
Morningstar Global Geographic Segment Methodology

Morningstar Manager Research

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Introduction

Morningstar's proprietary global geographic segment data methodology outlines our collection and calculation principles to provide our clients with high-quality data, which they can use to determine the economic exposure of a company to various geographical locations. This data can then be rolled up at a portfolio level to determine the economic exposure of a portfolio to various geographical locations.

IFRS 8 Operating Segments requires companies to disclose material financial information about their operating segments – according to their products and services, major customers, and geographical areas in which they operate. Management exercises discretion in identifying the company's reportable segments and are required to ensure at least 75% of their total revenues are identified from the reportable segments.

The differences in company disclosures create inherent challenges in collecting and standardizing this data for meaningful analysis. Morningstar's goal for this data set therefore is to consistently provide country-level geographic segment data that can be used to calculate a company's or portfolio's economic exposure to different geographic regions.

This document will detail the following—

- i. Universe, financial reports, and data points collected for geographic segment data;
- ii. Overview of our collection process and frequency;
- iii. Country-region segment taxonomy used to facilitate collection and downstream calculations;
- iv. General principles in collecting geographic segment data as reported, accounting for variations in reporting by companies;
- v. Calculation methodology for calculating country-level data when it is not reported;
- vi. How special situations are handled.

Universe, Reports, and Data Points

Morningstar provides geographic segment data only for a selected universe, financial reports, and set of data points.

Coverage and History

Morningstar has stratified coverage as follows—

- × The United States of America, Canada, United Kingdom, Australia, and New Zealand – all companies in the key exchanges for these markets, from 2008 onwards.
- × All other markets represented in the Morningstar Global Indexes – companies with market capitalization greater than or equal to USD 100 million, from 2015 onwards. For a list of markets, see Appendix A.

Financial Reports

Morningstar collects geographic segment data only from companies' annual reports, with the exception of Australia and New Zealand, where data is also collected from semiannual and preliminary reports.

As Reported Data Points and Definitions

There are two major categories of data points – As Reported data points (discussed here) and Standardized data points (next section).

As Reported data points are segmented data that Morningstar collects directly from the company and are made available in the 'As Reported' Geographic Segment data view. All collected values appear exactly as reported by the company. The descriptions of the data points as reported by the company are collected as well.

The As Reported data collected is also assigned to Standardized Morningstar data points that adhere to Morningstar data point definitions and may differ from that of the company.

If a data point is not reported by the company, it will not be collected but may be calculated according to the stipulated inputs.

Unless otherwise specified, the following As Reported data points apply to all companies.

i. Business Revenue—the external sales of goods and services from the company's business activities that are directly attributable or reasonably allocable to a segment.

For Industrial companies, this includes business revenues and other revenues that are included in the Total Revenue line of the Income Statement.

For Insurance companies, this either represents the total revenue or types of income like fees & commissions and investment income, other than premium revenue, which is captured in another specific As Reported data point listed below.

For Banks, this either represents the total revenue, net interest income plus noninterest income or other miscellaneous types of revenue. For example, some banks may report segmented revenue as Operating Income.

Exhibit 1 UBS AG, Annual Report ended Dec. 31, 2015

For the year ended 31 December 2015				
	Total operating income		Total non-current assets	
	CHF billion	Share %	CHF billion	Share %
Americas	11.3	37	7.1	47
of which: USA	10.7	35	6.7	44
Asia Pacific	5.0	16	0.5	3
Europe, Middle East and Africa	6.8	22	1.7	11
Switzerland	7.1	23	5.9	39
Global	0.5	2	0.0	0
Total	30.6	100	15.2	100

Source: Morningstar.

ii. Net Interest Income – interest income less interest expense for banks that is directly attributable or reasonably allocable to a segment. This is also used to collect gross interest income if that is the only item reported.

When banks report geographic segment data only according to net interest income and not total business revenue, Morningstar collects this data point as reported.

iii. Noninterest Income – the total amount of non-interest-related income earned by banks that is directly attributable or reasonably allocable to a segment. This may include fees and commissions, premium income, trading income, and all other types of revenue not related to interest.

iv. Net Premiums Earned – the amount of total premiums collected by an insurance company over a period that have been earned based on the ratio of the time passed on the policies to their effective life that can be directly attributable or reasonably allocable to a segment. Should both premiums and total business revenue breakdowns be reported, we will collect total business revenue as the top priority and not collect premiums.

Exhibit 2 MetLife Inc. Annual Report ended Dec. 31, 2016**Notes to the Consolidated Financial Statements — (continued)****2. Segment Information (continued)**

Year Ended December 31, 2016	Operating Results							Total
	U.S.	Asia	Latin America	EMEA	MetLife Holdings	Brighthouse Financial	Corporate & Other	
	(In millions)							
Revenues								
Premiums	\$ 21,501	\$ 6,902	\$ 2,529	\$ 2,027	\$ 4,506	\$ 1,222	\$ 40	\$ 38,7
Universal life and investment-type product policy fees	989	1,487	1,025	391	1,436	3,491	(119)	8,7
Net investment income	6,206	2,707	1,084	318	5,944	3,503	(62)	19,7
Other revenues	784	61	34	73	581	735	(517)	1,7
Net investment gains (losses)	—	—	—	—	—	—	—	—
Net derivative gains (losses)	—	—	—	—	—	—	—	—
Total revenues	29,480	11,157	4,672	2,809	12,467	8,951	(658)	68,8

Source: Morningstar.

v. Operating Income – the operating profit (operating revenue minus operating expenses) directly attributable or reasonably allocable to a segment.

vi. Net Income – the profit after tax (operating income minus net nonoperating expenses and income taxes) directly attributable or reasonably allocable to a segment.

vii. Pretax Profit – the profit before tax (operating income minus net nonoperating expenses) directly attributable or reasonably allocable to a segment. This data point is supported for the UK only.

viii. Total Assets – the total operating assets that are directly attributable or reasonably allocable to a segment.

ix. Noncurrent Assets – the long-term assets that are directly attributable or reasonably allocable to a segment.

Exhibit 3 United Parcel Service 10-K ended Dec. 31, 2016

	2016	2015	2014
United States:			
Revenue	\$ 48,013	\$ 45,309	\$ 43,840
Long-lived assets	\$ 19,253	\$ 18,196	\$ 15,902
International:			
Revenue	\$ 12,893	\$ 13,054	\$ 14,392
Long-lived assets	\$ 5,898	\$ 5,828	\$ 6,105
Consolidated:			
Revenue	\$ 60,906	\$ 58,363	\$ 58,232
Long-lived assets	\$ 25,151	\$ 24,024	\$ 22,007

Long-lived assets include property, plant and equipment, pension and postretirement benefit assets, long-term investments, goodwill and intangible assets.

Source: Morningstar.

Standardized Data Points and Definitions

Based on the As Reported data points collected, Morningstar generates the following Standardized data points for the country segments view for Annual data.

- × Total Revenue—the total sales of goods and services from the company’s business activities that is reasonably allocable to a segment. The sum of all the segment revenues reported by the company and collected as any of the As Reported data points described in the previous section.

Morningstar’s goal is to provide Geographic segment revenue (business revenue and/or premiums earned/written) data for every company in the stipulated universe, even if the company does not “overtly” report geographic segment data. Morningstar seeks to provide the Revenue data point as frequently as possible because it has been deemed the most critical geographic data point. The only exception is when the company explicitly states that it is not generating any revenues from its operations. In this case, only the Total Assets value is provided.

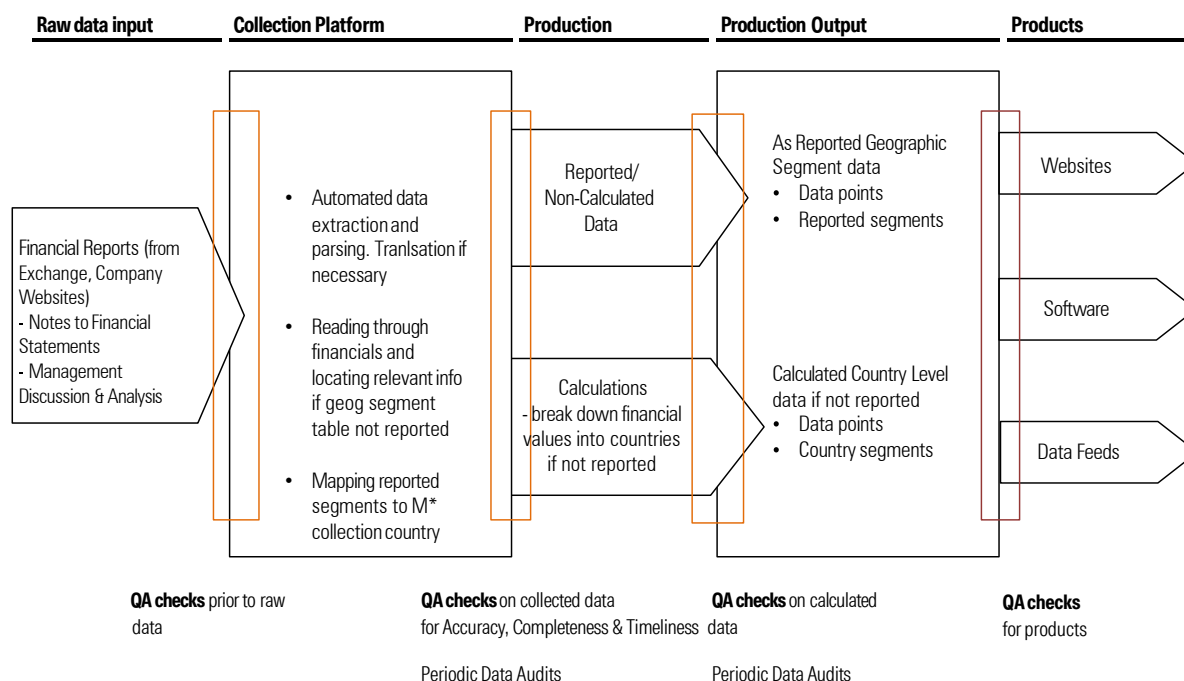
- × When the sum of all the As Reported segment revenues (Business Revenue + Net Interest Income + Noninterest Income + Gross Premiums Earned/Written) matches Total Revenues on the income statement, Morningstar allocates the reported segmented revenues to the tagged countries, as outlined later in the section on “Calculating Standardized Country-Level Data.”
 - × When the sum of all the As Reported segment revenues (Business Revenue + Net Interest Income + Noninterest Income + Gross Premiums Earned/Written) does not match Total Revenues on the income statement, Morningstar allocates the Total Revenue for each segment using the As Reported data as a proxy. See Step 1, Section C in “Calculating Standardized Country-Level Data” for an example.
 - × Should the company mention that it operates only or primarily in one segment, or Morningstar concludes that the company operates only in one geographic segment, the business country along with total revenue will be collected as this company’s geographic segment. The exception is when there are no reported or 0 Revenues on the Income Statement; in that case, the total asset will be collected.
- × Total Assets—the operating assets that are reasonably allocable to a segment. The sum of all As Reported segment assets may or may not match the Total Assets reported on the Balance Sheet. This data point is generated if geographic segment assets are collected on the As Reported layer.
 - × When the sum of all the As Reported segment assets match the value of Total Assets on the Balance Sheet, Morningstar allocates the reported asset segments to the tagged countries as outlined in the section on “Calculating Standardized Country-Level Data.”
 - × When the sum of all the As Reported segment assets does not match the value of Total Assets on the Balance Sheet, Morningstar allocates the Total Assets for each segment using the reported data as a proxy. See Step 1, Section C in “Calculating Standardized Country-Level Data” for an example.

- × Operating Income – the operating profit (operating revenue minus operating expenses) directly attributable or reasonably allocable to a segment. This data point is generated only if segmented Operating Income exists on the As Reported layer.
- × Net Income – the profit after tax (operating income minus net nonoperating expenses and income taxes) directly attributable or reasonably allocable to a segment. This data point is generated only if segmented Net Income exists on the As Reported layer.

Process Overview

The following diagram provides an overview of our collection process.

Exhibit 4



Source: Morningstar.

A few highlights to note –

- × Morningstar attempts to source geographic-segment-related information from the entire financial report. This includes the Notes to the Financial Statements, Management Discussion and Analysis, charts, graphs, and so on. This helps to provide more clarity when a company does not report any segmented information or reports ambiguous segments such as “domestic” and “foreign.”
- × Morningstar maps the As Reported segment names to our country-region segment taxonomy. For more details, refer to the next section.

- × Morningstar provides all As Reported geographic segment information collected. Additionally, Morningstar also calculates country-level segment information if it is not reported. See the section on “Calculating Standardized Country-Level Data.”
- × Quality is built into the process every step of the way. There are quality checks during collection and production, and there are regular measurements and periodic audits to track the quality of the data.

Country-Region Segment Taxonomy

In order to facilitate collection and downstream calculations, Morningstar has designed a country-region taxonomy for analyst use. See Appendix B.

The taxonomy allows the analyst to select and tag the appropriate countries represented in each segment. This in turn facilitates downstream calculations at the country level when the company reports a region or combination of countries in a segment.

Tagging to the Taxonomy

Analysts use as much information within the Financial Report as possible to tag the segments appropriately.

Creating Expressions Using the Taxonomy

The taxonomy allows analysts to exercise flexibility in creating expressions that help to best represent a reported segment accurately when further disclosure is not available.

Commonly Reported Items Within the Taxonomy

The taxonomy includes commonly reported segments such as "Domestic," "Rest of the World," and "intercompany eliminations." These regularly used segment names take on default definitions within the taxonomy.

- × Rest of the World – All the other countries in the taxonomy, less what is reflected/reported in other segments.
- × Domestic/Local—Business Country. The collection/calculation system will automatically assign the specific country by reading the business country data point.
- × Intercompany/Intersegment/Corporate Eliminations – The value of the intercompany/intersegment/corporate eliminations are allocated to the reported segments, so as to derive the external revenue for each segment. This is used only when the intersegment eliminations cannot be directly attributed to a country/segment.
- × Foreign/Others – similar to Rest of the World.

Example – Apple, Inc., 10-Q ended June 27, 2015
Creating Expressions using Country-Region Segment Taxonomy

The highlighted note above the table (see screenshot below) contains material information about the countries represented within each of the reported segments. This allows the analyst to tag the more granular countries represented in the segment where possible and create expressions that best reflect the segment.

Exhibit 5

Note 11 – Segment Information and Geographic Data

The Company reports segment information based on the "management" approach. The management approach designates the internal reporting used by management for making decisions and assessing performance as the source of the Company's reportable operating segments.


The Company manages its business primarily on a geographic basis. The Company's reportable operating segments consist of the Americas, Europe, Greater China, Japan and Rest of Asia Pacific. The Americas segment includes both North and South America. The Europe segment includes European countries, as well as India, the Middle East and Africa. The Greater China segment includes China, Hong Kong and Taiwan. The Rest of Asia Pacific segment includes Australia and Asian countries, other than those countries included in the Company's other operating segments. Each operating segment provides similar hardware and software products and similar services. The accounting policies of the various segments are the same as those described in Note 1, "Summary of Significant Accounting Policies" of the Notes to Consolidated

	Three Months Ended		Nine Months Ended	
	June 27, 2015	June 28, 2014	June 27, 2015	June 28, 2014
Americas:				
Net sales	\$ 20,209	\$ 17,574	\$ 72,091	\$ 60,345
Operating income	\$ 6,177	\$ 5,932	\$ 24,064	\$ 20,030
Europe:				
Net sales	\$ 10,342	\$ 8,659	\$ 39,760	\$ 33,935
Operating income	\$ 3,275	\$ 2,855	\$ 13,269	\$ 11,083
Greater China:				
Net sales	\$ 13,230	\$ 6,230	\$ 46,197	\$ 25,561
Operating income	\$ 5,147	\$ 2,081	\$ 18,227	\$ 8,869
Japan:				
Net sales	\$ 2,872	\$ 2,627	\$ 11,777	\$ 11,719
Operating income	\$ 1,447	\$ 1,214	\$ 5,634	\$ 5,376
Rest of Asia Pacific:				
Net sales	\$ 2,952	\$ 2,342	\$ 12,389	\$ 9,112
Operating income	\$ 1,154	\$ 706	\$ 4,603	\$ 2,978

Source: Morningstar.

The table below demonstrates how Morningstar would collect this data.

Exhibit 6

As Reported Segment Name	Mapped Morningstar Taxonomy	Period Ended 6/27/2015	Note
Net Sales		3M	
Americas	<North America> + <South America>	20,209	A
Europe	<Europe> + <India> + <Middle East> + <Africa>	10,342	
Greater China	<China> + <Hong Kong> + <Taiwan>	13,230	
Japan	<Japan>	2,872	
Rest of Asia Pacific	<Australia> + <Asia> - <China> - <Hong Kong> - <Taiwan> - <Japan> - <India>	2,952	
 Total	Calculated Total	49,605	Matches Income Statement

Notes:

A – The segment value (revenue) in this case will be apportioned among all the countries within the tagged region in the Morningstar Taxonomy, according to our calculation methodology. For more details, see section on “Calculating Standardized Country-Level Data.”

Collecting As Reported Data

This section outlines Morningstar's general principles in collecting the reported geographic segment data from the financial reports. Data is only collected when geographic segment information is explicitly reported by the company. When geographic segment data is not explicitly disclosed by the company, certain assumptions are used to generate the data on the standardized layer.

- × Morningstar collects geographic segment revenue (business revenue, net interest income, noninterest income, premiums earned/written) data as reported by the company.
 - × Should the company mention that it operates only or primarily in one segment and explicitly mentions the region/country of that segment, then Morningstar creates that segment, tags the country As Reported, and collects the revenue value from the Income Statement.
- × Morningstar collects geographic segment data whenever it is reported by the company, regardless of where it is reported, how it is reported (text, charts, tables), and how many segments exist.
 - × Should the geographic segment data be reported in percentages, Morningstar converts the percentages into dollar value.
 - × Should the geographic segment data be represented in charts, tables, or diagrams, Morningstar stores that data into a table that can be utilized within the system.
 - × In some cases, Morningstar has to make assumptions about how to apportion the values when insufficient details are provided.
- × The most granular level of geographic segment data that Morningstar seeks is on the country level, and priority is given to tagging the most granular level possible.
 - × Should the geographic segment data be reported on a level more granular than country (that is, cities, states, territories, provinces), Morningstar collects them as As Reported data and tags each city/state/territory/province to its country.
 - × Should the company provide multiple geographic segment data presentations – for example, by regions and by countries – and they both add up to the same total, Morningstar chooses to update the country-level information and ignore the region breakouts.
- × Morningstar takes into account the company's geographic segment disclosures over time to determine the best way to collect the geographic segment data. Because only annual data is collected, the prior year's disclosures are surveyed to ensure that there are no major fluctuations unless the company has significantly changed its geographical exposure.

- × Morningstar looks to ensure that the collected geographic segment totals match the corresponding financial statement items as frequently as possible.
- × Where the company provides multiple types of geographic segment disclosures, preference is always given to the ultimate source of the customers. Morningstar will collect breakdowns by billing location, or any other types of breakdowns as reported by the company, if the location of the customers is not provided.
- × Morningstar will not collect subtotals reported if the more granular breakdowns are collected and tagged.

Morningstar has adopted the above principles to the best of its ability. Foreign language challenges might prohibit searching through the entire report thoroughly to find the relevant information. In these situations, predefined key words are used to pinpoint geographic segment information. Should no information be found, the total revenue is allocated to the “Domestic” segment.

Calculating Standardized Country-Level Data

This section outlines how we will create the standardized product.

Big Idea: The “Down Then Up” Approach

In order to facilitate the “rolling up” of segmented data, Morningstar assigns all values provided down to the individual country level. In cases where the company provides all its segmented data at the country level, then no calculations are required. Morningstar can provide this information to downstream products (Index, Funds), who can then aggregate them however they see fit. If the company provides regional data (North America, Asia, and so on) though, Morningstar then splits the regions into individual countries.

Step 1: Rationalization of Standardized Data Points

Before taking any steps to allocate values, the system needs to rationalize the values across different country segments due to the variations in the ‘As Reported’ layer. The scope of standardization is only for the four standardized data points defined earlier. There are three key objectives in this step – i) to generate standardized data points, ii) to handle intersegment elimination, and iii) to ensure that the totals of all the segments for the standardized data points match that of the financial statements.

× Standardized Data Points

The system must first generate the following four standardized data points per segment based on the As Reported data points.

- × Total Revenue – to generate standardized Total Revenue, the system will
 - × Sum all the As Reported segment revenues (Business Revenue + Net Interest Income + Noninterest Income + Gross Premiums Earned/Written). This may or may not match the company Total Revenues in the Income Statement.
 - × If the segment totals match the Income Statement, use values as reported. If it does not, see section C below.
 - × If there is no segmented data collected on the As Reported layer, (that is, the company operates only or primarily in one segment but did not explicitly mention which country or did not mention any information about geographic segments), the system will assign the Total Revenues of the company to the business country of the company. The exception is when there are no reported, 0, or

negative Revenues in the Income Statement. In these cases, Standardized Total Revenue is not available.

- × Total Assets – to generate standardized Total Assets,
 - × Take Total Assets value on the 'As Reported' layer
 - × If Total Assets data point is not available, use Long Term Assets or any component of Assets reported by geographic segment as a proxy to generate Total Assets. See section C.
- × Operating Income – to generate standardized Operating Income, take Operating Income if it exists on the 'As Reported' layer. Otherwise, leave NULL.
- × Net Income – to generate standardized Net Income, take Net Income if it exists on the 'As Reported' layer. Otherwise, leave NULL.
- × Intersegment Elimination/Corporate Adjustments

Companies often present their segmented data on a total sales basis including internal sales. They then reconcile to the total on the financial statements with an adjustment for “intersegment elimination.” In order to ensure segment totals match the financial statement values, Morningstar must incorporate this information into the standardized values.

If the company reported the intersegment elimination line per country/region, data analysts collect the sales value net of the elimination. If the company reports intersegment elimination post countries/regions, the system will allocate that value on a proportionate basis to the countries/regions based on the percentage of sales.

Using the following example:

Exhibit 7

Country	Sales	Percentage
Argentina	100	77%
Bolivia	20	15%
Chile	10	8%
Total Sales	130	
Intersegment Elimination	-10	
Sales on Income Statement	120	

Source: Morningstar.

The intersegment elimination is allocated to each country based on the percentage of sales that the country represents:

Exhibit 8

Country	Sales	Percentage
Argentina	100	77%
Bolivia	20	15%
Chile	10	8%
Total Sales	130	
Intersegment Elimination - Total	-10	
Intersegment Elimination - Argentina Portion	-7.69	
Intersegment Elimination - Bolivia Portion	-1.54	
Intersegment Elimination - Chile Portion	-0.77	

Source: Morningstar.

Then those allocations are added to the original totals to arrive at the standardized sales numbers:

Exhibit 9

Country	Sales	Percentage
Argentina	92.31	77%
Bolivia	18.46	15%
Chile	9.23	8%
Total Sales	120	

Source: Morningstar.

Financial Statement Totals Do Not Match Segmented Totals

Even after accounting for intersegment elimination, the totals for segmented data can differ from the values on the financial statements. This can occur as a result of companies using different accounting definitions for different sections of their reports.

Example – a company only reports the breakdown for Long Term Assets. This is then used as a proxy to generate Total Assets for each segment.

Exhibit 10**United Parcel Service (UPS) 12/31/2016**

A company only reports the breakdown for Long Term Assets.

This is then used as a proxy to generate Total Assets for each segment.

Total Assets (Balance Sheet)	40,377,000,000	B		
		A		A*B
As Reported Segment Name	Long Lived Assets	% Allocated	Note	Total Assets
United States	19,253,000,000	76.55%	Segment Reported Assets / Total Reported Assets	30,908,593,500
International	5,898,000,000	23.45%		9,468,406,500
Total	25,151,000,000	100.00%		40,377,000,000

Source: Morningstar.

Exhibit 11**Delta Lloyd N.V. 12/31/2014**

Using 'As Reported' revenue data as a proxy to generate Total Revenue for each segment.

Total Revenue (Income Statement)	13,876,900,000	F						
	A	B	C	B+C	D=A+B+C	E= D/SUM(D)		E * F
As Reported Segment Name	Gross Written Premiums	Fee & Commission Income	Interest Income	Total Business Revenue	Total Reported Revenue	% Allocated	Note	Total Revenue
Netherlands	3,200,100,000	222,100,000	1,357,800,000	1,579,900,000	4,780,000,000	75.31%	Segment Reported Revenue / Total Reported Revenue	10,451,349,835
Belgium	763,200,000	71,100,000	336,000,000	407,100,000	1,170,300,000	18.44%		2,558,831,530
Germany	241,200,000	7,600,000	147,600,000	155,200,000	396,400,000	6.25%		866,718,635
	4,204,500,000	300,800,000	1,841,400,000	2,142,200,000	6,346,700,000	100.00%		13,876,900,000

Source: Morningstar.

Step 2: Region Taxonomy & Breakdown

The objective for this step is to build the “cleanest” possible country breakdown when regions are used as geographic segments.

For any region tagged by the analyst, Morningstar has taxonomy to determine which countries are assigned to that region. The taxonomy continues to grow as new regions are encountered (See Appendix B).

Example: South America = <Argentina> + <Bolivia> + <Brazil> + <Chile> + <Colombia> + <Ecuador> + <Guyana> + <Paraguay> + <Peru> + <Suriname> + <Uruguay> + <Venezuela>

Each region can then be deconstructed into its respective countries, which will replace the region in the Data Analyst's formula. Morningstar uses the UN country list as the source of countries (<http://www.un.org/en/members/>).

× Breaking down expressions built by analysts

The Data Analyst built the following expression: <South America> - <Brazil> - <Ecuador>

This turns into:

<Argentina> + <Bolivia> + <Brazil> + <Chile> + <Colombia> + <Ecuador> + <Guyana> + <Paraguay>
+ <Peru> + <Suriname> + <Uruguay> + <Venezuela> - <Brazil> - <Ecuador>

This then simplifies into:

<Argentina> + <Bolivia> + <Chile> + <Colombia> + <Guyana> + <Paraguay> + <Peru> + <Suriname>
+ <Uruguay> + <Venezuela>

× Removing tagged countries from regions

The analyst maps the segment to the closest taxonomy item. In some cases, a country can be found to be its own segment and also part of another region segment under the Morningstar taxonomy. In these cases, the system must subtract tagged countries from any region to avoid double counting. The countries assigned by the system via the region breakout must not contain any countries that have been tagged by the analysts.

In the below example, the italicized countries within the expression are automatically built by the calculation system. The system recognizes that within the taxonomy, Asia includes China, Hong Kong, Taiwan, India, and Japan. However, they are already included within the other segments. As such, they will have to be subtracted from the region to avoid double-counting.

The system then breaks down any region segments into their respective countries according to the expressions built.

Exhibit 12 Apple, 10-Q ended June 27, 2015

As Reported Segment Name	Mapped Morningstar Taxonomy	Period Ending 6/27/2015
Net Sales		3M
	<North America> + < South America>	
	<Europe> + <India> + <Middle East> + <Africa>	
Greater China	<China> + <Hong Kong> + <Taiwan>	13,230
Japan	<Japan>	2,872
	<Australia> + <Asia> - <China> - <Hong Kong> - <Taiwan> - <Japan> - <India>	
Total	Calculated Total	49,605

Source: Morningstar.

Similarly, in the example below, the system will recognize countries that have been tagged and will remove them when breaking down any regions.

Exhibit 13 AXA SA., Annual Report ended Dec. 31, 2014

As Reported Segment Name	Mapped M* Taxonomy	12/31/2014	Note
Life & Savings France	<France>	180,364	
Life & Savings Japan	<Japan>	43,855	
....			
Life & Savings Asia (excl. Japan)	<Asia> - <Japan>	13,162	Asia broken out into countries that exclude Japan, as per expression built by analyst.
Life & Savings Other Countries	<Rest of World>	4,704	<World> - <Asia> - <France> - <Japan> ... Rest of the world broken out into countries not tagged in any of the segments
Property & Casualty France	<France>	20,344	
...			
Property & Casualty Asia	<Asia>	1,593	Asia broken out into countries that exclude Japan because it is used in another segment.
Property & Casualty Other Countries	< Rest of World >	(224)	<World> - <Asia> - <France> Rest of the world broken out into countries not tagged in any of the segments
...			

Source: Morningstar.

× Overlapping Regions

It is also possible when assigning regions that some regions can overlap. For example, an analyst could tag one total as “Middle East” and another as “Asia.” In that situation, Iran would fall into both regions. Therefore, there needs to be back-end logic to prevent a country from receiving multiple allocations. The logic declares that the country is to be included in the region for which it would have the highest percentage allocation according to gross domestic product.

Continuing with our example, this would be the Middle East because Iran would make up a larger percentage of the GDP for the Middle East region than for Asia. When the Asian value is allocated, Iran is excluded.

Step 3: GDP Allocation per Segment

When there is more than one country in a segment (in the form of a region or multiple countries), we will have to allocate the segment total to the individual countries. The allocation of the region total for

each segment out to the individual countries is done by using the latest GDP figures available from the [World Bank](#) and [IMF](#).

If one country's GDP is unavailable for calculation in the current period, we will look back five years for a record; if it is still unavailable, we will assume the GDP value as 0.

The GDP table is updated every July. For any fiscal year before July, the prior year's GDP will be used. For any fiscal year after July, the current year's GDP will be used.

The latest GDP information is also available in Appendix C.

The country GDPs are summed together, then each country's allocation percentage is derived by taking the country's GDP divided by the total. Any countries with less than 1% allocation will be set to zero. Then the allocation will be recalculated for the remaining countries.

Exhibit 14 First Allocation (South America, excluding Brazil & Ecuador)

Country	GDP	Percentage
Argentina	540,197,457,444	27%
Bolivia	34,175,832,127	2%
Chile	258,061,522,887	13%
Columbia	377,739,622,866	19%
Guyana	3,228,372,888	0%
Paraguay	30,984,747,863	2%
Peru	202,902,760,293	10%
Suriname	5,298,787,879	0%
Uruguay	57,471,277,325	3%
Venezuela	509,964,084,931	25%

Source: Morningstar.

Exhibit 15 Final Allocation After Removing Countries With 1% or Less GDP %

Country	GDP	Percentage
Argentina	540,197,457,444	27%
Bolivia	34,175,832,127	2%
Chile	258,061,522,887	13%
Columbia	377,739,622,866	19%
Guyana	3,228,372,888	0%
Paraguay	30,984,747,863	2%
Peru	202,902,760,293	10%
Suriname	5,298,787,879	0%
Uruguay	57,471,277,325	3%
Venezuela	509,964,084,931	25%

Source: Morningstar.

In addition, the following countries will not be allocated any percentage under any circumstances unless explicitly listed by the company: 1. North Korea

Step 4: Summation

After allocating the values of the standardized data points per segment, the system will have to sum up instances when a country is tagged to multiple segments for a given data point.

In the following example, Germany will be allocated values for Total Revenue in two segments. The system will then sum up the value allocated to Germany in both segments to generate the Total Revenue for Germany.

Exhibit 16 Allianz SA., Annual Report ended Dec. 31, 2015. Total Revenues.

As Reported Segment Name	Mapped M* Taxonomy	12/31/2014	Note
Property-Casualty German-Speaking Countries	<Germany> + <Switzerland> + <Austria>	11,554	Segment is broken out into three countries and value is allocated among the three countries according to GDP
...			
Life/Health German-Speaking Countries	<Germany> + <Switzerland> + <Austria>	27,620	Segment is broken out into three countries and value is allocated among the three countries according to GDP

Source: Morningstar.

Special Situations

Should the company not report all the components of its revenue in the segment disclosure and/or mention that it primarily operates in (some of) the disclosed segments, the total As Reported segmented revenue will not match the Revenue appearing on the Income Statement. In these cases, the analyst collects what is reported and the back-end calculation uses the reported proxies to allocate the remaining revenue in the Standardized layer.

Example – Berkshire Hathaway Inc., Annual Report ended Dec. 31, 2014

The company reported the geographic breakdown of insurance premiums written (instead of premiums earned); sales and services; and railroad, utilities, and energy business separately and in different formats (dollars and percentages). Morningstar exercises judgment and collects the As Reported data the best way possible. Then, the calculation system uses segmented totals to apportion the Total Revenues (which includes insurance premiums earned and finance income) from the Income Statement.

Exhibit 17 Notes to Financial Statements—Segment Report

Insurance premiums written by geographic region (based upon the domicile of the insured or reinsured) are summarized below. Dollars are in millions.

	Property/Casualty			Life/1	
	2014	2013	2012	2014	2013
United States	\$31,362	\$25,704	\$23,186	\$3,402	\$3,402
Western Europe	2,424	2,234	4,387	1,135	1,135
All other	2,805	2,973	2,319	1,305	1,305
	<u>\$36,591</u>	<u>\$30,911</u>	<u>\$29,892</u>	<u>\$5,842</u>	<u>\$5,842</u>

In 2014 and 2013, premiums written and earned attributable to Western Europe were primarily in the United Kingdom and Germany. In 2012, premiums included meaningful amounts attributable to Switzerland and Luxembourg. Life/health insurance premiums written and earned in the United States included approximately 2012 from a single contract with Swiss Re Life & Health America Inc., an affiliate of Swiss Reinsurance Company Ltd. This contract was amended in 2013 with the return of premiums.

Consolidated sales and service revenues in 2014, 2013 and 2012 were \$102.2 billion, \$97.6 billion and \$85.8 billion, respectively. In each year, approximately 96% of revenues were attributable to the United States. The remainder of sales and service revenues were primarily in the Europe, Canada and Asia-Pacific regions. In ending December 31, 2014, consolidated sales and service revenues included sales of approximately \$13 billion in 2014 and 2013 and \$12 billion in 2012 to Western Europe.

Approximately 96% of our revenues in 2014, 2013 and 2012 from railroad, utilities and energy businesses were in the United States. At December 31, 2014, consolidated net property, plant and equipment was located in the United States with the remainder primarily in Europe and Canada.

Source: Morningstar.

Exhibit 18 Income Statement

BERKSHIRE HATHAWAY INC. and Subsidiaries CONSOLIDATED STATEMENTS OF EARNINGS <i>(dollars in millions except per-share amounts)</i>			
	Year Ended December 31,		
	2014	2013	2012
Revenues:			
<i>Insurance and Other:</i>			
Insurance premiums earned	\$ 41,253	\$ 36,684	\$ 34,545
Sales and service revenues	97,097	92,993	81,447
Interest, dividend and other investment income	5,026	4,934	4,532
Investment gains/losses	3,503	3,881	990
	<u>146,879</u>	<u>138,492</u>	<u>121,514</u>
<i>Railroad, Utilities and Energy:</i>			
Revenues	<u>40,690</u>	<u>34,757</u>	<u>32,582</u>
<i>Finance and Financial Products:</i>			
Sales and service revenues	5,094	4,635	4,358
Interest, dividend and other investment income	1,432	1,474	1,574
Investment gains/losses	72	184	472
Derivative gains/losses	506	2,608	1,963
	<u>7,104</u>	<u>8,901</u>	<u>8,367</u>
	<u>194,673</u>	<u>182,150</u>	<u>162,463</u>

Source: Morningstar.

See below table for an example on how Morningstar collects the data.

Exhibit 19

As Reported Segment Name	Mapped Morningstar Taxonomy	12/31/2014	Note
Total Revenues (Income Statement)		194,673	
<i>Gross Premiums Earned/ Written</i>			
Premiums Written - US	<United States of America>	31,362	
Premiums Written - Western Europe	<UK> + <Germany>	2,424	
Premiums Written Rest of the World	<Rest of the World>	2,805	
	<i>Total Premiums Written</i>	<i>36,591</i>	
<i>Business Revenues</i>			The below values are manually calculated by the analysts
Sales & Service Revenue - US	<United States of America>	86,862	= 85% * 102,193 The exact value is available from the Income Statement
Sales & Service Revenue - Rest of the World	<Europe> + <Canada> + <Asia-Pacific>	15,329	= 15% * 102,193
Railroad, Utilities & Energy - US	<United States of America>	39,062	= 96% * 40,690
Railroad, Utilities & Energy - Rest of the World	<Europe> + <Canada>	1,628	= 4% * 40,690
	Total Business Revenues	142,881	
	Total As Reported Revenues	179,472	Does not match Income Statement Total Revenues

Source: Morningstar.

Source: Morningstar.

See table below on how Morningstar allocates the difference and Total Revenues across the reported segments (a step prior to the country-segment allocation).

Exhibit 20 Allocation & Standardization (Pre-Country Allocation)

Total Revenues	Notes	Total Reported Revenue	Allocated %	Difference Allocated	Standardized Total Revenues
<United States of America>	US Gross Premiums Written + Business Revenue	157,287	87.64%	13,321.94	170,609
<UK> + <Germany>	Western Europe Gross Premiums Written + Business Revenue	2,424	1.35%	205.31	2,629
<Europe> + <Canada> + <Asia-Pacific> - <UK> - <Germany>	Rest of the World Business Revenue (Sales & Service)	15,329	8.54%	1,298.31	16,627
<Europe> + <Canada>	Business Revenue (Railroad, Utilities & Energy)	1,628	0.91%	137.86	1,765
<Rest of the World> - <United States of America> - <Europe> - <Canada> - <Asia Pacific>	Rest of the World Gross Premiums Written	2,805	1.56%	237.58	3,043
Total		179,472	100.00%	15,201.00	194,673

Source: Morningstar.

Final Product & Production Process

This section outlines the expected final product – an As Reported view and a Standardized view – and how we will create the latter from the former.

The As Reported view provides the segment names and values as reported by the company for all collected periods. Clients may also choose to see the countries in the Morningstar Country-Region taxonomy that the segment is tagged to if they wish to do so. The Standardized view provides the segment values for each country within the Morningstar Country-Region taxonomy.

Using Apple as an example, below is the As Reported view (quarterly values used for illustration only) –

Exhibit 21 Apple, As Reported View (Quarterly Values Used for Illustration Only)

Data Point	As Reported Description/Segments	Mapped Morningstar Taxonomy	Period Ending 6/27/2015
Business Revenue	Net Sales		3M
	Americas	<North America> + <South America>	20,205
	Europe	<Europe> + <India> + <Middle East> + <Africa>	10,342
	Greater China	<China> + <Hong Kong> + <Taiwan>	13,230
	Japan	<Japan>	2,872
	Rest of Asia Pacific	<Australia> + <Asia> - <China> - <Hong Kong> - <Taiwan> - <Japan>	2,952
	Total	Calculated Total	49,601

Source: Morningstar.

Exhibit 22 Apple, Standardized View for Total Revenue, Part 1

Region	Countries	GDP	GDP %	Qualifying GDPs	Allocation %	Allocated Revenue
North America						
	Canada	1.78666E+12	7.29%	1.78666E+12	7.29%	1,472.51
	Mexico	1.28272E+12	5.23%	1.28272E+12	5.23%	1,057.18
	United States	1.7419E+13	71.04%	1.7419E+13	71.04%	14,356.20
South America						
	Argentina	5.40197E+11	2.20%	5.40197E+11	2.20%	445.21
	Brazil	2.34612E+12	9.57%	2.34612E+12	9.57%	1,933.60
	Chile	2.58062E+11	1.05%	2.58062E+11	1.05%	212.69
	Colombia	3.7774E+11	1.54%	3.7774E+11	1.54%	311.32
	Venezuela, RB	5.09964E+11	2.08%	5.09964E+11	2.08%	420.30
	Total	2.45205E+13	100.00%	2.45205E+13	100.00%	20,209.00
Europe						
	Austria	4.36344E+11	1.44%	4.36344E+11	1.73%	179.26
	Belgium	5.33383E+11	1.76%	5.33383E+11	2.12%	219.13
	Switzerland	6.85434E+11	2.27%	6.85434E+11	2.72%	281.60
	Germany	3.85256E+12	12.74%	3.85256E+12	15.30%	1,582.75
	Denmark	3.41952E+11	1.13%	3.41952E+11	1.36%	140.48
	Spain	1.40431E+12	4.64%	1.40431E+12	5.58%	576.93
	France	2.82919E+12	9.35%	2.82919E+12	11.24%	1,162.32
	UK	2.94189E+12	9.73%	2.94189E+12	11.69%	1,208.62
	Italy	2.14434E+12	7.09%	2.14434E+12	8.52%	880.96
	Netherlands	8.69508E+11	2.87%	8.69508E+11	3.45%	357.22
	Norway	5.00103E+11	1.65%	5.00103E+11	1.99%	205.46
	Poland	5.48003E+11	1.81%	5.48003E+11	2.18%	225.14
	Russian Fed.	1.8606E+12	6.15%	1.8606E+12	7.39%	764.39
	Sweden	5.70591E+11	1.89%	5.70591E+11	2.27%	234.42
	Turkey	7.99535E+11	2.64%	7.99535E+11	3.18%	328.47
	India	2.0669E+12	6.83%	2.0669E+12	8.21%	849.15
	Iran, Islamic Rep.	4.15339E+11	1.37%	4.15339E+11	1.65%	170.63
	Israel	3.04226E+11	1.01%	3.04226E+11	1.21%	124.99
	Saudi Arabia	7.46249E+11	2.47%	7.46249E+11	2.96%	306.58
	UAE	4.01647E+11	1.33%	4.01647E+11	1.60%	165.01
	Nigeria	5.68508E+11	1.88%	5.68508E+11	2.26%	233.56
	South Africa	3.52817E+11	1.17%	3.52817E+11	1.40%	144.95
	Total	3.0247E+13	83.23%	2.51734E+13	100.00%	10,342.00

Exhibit 22 Apple, Standardized View for Total Revenue, Continued

Region	Countries	GDP	GDP %	Qualifying GDPs	Allocation %	Allocated Revenue
China, Hong Kong & Taiwan	China	1.03601E+13	92.66%	1.03601E+13	92.66%	12,259.16
	HK SAR, China	2.90896E+11	2.60%	2.90896E+11	2.60%	344.22
	Taiwan	5.2955E+11	4.74%	5.2955E+11	4.74%	626.62
	Total	1.11806E+13	100.00%	1.11806E+13	100.00%	13,230.00
Australia	Australia	1.45377E+12	24.55%	1.45377E+12	25.73%	759.57
	Bangladesh	1.41275E+11	2.39%	1.41275E+11	2.50%	73.81
	Indonesia	8.70275E+11	14.70%	8.70275E+11	15.40%	454.70
	Kazakhstan	2.20347E+11	3.72%	2.20347E+11	3.90%	115.13
	South Korea	1.2218E+12	20.63%	1.2218E+12	21.62%	638.37
	Malaysia	3.12433E+11	5.28%	3.12433E+11	5.53%	163.24
	Pakistan	2.38737E+11	4.03%	2.38737E+11	4.23%	124.74
	Philippines	2.72018E+11	4.59%	2.72018E+11	4.81%	142.12
	Singapore	2.95744E+11	4.99%	2.95744E+11	5.23%	154.52
	Sri Lanka	65833000000	1.11%	65833000000	1.17%	34.40
	Thailand	3.87156E+11	6.54%	3.87156E+11	6.85%	202.28
	Vietnam	1.70565E+11	2.88%	1.70565E+11	3.02%	89.12
	Total	5.92176E+12	95.41%	5.64995E+12	100.00%	2,952.00

Appendix A – Morningstar Global Index Countries (ex-US)

Below is the list of countries covered by Morningstar Global ex-US Indexes.

Country	Classification	Country	Classification
Australia	Developed	Brazil	Emerging
Austria	Developed	Chile	Emerging
Belgium	Developed	China	Emerging
Canada	Developed	Colombia	Emerging
Denmark	Developed	Czech Republic	Emerging
Finland	Developed	Egypt	Emerging
France	Developed	Hungary	Emerging
Germany	Developed	India	Emerging
Greece	Developed	Indonesia	Emerging
Hong Kong	Developed	Malaysia	Emerging
Ireland	Developed	Mexico	Emerging
Israel	Developed	Morocco	Emerging
Italy	Developed	Peru	Emerging
Japan	Developed	Philippines	Emerging
Netherlands	Developed	Poland	Emerging
New Zealand	Developed	Russia	Emerging
Norway	Developed	South Africa	Emerging
Portugal	Developed	South Korea	Emerging
Singapore	Developed	Taiwan	Emerging
Spain	Developed	Thailand	Emerging
Sweden	Developed	Turkey	Emerging
Switzerland	Developed	UAE	Emerging
United Kingdom	Developed	Qatar	Emerging

Appendix B – Morningstar Country-Region Segment Taxonomy

The proposed Morningstar Country-Region segment taxonomy can be provided separately. This includes geographic, economic, and political regions.

Appendix C – GDP

This is the GDP and allocation percentage distributed by country and region. The source of this data is the World Bank (primary source) and IMF (secondary source).

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