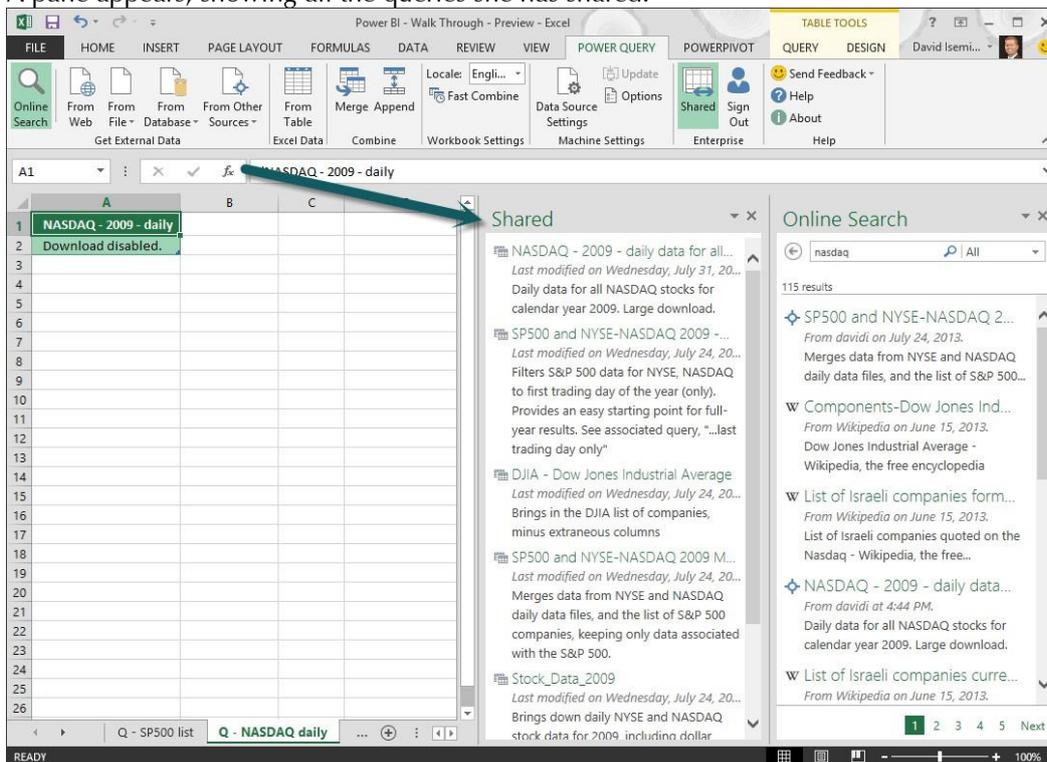
exchange	stock_symbol	date	stock_price_close	stock_gain_loss_dollar	stock_gain_loss_percent
NASDAQ	AACC	1/2/2009 12:00:00 AM	5.49	0	0.00%
NASDAQ	AACC	1/5/2009 12:00:00 AM	5.36	-0.13	-2.37%
NASDAQ	AACC	1/6/2009 12:00:00 AM	5.67	0.31	5.78%
NASDAQ	AACC	1/7/2009 12:00:00 AM	5.48	-0.19	-3.35%
NASDAQ	AACC	1/8/2009 12:00:00 AM	5.43	-0.05	-0.91%
NASDAQ	AACC	1/9/2009 12:00:00 AM	4.97	-0.46	-8.47%
NASDAQ	AACC	1/12/2009 12:00:00 AM	4.66	-0.31	-6.24%
NASDAQ	AACC	1/13/2009 12:00:00 AM	5.04	0.38	8.15%
NASDAQ	AACC	1/14/2009 12:00:00 AM	4.67	-0.37	-7.34%
NASDAQ	AACC	1/15/2009 12:00:00 AM	4.95	0.28	6.00%

She can share the rest of her queries, too, using the same steps.

To see the queries she has shared, she selects **Power Query > Enterprise > Shared** from the ribbon.



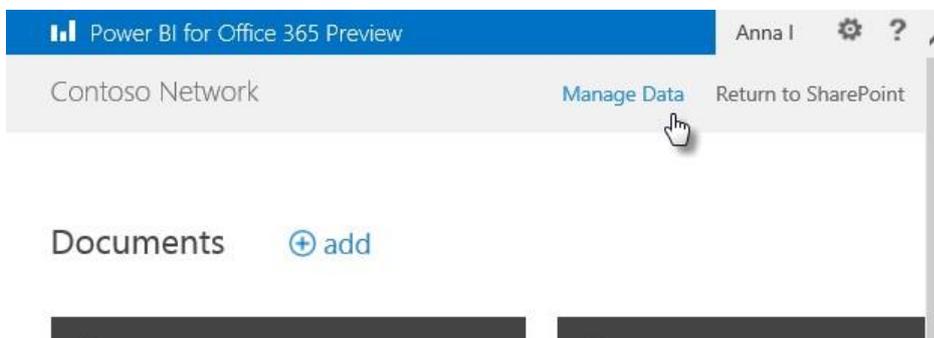
A pane appears, showing all the queries she has shared.



### 4.3.2 Managing Queries and Data

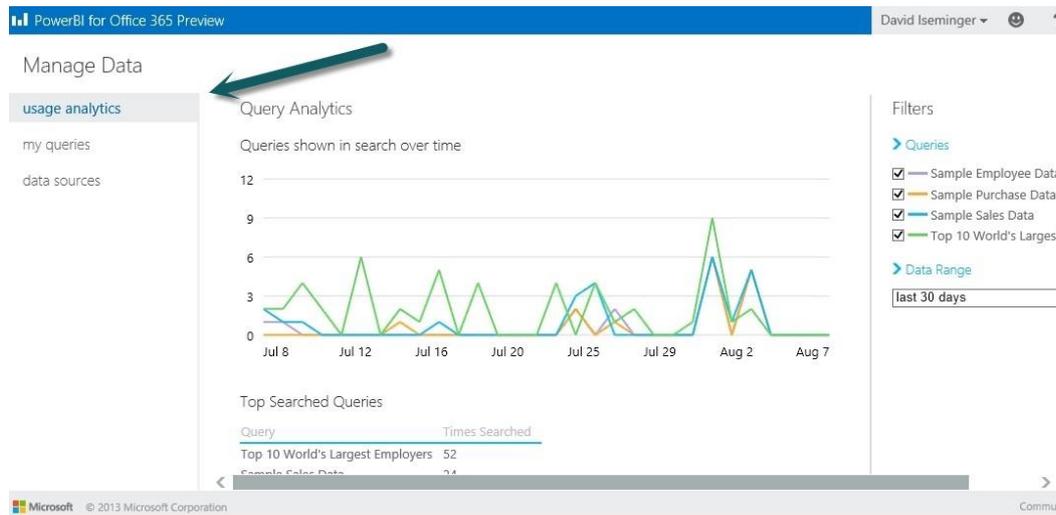
Once a query from **Power Query** is shared, you can track who is accessing the query, how often, and who should be able to do so. Managing queries, data sets, and other analytics is part of the **Power BI for Office 365** Data Management Experience.

To manage data, select **Manage Data** from any **Power BI** site.



The **Manage Data** portal appears, which contains individual pages that detail usage analytics, any queries you have shared, and data sources. Any user with a **Power BI** license has access to their own, personalized **Manage Data** portal.

The following screen shows the usage analytics page. To navigate to each page, select its link from the left pane.

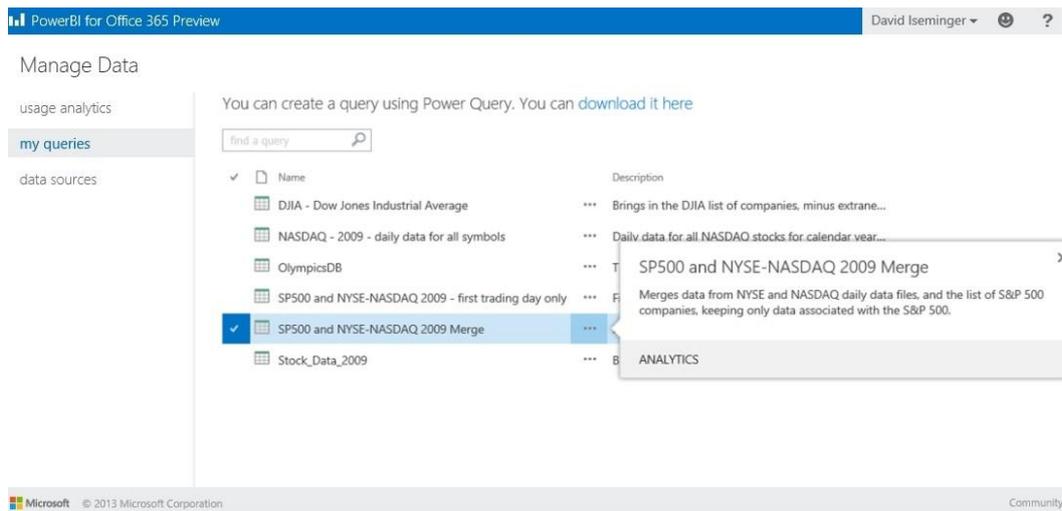


The my queries page displays queries you shared using **Power Query**, and the description provided for each.

The screenshot shows the 'my queries' page in PowerBI. The left pane has 'my queries' selected. The main area displays a list of queries with a search bar and columns for 'Name' and 'Description'. The 'DJI - Dow Jones Industrial Average' query is highlighted in blue.

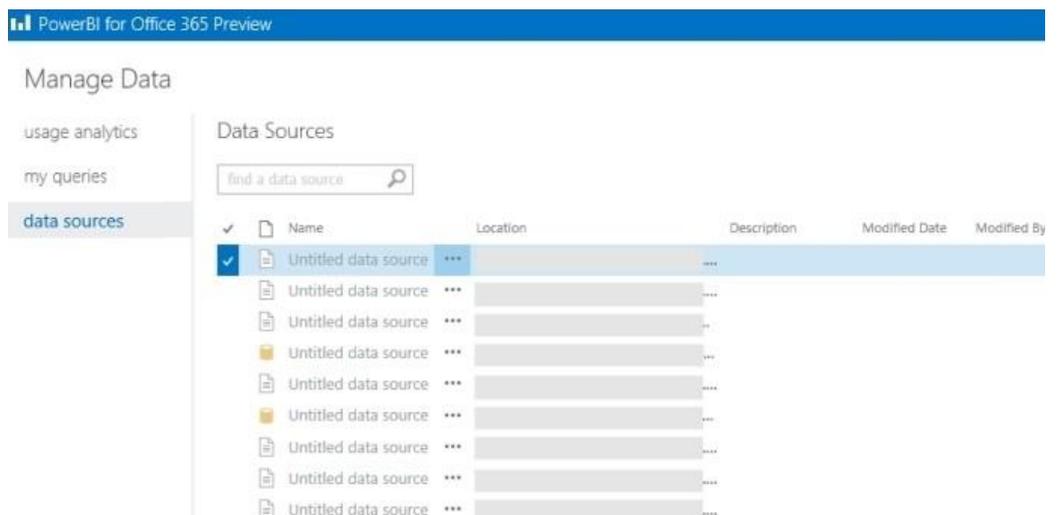
Name	Description
DJI - Dow Jones Industrial Average	Brings in the DJIA list of companies, minus extrane...
NASDAQ - 2009 - daily data for all symbols	Daily data for all NASDAQ stocks for calendar year...
OlympicsDB	This is the Olympics data, in the form of an Access...
SP500 and NYSE-NASDAQ 2009 - first trading day only	Filters S&P 500 data for NYSE, NASDAQ to first tra...
SP500 and NYSE-NASDAQ 2009 Merge	Merges data from NYSE and NASDAQ daily data fi...
Stock_Data_2009	Brings down daily NYSE and NASDAQ stock data f...

You can sort queries by clicking on any column, such as Name or Description. Selecting . . . beside the name of a query provides additional information about the query.



When you select Analytics from the additional information window, a usage analytics page appears and provides additional information about the shared query you selected, such as how often it was imported by **Power Query** users during a specified time range. On that page, in its Filters area, you can select multiple shared queries, and compare their usage analytics. You can also specify the data range for the comparison, by selecting last 30 days or last day from the Data Range list.

On the Manage Data portal, select data sources to view a list of available data sources, as shown in the following screen.



These data sources can be managed by the IT department as part of **Power BI** for **Office 365**.

For each data source, the IT department can specify the display name and description. They can also secure the data sources and queries by managing how users request access to each data source, and how queries based on each data source can be shared.

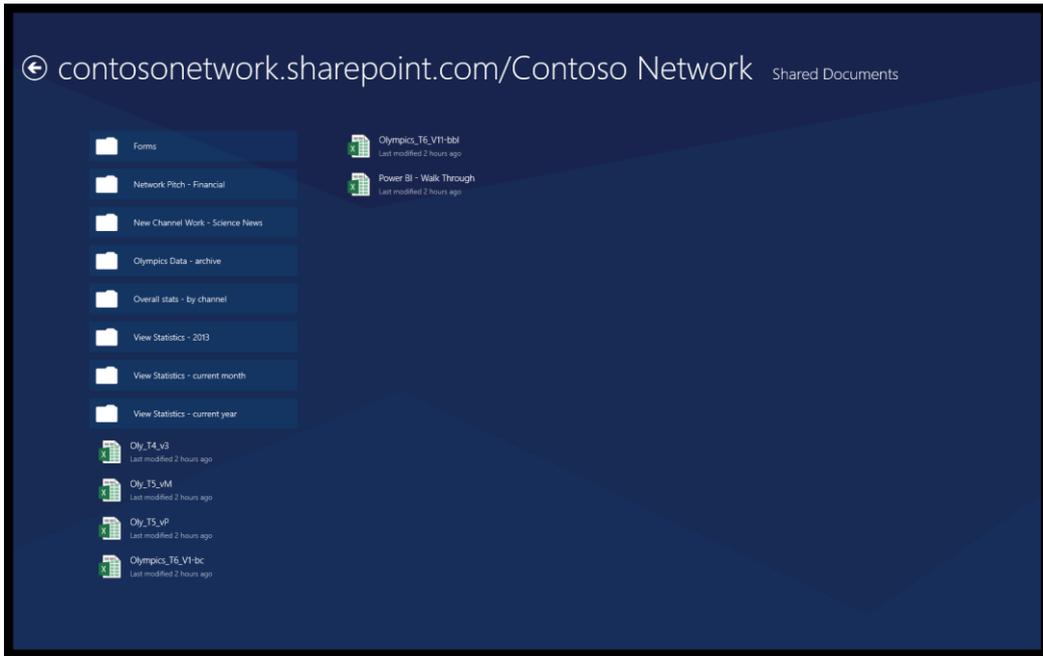
#### 4.4 Go anywhere with the Power BI App

With **Power BI**, you can share workbooks with people who are on the go. The **Power BI** for Windows mobile app makes interacting with **Excel** reports on mobile devices easy, and familiar. Using the **Power BI** mobile app is similar to viewing and interacting with reports using **Excel** Web App.

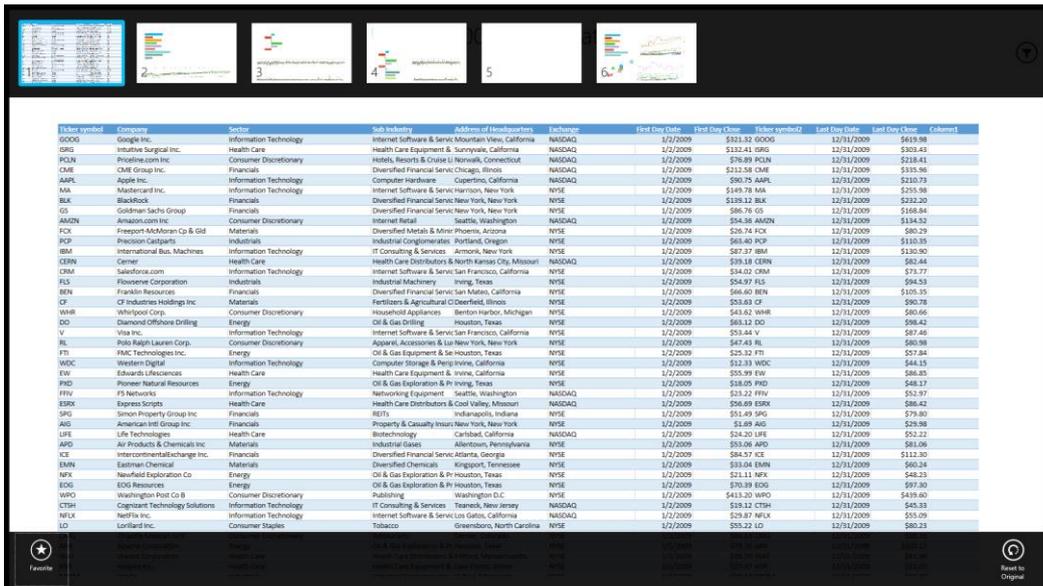
Derrick receives the invitation from Anna to view the workbook she just posted. He's at a conference, and is using his tablet. He goes to the Windows Store and searches for **Power BI**. He finds the **Power BI** mobile app and installs it.



From the mobile app, Derrick navigates to their Team Site.



He taps the workbook and is presented with the first page – the S&P 500 Annual Data worksheet. The app bar along the top highlights the active sheet, and also shows thumbnails of other sheets available in the workbook. In the lower app bar, Derrick has an option to add the active sheet to his Favorites.



He taps the sheet and the app bars recede.

### SP500 Annual Data

ticker symbol	Company	Sector	Sub Industry	Address of Headquarters	Exchange	First Day Date	First Day Close	Ticker symbol	Last Day Date
GOOG	Google Inc.	Information Technology	Internet Software & Servic	Mountain View, California	NASDAQ	1/2/2009	\$321.32	GOOG	12/31/11
ISRG	Intuitive Surgical Inc.	Health Care	Health Care Equipment &	Sunnyvale, California	NASDAQ	1/2/2009	\$132.41	ISRG	12/31/11
PCLN	Priceline.com Inc.	Consumer Discretionary	Hotels, Resorts & Cruise Li	Norwalk, Connecticut	NASDAQ	1/2/2009	\$76.89	PCLN	12/31/11
CME	CME Group Inc.	Financials	Diversified Financial Servic	Chicago, Illinois	NASDAQ	1/2/2009	\$212.58	CME	12/31/11
AAPL	Apple Inc.	Information Technology	Computer Hardware	Cupertino, California	NASDAQ	1/2/2009	\$90.75	AAPL	12/31/11
MA	Mastercard Inc.	Information Technology	Internet Software & Servic	Harrison, New York	NYSE	1/2/2009	\$149.79	MA	12/31/11
BLK	BlackRock	Financials	Diversified Financial Servic	New York, New York	NYSE	1/2/2009	\$139.12	BLK	12/31/11
GS	Goldman Sachs Group	Financials	Diversified Financial Servic	New York, New York	NYSE	1/2/2009	\$86.76	GS	12/31/11
AMZN	Amazon.com Inc.	Consumer Discretionary	Internet Retail	Seattle, Washington	NASDAQ	1/2/2009	\$54.36	AMZN	12/31/11
FCX	Freeport-McMoran Cp & Gld	Materials	Diversified Metals & Minir	Phoenix, Arizona	NYSE	1/2/2009	\$26.74	FCX	12/31/11
PCP	Precision Castparts	Industrials	Industrial Conglomerates	Portland, Oregon	NYSE	1/2/2009	\$63.40	PCP	12/31/11
IBM	International Bus. Machines	Information Technology	IT Consulting & Services	Armonk, New York	NYSE	1/2/2009	\$87.37	IBM	12/31/11
CERN	Cerner	Health Care	Health Care Distributors &	North Kansas City, Missouri	NASDAQ	1/2/2009	\$39.18	CERN	12/31/11
CRM	Salesforce.com	Information Technology	Internet Software & Servic	San Francisco, California	NYSE	1/2/2009	\$34.02	CRM	12/31/11
FLS	Flowers Corporation	Industrials	Industrial Machinery	Irving, Texas	NYSE	1/2/2009	\$54.97	FLS	12/31/11
BEN	Franklin Resources	Financials	Diversified Financial Servic	San Mateo, California	NYSE	1/2/2009	\$66.60	BEN	12/31/11
CF	CF Industries Holdings Inc.	Materials	Fertilizers & Agricultural CI	Deerfield, Illinois	NYSE	1/2/2009	\$53.63	CF	12/31/11
WHR	Whirlpool Corp.	Consumer Discretionary	Household Appliances	Benton Harbor, Michigan	NYSE	1/2/2009	\$43.62	WHR	12/31/11
DO	Diamond Offshore Drilling	Energy	Oil & Gas Drilling	Houston, Texas	NYSE	1/2/2009	\$63.22	DO	12/31/11
V	Visa Inc.	Information Technology	Internet Software & Servic	San Francisco, California	NYSE	1/2/2009	\$53.44	V	12/31/11
RL	Polo Ralph Lauren Corp.	Consumer Discretionary	Apparel, Accessories & Lu	New York, New York	NYSE	1/2/2009	\$47.43	RL	12/31/11
FTI	FMC Technologies Inc.	Energy	Oil & Gas Equipment & Ser	Houston, Texas	NYSE	1/2/2009	\$25.32	FTI	12/31/11
WDC	Western Digital	Information Technology	Computer Storage & Perip	Irving, California	NYSE	1/2/2009	\$12.33	WDC	12/31/11
EW	Edwards Lifesciences	Health Care	Health Care Equipment &	Irvine, California	NYSE	1/2/2009	\$55.99	EW	12/31/11
PXD	Pioneer Natural Resources	Energy	Oil & Gas Exploration & Pr	Irving, Texas	NYSE	1/2/2009	\$18.05	PXD	12/31/11
FFIV	FS Networks	Information Technology	Networking Equipment	Seattle, Washington	NASDAQ	1/2/2009	\$23.22	FFIV	12/31/11
ESRX	Express Scripts	Health Care	Health Care Distributors &	Cool Valley, Missouri	NASDAQ	1/2/2009	\$56.69	ESRX	12/31/11
SPI	Simon Property Group Inc	Financials	REITs	Indianapolis, Indiana	NYSE	1/2/2009	\$51.49	SPI	12/31/11
AIG	American Intl Group Inc	Financials	Property & Casualty Insur	New York, New York	NYSE	1/2/2009	\$1.69	AIG	12/31/11
LIFE	Life Technologies	Health Care	Biotechnology	Carlsbad, California	NASDAQ	1/2/2009	\$24.20	LIFE	12/31/11
APD	Air Products & Chemicals Inc.	Materials	Industrial Gases	Allentown, Pennsylvania	NYSE	1/2/2009	\$53.06	APD	12/31/11
ICE	IntercontinentalExchange Inc.	Financials	Diversified Financial Servic	Atlanta, Georgia	NYSE	1/2/2009	\$64.97	ICE	12/31/11
EMN	Eastman Chemical	Materials	Diversified Chemicals	Kingsport, Tennessee	NYSE	1/2/2009	\$33.04	EMN	12/31/11
NFX	Newfield Exploration Co	Energy	Oil & Gas Exploration & Pr	Houston, Texas	NYSE	1/2/2009	\$21.11	NFX	12/31/11
EOG	EOG Resources	Energy	Oil & Gas Exploration & Pr	Houston, Texas	NYSE	1/2/2009	\$70.39	EOG	12/31/11
WFO	Washington Post Co B	Consumer Discretionary	Publishing	Washington D.C.	NYSE	1/2/2009	\$413.20	WFO	12/31/11
CTSH	Cognizant Technology Solutions	Information Technology	IT Consulting & Services	Teaneck, New Jersey	NASDAQ	1/2/2009	\$19.12	CTSH	12/31/11
NFLX	Netflix Inc.	Information Technology	Internet Software & Servic	Los Gatos, California	NASDAQ	1/2/2009	\$19.87	NFLX	12/31/11
LO	Lorillard Inc.	Consumer Staples	Tobacco	Greensboro, North Carolina	NYSE	1/2/2009	\$55.22	LO	12/31/11
CHG							\$64.14	CHG	12/31/11

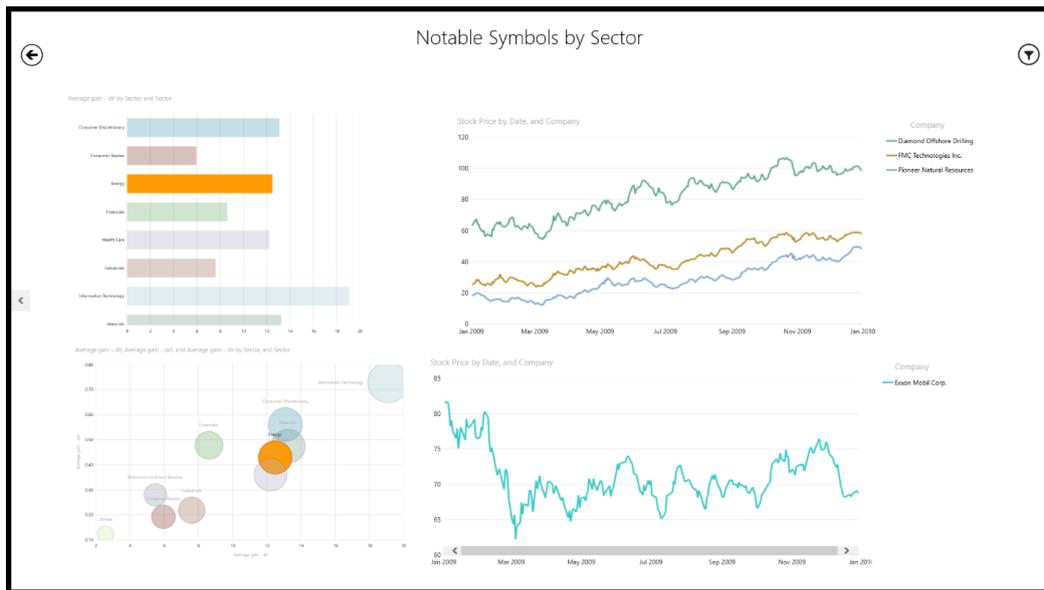
But really, he wants to get at the reports Anna created. He can navigate to any report by tapping on its image in the app bar. For example, he could just tap the second sheet in the app bar.

ticker symbol	Company	Sector	Sub Industry	Address of Headquarters	Exchange	First Day Date	First Day Close	Ticker symbol
GOOG	Google Inc.	Information Technology	Internet Software & Servic	Mountain View, California	NASDAQ	1/2/2009	\$321.32	GOOG
ISRG	Intuitive Surgical Inc.	Health Care	Health Care Equipment &	Sunnyvale, California	NASDAQ	1/2/2009	\$132.41	ISRG
PCLN	Priceline.com Inc.	Consumer Discretionary	Hotels, Resorts & Cruise Li	Norwalk, Connecticut	NASDAQ	1/2/2009	\$76.89	PCLN
CME	CME Group Inc.	Financials	Diversified Financial Servic	Chicago, Illinois	NASDAQ	1/2/2009	\$212.58	CME
AAPL	Apple Inc.	Information Technology	Computer Hardware	Cupertino, California	NASDAQ	1/2/2009	\$90.75	AAPL
MA	Mastercard Inc.	Information Technology	Internet Software & Servic	Harrison, New York	NYSE	1/2/2009	\$149.79	MA
BLK	BlackRock	Financials	Diversified Financial Servic	New York, New York	NYSE	1/2/2009	\$139.12	BLK
GS	Goldman Sachs Group	Financials	Diversified Financial Servic	New York, New York	NYSE	1/2/2009	\$86.76	GS

Or he can navigate to the next sheet by tapping the arrow on the right edge of the screen.

78	MA	12/31/
12	BLK	12/31/
76	GS	12/31/
36	AMZN	12/31/
74	FCX	12/31/
40	PCP	12/31/
37	IBM	12/31/
18	CERN	12/31/
02	CRM	12/31/
97	FLS	12/31/
60	BEN	12/31/
63	CF	12/31/
62	WHR	12/31/
12	DO	12/31/
44	V	12/31/
43	RL	12/31/
32	FTI	12/31/
33	WDC	12/31/
99	EW	12/31/
05	PXD	12/31/
22	FFIV	12/31/
69	ESRX	12/31/

He decides to jump to the last sheet, which is the Performers report, and sees the following.



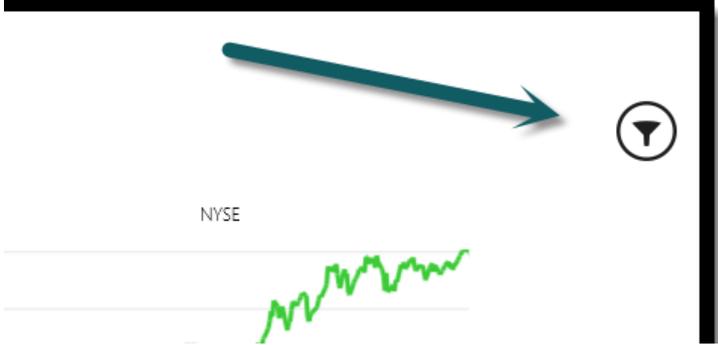
In the mobile app, he can interact with the report, too. Tapping on a data element transforms the report, just as it does from **Power View** in **Excel**. He selects the Sectors report, taps Consumer Discretionary on the Bar Chart, and sees the following.



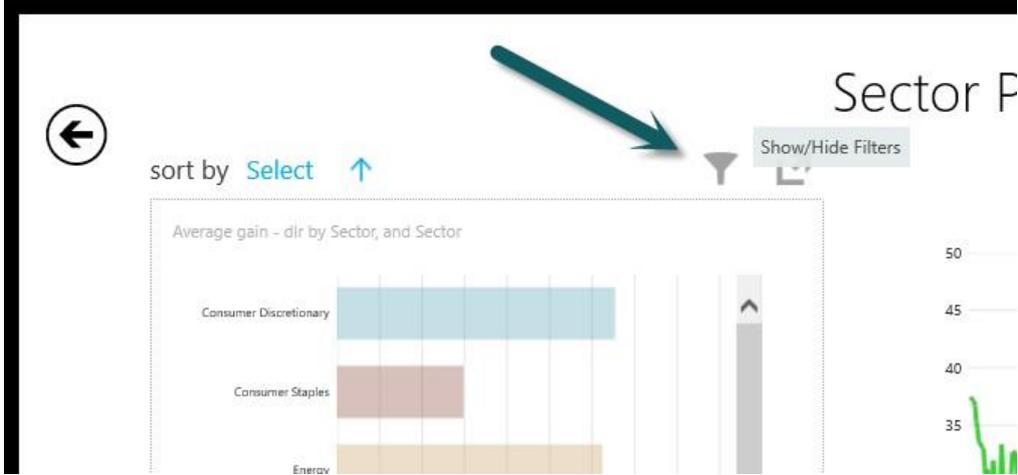
In her mail, Anna mentioned that, surprisingly, the Financials sector was doing just fine during the global economic downturn. When he taps on Financials in the bar chart, the interactive visuals change, and **Power BI** displays the following screen.



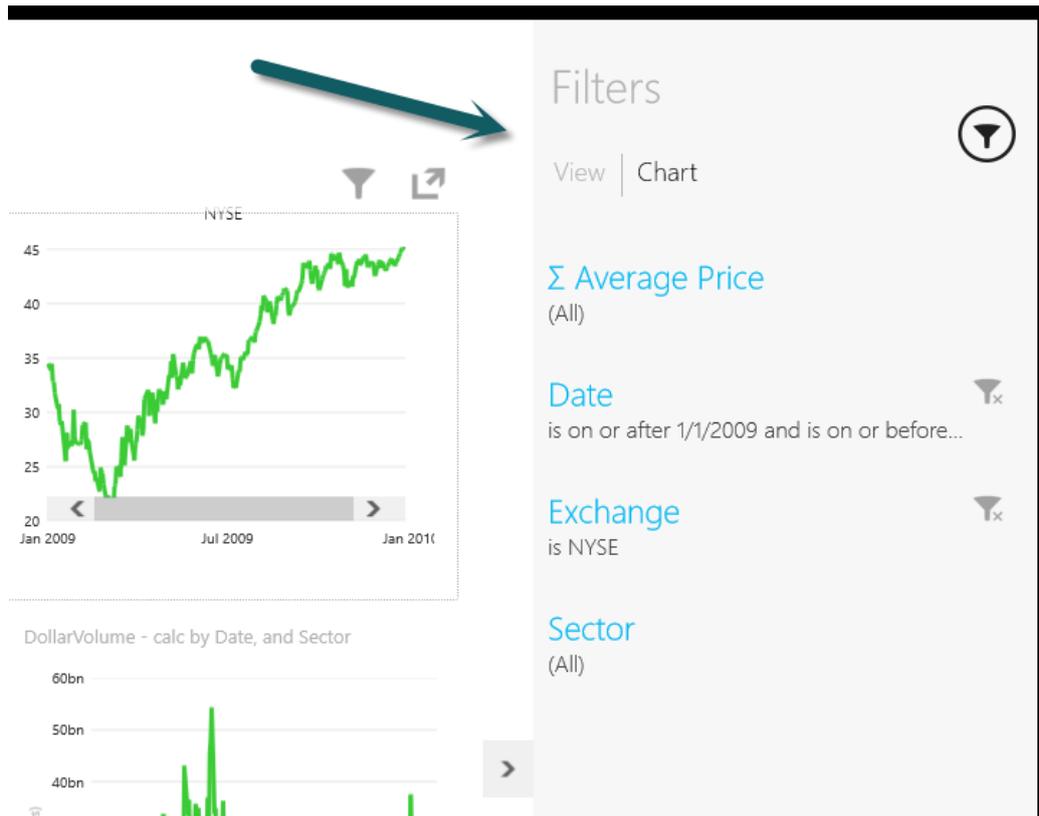
He can filter visualizations too, similar to his experience in **Excel**. He taps the filter icon in the upper right corner of the screen.



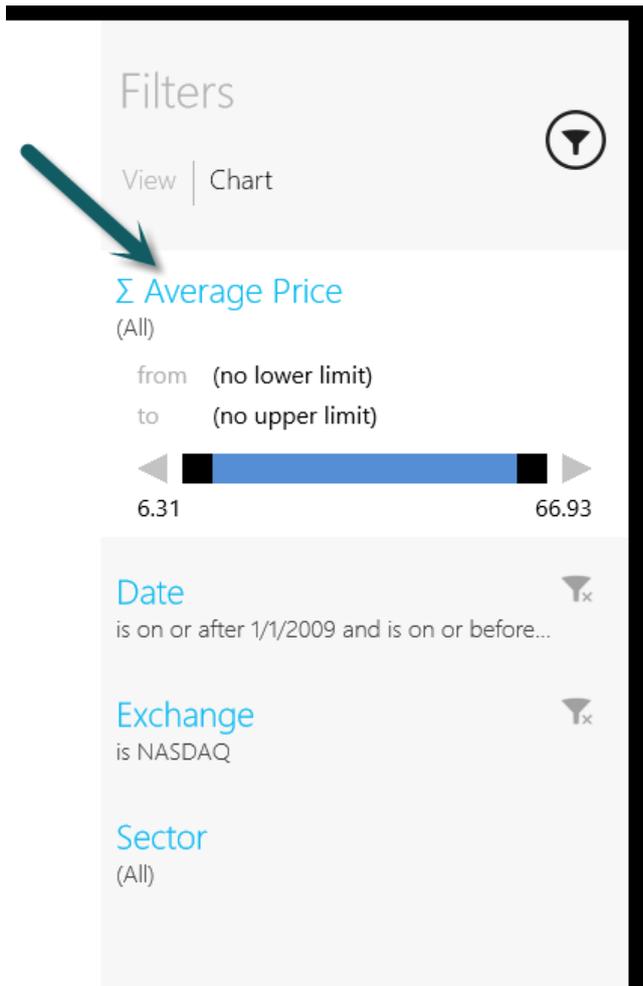
He can also display the Filters pane by tapping the filter icon above any active visualization.



The Filter pane appears. He can tap any field to change the filter, and have that change update the report.



Tapping on Average Price, for example, allows Derrick to adjust the upper limit and lower limit, and see the report data in ways that in most interesting, useful, or compelling to him.



With the **Power BI** for Windows mobile app, workbooks on a **Power BI** site are accessible from anywhere in the world.

## 5 Notes

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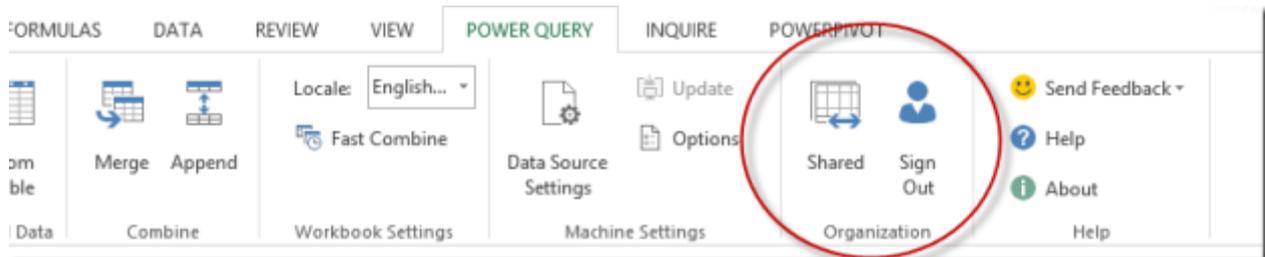
Downloaded the 64 bits version. 32 bits doesn't seem to be available.

64bits version will not connect to 32 bits Access databases

## 6 Power Query Preview vs Power Query Release – How Can I Share a Query?

You learn something new every day. Hopefully this helps a few confused souls, it would have helped me.

Microsoft first announced the release version of Power Query in July 2013, and last week (August 2013) it put out a [stability update for it](#). Not wanting to be left behind, I gleefully installed the update, and when I got my invitation to try the Power BI preview, I went ahead and started working with it. One of the first things that I wanted to try was to work with shared queries. I couldn't figure out how to create one. After a little research, I knew that I was missing something. There is a section (The Organization Section) in the Power Query ribbon where you can sign in and access shared queries.



The problem was, I didn't have it. Initially, I thought that it was left out of the preview, but then quickly realized that others had it. Then perhaps that it was a license issue, or an installation issue. However after installing on three different systems with 2 different bit levels, I gave up and [posted my dilemma in the community forums](#). It didn't take long for someone from Microsoft to chime in with the answer.

There are two different versions of Power BI. The released version (the one from July and the stability update) is meant for standalone use, and does not have the ability to connect to a Power BI site. The preview version is for corporate use, and it does have that capability. The release version is 1.5.3296.2082, and the preview version is 2.6.3387.121.

Power Query (for use with Power BI sites) version 2.6.3387.121  
<http://www.microsoft.com/en-us/download/details.aspx?id=39933>

Power Query (standalone) version 1.5.3296.2082  
<http://www.microsoft.com/en-us/download/details.aspx?id=39379>

Once I installed 2.x, everything was good. Luckily, the main Power BI download site now points to the version 2.x, so not too many people should be caught by this. If you have been, hopefully this helps.