



CardProfit is an analytics and recommendation application designed to increase credit card profitability and opportunity discovery for Issuer and Acquirer portfolios.

CardProfit is an analytics, business intelligence and strategic recommendation application for the integral administration of payments portfolios. It is used to increase profitability and opportunity discovery in Issuer portfolios in multi-dimensional cross-segmented markets, and to derive unit indicators and profitability benchmarks in order to support profitability and performance goal setting, valuation and monitoring. It is also used to promote portfolio product development and performance and facilitate studies of tendencies and life cycle issues. There is no similar or remotely comparable technology in the market today, because analytics without profitability extraction and optimization will not address the customers' bottom line.

With CardProfit, bank-specific market segmentations can be created. For example, the Issuer business can be segmented by product, brand, product type, geographical regions, cardholder activity, credit limit usage, consumption volume, etc. CardProfit proposes a paradigm shift to a competitive emphasis where segmentations can be profiled in terms of unit indicators so that their performance can be isolated, compared and new opportunities identified. In particular, cross or intersected segmentations are essential to the understanding of the roles played by intersecting, independent market factors in opportunity discovery. For Issuer this leads to the discovery of opportunities and the realignment, redistribution and redesign of the product portfolio and cardholder populations based on transactional frequencies, balance and credit limit usage, etc., all resulting in increases in product performance and profitability. The CardProfit profitability methodology has been applied extensively and has resulted in profitability increases between 25% and 50%.

Each variable or unit indicator in the Issuer (or Acquirer) model can be visualized historically and through time periods of any duration. Notice that the values shown in the following examples are not realistic because the data has been generated randomly.

1 Issuer

- 1.1 *Increasing Profitability with Benchmarks and Goals*
- 1.2 *Profitability Tendency Analysis*
- 1.3 *Segmented Profitability Results*
- 1.4 *Issuer's Perspectives*
- 1.5 *Multidimensional Segmentations and Cross-Segmentations*
- 1.6 *Geographic Visualization*
- 1.7 *Issuer's Functional Activity*

2 Acquirer

3 Combined Issuer and Acquirer

4 Client's Running Environment

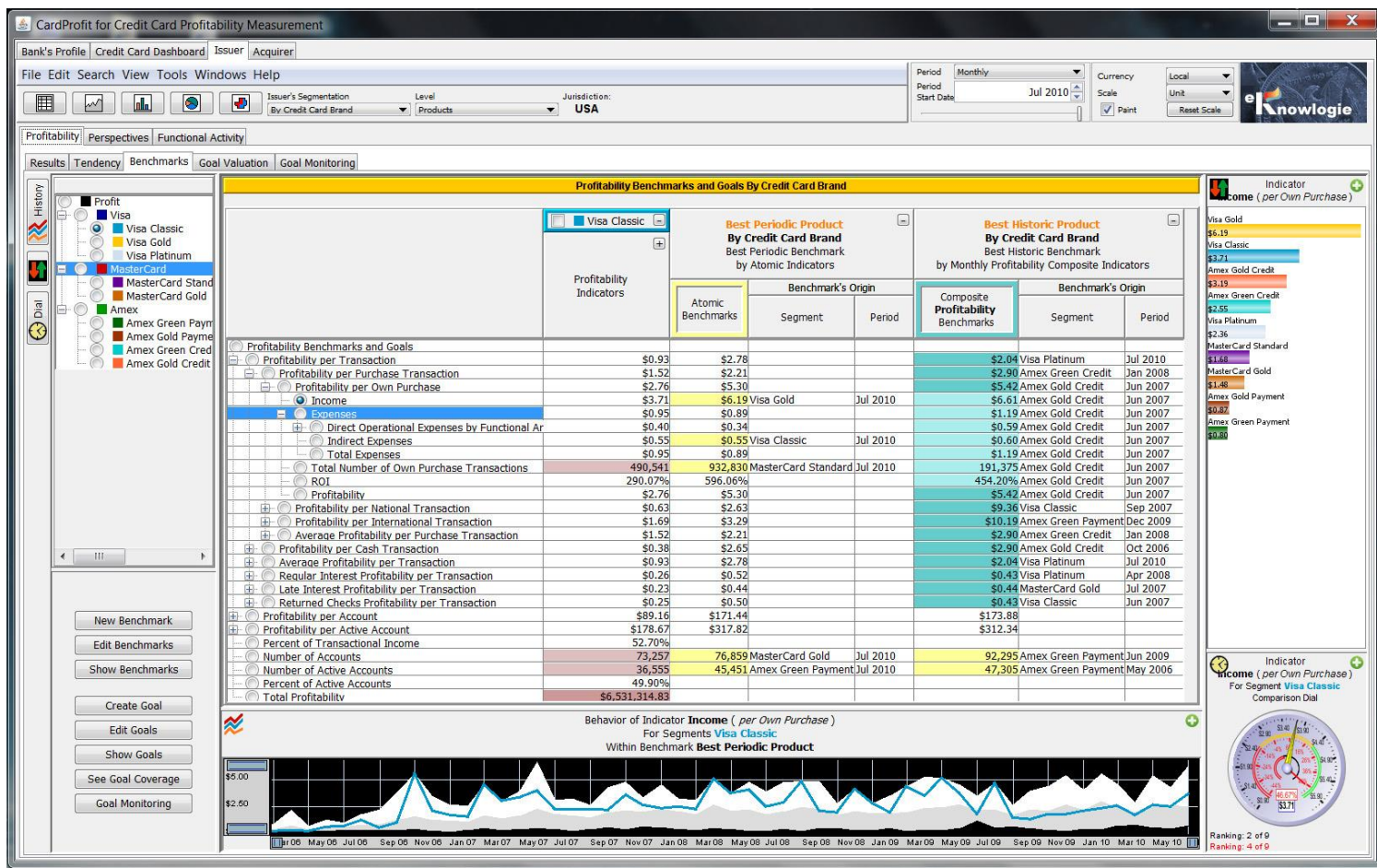
1 Issuer

1.1 Increasing Profitability with Benchmarks and Goals

It is not possible to optimize profitability without optimizing the individual segments and cross-segments and their value sources. Without profitability unit indicators, it is not possible to profile or compare these segments and their value sources. **Unit indicator benchmarks** offer a frame of reference with which to make decisions towards **profitability goal setting**. External unit benchmarks, when available, are beneficial but their use limited to average comparisons and not to profitability optimization. It is considered necessary then for a bank to have the ability to automatically generate a wide variety or catalog of internal unit benchmarks in order to properly characterize the range and behavior of the bank's very own business experience.

Creation of Unit Benchmarks

The next example shows profitability unit indicators for segment *Visa Classic*, located within a simple brand hierarchy. Such panel also shows two of the benchmarks in the bank's catalog, which place *Visa Classic* within a frame of reference. The composite indicator benchmarks shown in the table simply refer to indicators derived from others, such as profitability indicators which are produced from income minus cost indicators. Any of the indicators shown in the main table rows can be studied in depth at the hierarchy level selected in the tool bar. This hierarchy is very simple, with only two levels, *Brands* and *Products*, but other hierarchies may additionally include geographical regions, countries, and newly acquired bank subsidiaries. The selected *Income per Own Purchase* indicator is shown in a line chart against a benchmark and in additional bar and dial chart comparisons with other segments in the level *Products*. Notice that the values shown in the following examples are not realistic because the data has been generated randomly.



These two panels in the next example show how benchmarks can be created, stored in the bank's catalog, and visualized in tables and charts, as shown in the previous example. Notice that budgets are also considered benchmarks.

New Benchmark

**Best Product All-Time
By Credit Card Brand**
Best Historic Benchmark
by Atomic Indicators

Name:

Author:

Time Span

☒ Historic
☐ Cyclic
☐ Per Period

Sensitivity

☒ Use Current Periodic Unit

☐ Daily ☐ Quarterly
☐ Weekly ☐ Yearly
☐ Monthly ☐ Lifetime

Indicators Benchmarked

☒ Atomic
☐ Composite
☐ Profitability
☐ ROI
☐ Volume

Performance Levels

☒ Best
☐ Average
☐ Worst

Benchmark Population

☐ Whole Business Line
☒ Restricted to Hierarchy:
☐ Restricted to Segment:

☐ USA
☐ Visa
☒ Visa Classic
☐ Visa Gold
☐ Visa Platinum
☐ MasterCard
☐ Amex

Show Benchmarks in Table

Benchmark Catalog

External Benchmarks

☐ Global Payments' Latin American Benchmarks
☐ Visa's U.S. Benchmarks
☐ 2011 Budget

Internal Benchmarks

☒ **Best Periodic Product
By Credit Card Brand**
Best Periodic Benchmark
by Atomic Indicators

☒ **Best Historic Product
By Credit Card Brand**
Best Historic Benchmark
by Monthly Profitability
Composite Indicators

☐ **Best Cyclic Product
By Credit Card Brand**
Best Cyclic Benchmark
by Atomic Indicators

☐ **All-Time Averages
By Credit Card Brand**
Best Historic Benchmark

Cascading Goals Setting and Partial Coverage

The next step consists of the establishment of cascading goals for the Issuer business. Goals can be established for any unit indicator and volume multiplier. These goals are called cascading goals because they can be applied to segment groups in a hierarchy and unless overridden, they will apply to all segments in that hierarchy group. So for example, certain goals can be applied to all classic cards in the country of South Korea except for different goals that apply only to Visa Classic Advantage in the region of Ulsan. Goals can be specified manually or be selected from benchmarks in the bank's benchmark catalog. Goal valuations can be ranked for every level in a hierarchy, so that we can identify the best or worst performers at every level, as shown below.

In the table below we can see an example of such goal setting. Notice that of all the goals applicable to *Visa Classic*, some goals were inherited in cascade from its enclosing group segments, the *Visa* brand group and the business root *USA* (show in light blue), while other goals were assigned specifically to this segment, *Visa Classic* (in light orange). We can also observe that some goals come directly from benchmarks in the catalog, while others (such as *Number of Accounts*) were created manually. CardProfit is most flexible in that it is not necessary to "cover" all unit indicators with goals, nor all segments in the hierarchy. We could for example, establish goals only for processing expenses per transaction, and leave the rest of the indicators, such as incoming interchange income, regular interest income, other costs, number of transactions per account, etc., uncovered (without goals). Likewise, "group goals", such as processing expenses per transaction, can be used to cover more detailed goals, such as processing expenses per own, national and international transactions. CardProfit was designed to offer full goal valuation and monitoring functionality of partially covering goals.

Profitability									
Perspectives									
Functional Activity									
Results									
Tendency									
Benchmarks									
Goal Valuation									
Goal Monitoring									
Profitability Benchmarks and Goals By Credit Card Brand									

Goal Valuation

Once created, these unit goals must be valued in such a way that for each unit goal we can obtain the total monetary increase that such goal will represent for each segment to which it was assigned, or conversely, the total monetary increase of all goals assigned to each segment or segment group. So for example, if we assign a goal to the unit indicator *Processing Expenses per Own Purchase Transaction* to a segment representing an entire geographical region in a multi-national bank (perhaps because we have established that such processing must from now on be guided by the same standards), we will be able to immediately see the total monetary impact of such a goal for each product, country and the region as a whole. The example below illustrates the concept of goal valuation.

CardProfit for Credit Card Profitability Measurement

Bank's Profile | Credit Card Dashboard | Issuer | Acquirer

File Edit Search View Tools Windows Help

Period: Monthly | Currency: Local | Scale: Unit | Paint | Reset Scale

Issuer's Segmentation: By Credit Card Brand | Level: Products | Jurisdiction: USA

Profitability | Perspectives | Functional Activity

Results | Tendency | Benchmarks | Goal Valuation | Goal Monitoring

Actual Profitability vs. Projected Goals By Credit Card Brand

	Total		Visa		MasterCard		MasterCard Standard		Profitability Unit Indicators, Actual Values		Goals for 2011 Unit Cascading Goals and Projected Totals		Goal Contribution in Total Figures	
Actual Profitability vs. Projected Goals														
Profitability per Transaction	\$1.09	\$1.04	\$1.12	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$5,331,222.36
Profitability per Purchase Transaction	\$1.23	\$1.09	\$1.21	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$1.26	\$2,149,777.80
Profitability per Cash Transaction	\$0.95	\$0.99	\$1.03	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$3,181,444.55
Average Profitability per Transaction	\$1.09	\$1.04	\$1.12	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$1.07	\$5,331,222.36
Regular Interest Profitability per Transaction	\$0.22	\$0.22	\$0.22	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	\$0.21	
Late Interest Profitability per Transaction	\$0.21	\$0.20	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	\$0.23	
Returned Checks Profitability per Transaction	\$0.22	\$0.21	\$0.23	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	
Profitability per Account	\$88.18	\$85.40	\$95.03	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$4,876,905.80
Purchase Profitability per Account	\$30.32	\$28.05	\$31.57	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$36.36	\$887,958.52
Cash Transaction Profitability per Account	\$24.55	\$24.65	\$27.82	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$24.45	\$810,269.98
Regular Interest Profitability per Account	\$11.33	\$11.30	\$11.45	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$825,662.01
Income	\$20.98	\$20.68	\$21.50	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$21.68	\$605,694.65
Expenses	\$9.65	\$9.38	\$10.05	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$219,967.36
Direct Operational Expenses by Functional Area	\$3.74	\$3.65	\$4.00	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$106,906.45
Cardholder Billing	\$0.48	\$0.47	\$0.46	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$0.51	\$23,041.51
Payment Processing	\$0.57	\$0.56	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$12,142.66
Cardholder Servicing	\$0.55	\$0.54	\$0.54	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$0.59	\$26,701.97
Promotion and Retention	\$0.39	\$0.40	\$0.37	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$0.39	\$8,769.28
Collections and Overlimits	\$1.33	\$1.25	\$1.68	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$1.21	\$26,748.32
Fraud Investigation	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$2,485.88
Issuer Center Administration	\$0.32	\$0.32	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$7,016.85
Total Direct Expenses	\$3.74	\$3.65	\$4.00	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$3.68	\$106,906.45
Indirect Expenses	\$5.91	\$5.73	\$6.05	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$5.79	\$113,060.90
Total Expenses	\$9.65	\$9.38	\$10.05	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$9.47	\$219,967.36
ROI	117.34%	120.40%	113.97%	128.92%	128.92%	128.92%	128.92%	128.92%	128.92%	128.92%	128.92%	128.92%	128.92%	375.36%
Profitability	\$11.33	\$11.30	\$11.45	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$12.21	\$825,662.01
Late Interest Profitability per Account	\$10.84	\$9.93	\$11.95	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$12.96	\$430,581.63
Handling Fees Profitability per Account	\$0.04	\$0.83	\$0.13	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	(\$1.72)	\$1,411,407.40
Returned Checks Profitability per Account	\$11.10	\$10.65	\$12.12	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$11.44	\$511,026.27
Total Profitability per Account	\$88.18	\$85.40	\$95.03	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$95.69	\$4,876,905.80
Profitability per Active Account	\$149.85	\$147.88	\$147.07	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	\$150.82	
Percent of Transactional Income	59.91%	59.06%	60.13%	60.08%	60.08%	60.08%	60.08%	60.08%	60.08%	60.08%	60.08%	60.08%	60.08%	
Number of Accounts	643,787	220,816	132,849	69,190	69,190	69,190	69,190	69,190	69,190	69,190	69,190	69,190	69,190	\$2,562,933.22
Number of Active Accounts	378,854	127,518	85,846	43,900	43,900	43,900	43,900	43,900	43,900	43,900	43,900	43,900	43,900	
Percent of Active Accounts	58.85%	57.75%	64.62%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	
Total Profitability	\$56,769,896.02	\$18,857,517.89	\$12,625,017.80	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$6,621,075.27	\$12,771,061.37

Goal Monitoring

Once these goals have been valued and approved, these goals' progress must be monitored through the goals' term, at any level of detail in the segment hierarchy, and for each segment or group. The fact that a given segment may meet its assigned accumulative goal, is not an implication that its individual unit goals are exempt from scrutiny, because some unit indicators may be outperforming their goals, thus suggesting a goal reassessment towards better performance, while others may be drastically underperforming their goals, thus triggering the necessary functional corrective measures to meet such goals and further improve the segment's performance. Therefore, it is necessary that goal monitoring includes separate reviews of adverse, favorable and complete goal contributions for each individual and accumulated goals. The following example shows the process of goal configuration.

Configure Goals Monitor

Goal Name:

Goal Contribution Type

☒ Adverse Contributions
☐ Favorable Contributions
☐ Complete Contributions

Levels to Monitor

☒ Brands
☒ Products
☒ Unit Indicators

Goal Monitoring Alarm Configuration

☒ Performance inferior to average by percent.
☒ Performance inferior to average by percent.
☒ Performance superior to average by percent.

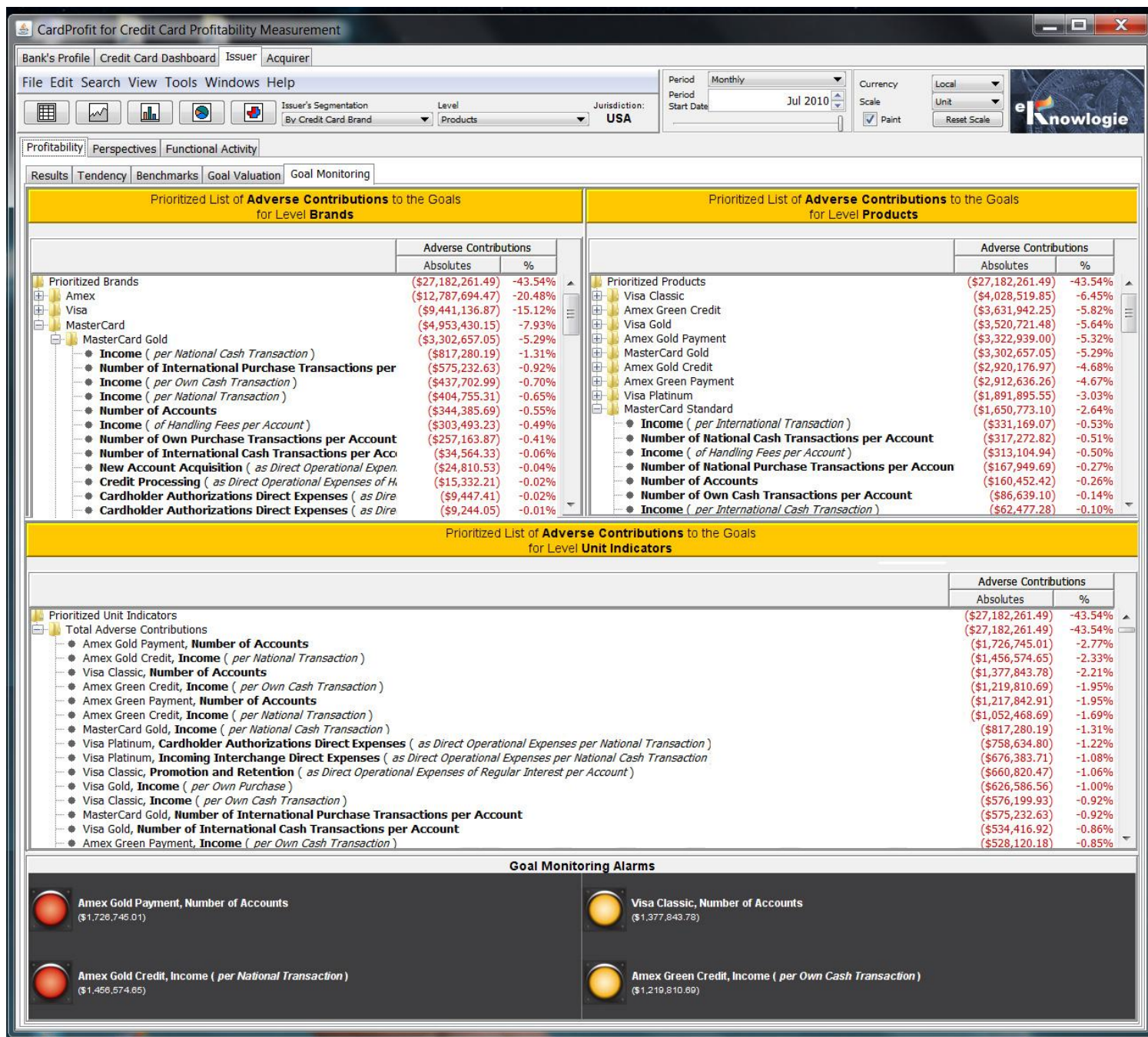
Hierarchy to be Monitored

☒ Restricted to Hierarchy:
☐ Restricted to Segment:

USA
 Visa
 ☒ Visa Classic
 ☐ Visa Gold
 ☐ Visa Platinum
 ☐ MasterCard
 ☐ Amex

OK Cancel

The following example shows goal monitoring for adverse contributions at all levels in the given hierarchy. These tables are prioritized from high to low adversity and illustrate the need to produce such tables for each level in the hierarchy. For example, even though the brand with most adverse contributions is *Amex*, we can observe that the product with most adverse contributions is *Visa Classic*, which does not belong to the most adverse brand. Similarly, the most adverse indicator, *Amex Gold Payment, Number of Accounts*, does not belong to the most adverse product. Analysis at each level of detail encourages the use of different corrective strategies for the management teams at each level, while providing the bank's global management with a complete X-ray of the entire business.

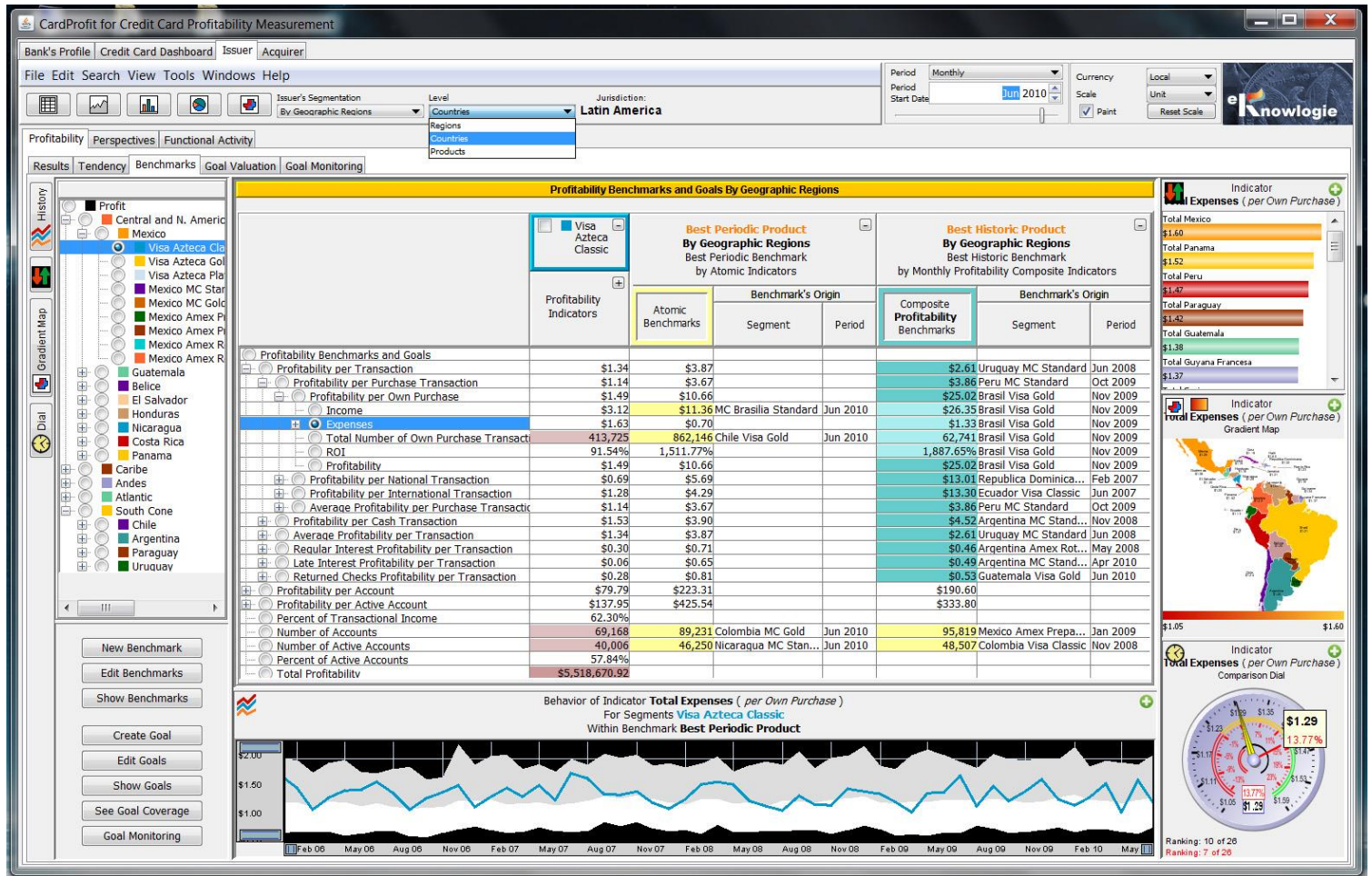


A simple example of using benchmarks and goals consists of creating a historic average benchmark for all products. With one click, all unit indicators in this benchmark can be assigned to the root of the product hierarchy, and that's it. These goals are automatically propagated in cascade to all the products in the hierarchy. Goal progress can then be monitored by inspecting negative goal deviation reports and alarms for the hierarchy levels, products and indicators within products. Because we selected an average benchmark, we know that about half of the indicators will have a performance superior to the benchmark, and thus we are not interested in positive or consolidated (positive plus negative) deviations. We are interested in having negative deviations (below average) improve to at least the average. If we use this strategy in consecutive years, the average will improve gradually but significantly. The example above can be extended by assigning individual goals from different benchmarks which would override the propagation in cascade of the average benchmark. Comparative studies to understand differences between segments with best performance according to different benchmarks, would result in the assignment of more insightful and beneficial goals specific to these segments.

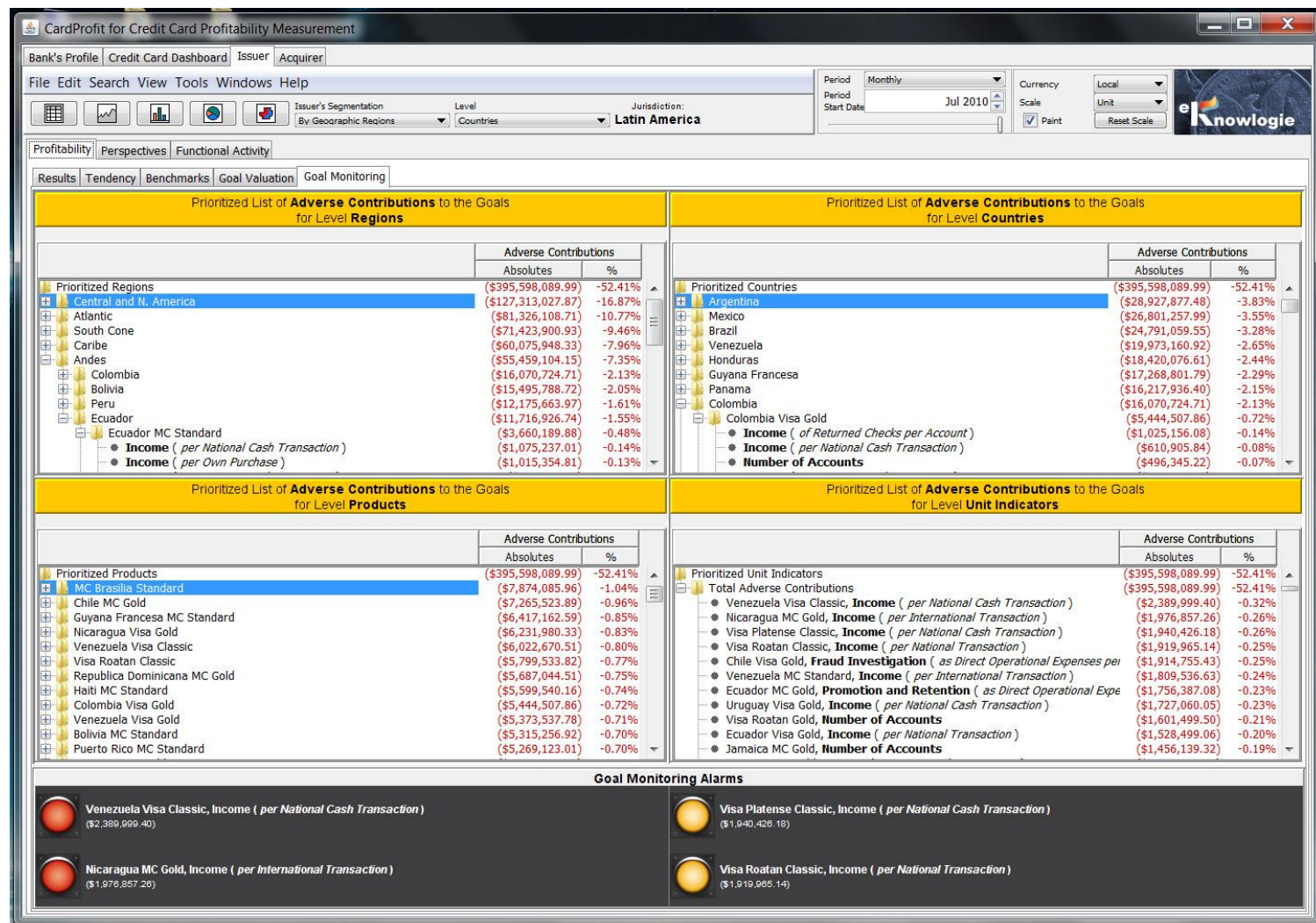
CardProfit offers the concept of **jurisdictions**. The jurisdiction for each user is the level of model visualization for such user. This way, users can have geographical jurisdictions which allow each user access only to the model of the country or region relevant to that user, while at the same time maintaining access to the global indicators and standards automatically generated by CardProfit with the purpose of establishing anonymous performance comparisons and benchmarking. Global company executives can of course have full access to the global model. Other jurisdictions of interest include jurisdictions by product family brand, such that a specific brand jurisdiction could be shared with that brand's executives, allowing other brands in the model to remain anonymous. This concept of jurisdictions is extremely useful to multinational banks.

Multi-National Banking

Banks which offer credit card products through their newly-acquired banks or regional or country-based bank subsidiaries may want to create a segmentation that reflects that organization, such as the one shown in the examples below for a Latin American multi-national bank. Every indicator can still be compared in depth at any of the levels in the hierarchy for the entire bank (e.g. *Regions, Countries, Products*).



Goals can still be monitored throughout the entire global structure in the bank, and for all levels in the hierarchy. Again, notice how the single indicator with the most adverse goal contribution does not belong to the product with the most adverse contribution, which in turn does not belong to the country or region with the most adverse contribution, thus emphasizing the need for corrective measures through proper management relationships between the levels in this hierarchy.



1.2 Profit Tendency Analysis

The following example shows an Issuer profitability tendency dashboard where the profitability tendencies can be analyzed in detail.



1.3 Segmented Profitability Results

The following example shows the Income Statement for the Issuer business. The hierarchy in the columns allows visiting the chosen segmentation at any level of detail. Similarly, the hierarchy in the rows allows visiting the Income Statement at any level of detail. This allows the use of one given table for executive strategic purposes as well as for detailed operational purposes. Once again, the values shown in these examples are not realistic because the data has been generated at random in order to avoid any similarities to specific scenarios.

CardProfit for Credit Card Profitability Measurement

Bank's Profile Consumer Banking Credit Card Business Strategy Issuer Marketing Issuer Acquirer

File Edit Search View Tools Windows Help

Issuer's Segmentation: By Credit Card Brand

Period: Weekly Currency: Local Scale: Unit: Paint

Period Start Date: 15, 6 Apr 08

Issuer Dashboard Functional Activity Functional Activity (Collections) Profitability Performance Issuer Comparative Portfolio

Profitability By Credit Card Brand

MasterCard

Visa

MasterCard Standard

Absolutes Per Account Per Transaction % Income % Balance % Billing % Expenses

Profitability	Total	Visa	MasterCard	MasterCard Standard	Absolutes	Per Account	Per Transaction	% Income	% Balance	% Billing	% Expenses
Income	\$1,356,857,112.91	\$425,094,203.42	\$306,928,369.47	\$154,471,284.25	\$15,814.01	\$203.22	100.00%	957.42%	152.16%	1,853.90%	\$152.45
Direct Operational Expenses by Functional Area	\$80,693,301.28	\$30,939,386.63	\$18,004,849.12	\$8,332,232.83	\$853.01	\$10.96	5.39%	51.64%	8.21%	100.00%	\$9.67
New Account Acquisition	\$2,989,549.37	\$966,621.88	\$362,357.12	\$316,139.73	\$32.36	\$0.42	0.20%	1.96%	0.31%	3.79%	\$4
Credit Processing	\$2,922,165.55	\$1,250,072.90	\$201,681.26	\$171,580.16	\$17.57	\$0.23	0.11%	1.06%	0.17%	2.06%	\$3
Plastics Issuing	\$5,979,571.23	\$2,134,709.06	\$1,263,564.44	\$749,036.47	\$76.69	\$0.99	0.48%	4.64%	0.74%	8.99%	\$51
Transaction Processing	\$10,833,405.39	\$3,605,151.84	\$2,288,418.46	\$1,231,115.64	\$126.04	\$1.62	0.80%	7.63%	1.21%	14.78%	\$105
Cardholder Billing	\$6,218,845.26	\$3,709,153.53	\$1,459,212.40	\$391,865.13	\$40.12	\$0.52	0.25%	2.43%	0.39%	4.70%	\$106
Salaries and Benefits	\$1,467,928.14	\$875,527.63	\$344,439.98	\$92,497.86	\$9.47	\$0.12	0.06%	0.57%	0.09%	1.11%	\$25
Data Processing	\$1,409,640.44	\$840,762.65	\$330,763.14	\$88,825.00	\$9.09	\$0.12	0.06%	0.55%	0.09%	1.07%	\$24
Postage	\$2,403,724.69	\$1,433,671.93	\$564,018.67	\$151,464.76	\$15.51	\$0.20	0.10%	0.94%	0.15%	1.82%	\$41
Telephone and Telecom	\$87,951.81	\$52,457.77	\$20,637.33	\$5,542.07	\$0.57	\$0.01	0.00%	0.03%	0.01%	0.07%	\$1
Physical Space Occupancy	\$127,079.25	\$75,794.85	\$29,818.33	\$8,007.58	\$0.82	\$0.01	0.01%	0.05%	0.01%	0.10%	\$2
Furniture and Equipment	\$284,549.40	\$169,715.98	\$66,767.70	\$17,930.18	\$1.84	\$0.02	0.01%	0.11%	0.02%	0.22%	\$4
Stationery	\$387,870.61	\$231,340.64	\$91,011.37	\$24,440.71	\$2.50	\$0.03	0.02%	0.15%	0.02%	0.29%	\$6
Travel and Representation	\$40,108.28	\$23,922.09	\$9,411.15	\$2,527.32	\$0.26	\$0.00	0.00%	0.02%	0.00%	0.03%	\$1
Credit Report Agencies	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
Collection Agencies	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
Internal Support	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
External Processing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
Other Direct Expenses	\$9,992.64	\$5,959.99	\$2,344.71	\$629.66	\$0.06	\$0.00	0.00%	0.00%	0.00%	0.01%	\$0
Payment Processing	\$7,854,088.42	\$2,325,674.46	\$1,683,948.12	\$859,738.77	\$88.02	\$1.13	0.56%	5.33%	0.85%	10.32%	\$82
Cardholder Servicing	\$6,888,108.30	\$4,108,327.21	\$1,616,250.70	\$434,037.09	\$44.43	\$0.57	0.28%	2.69%	0.43%	5.21%	\$118
Promotion and Retention	\$4,974,046.82	\$1,819,539.10	\$1,126,381.22	\$488,370.23	\$50.00	\$0.64	0.32%	3.03%	0.48%	5.86%	\$64
Collections and Overlimits	\$26,185,000.04	\$8,880,709.18	\$6,674,276.44	\$3,116,120.29	\$319.01	\$4.10	2.02%	19.31%	3.07%	37.40%	\$355
Fraud Investigation	\$1,504,534.11	\$550,368.49	\$341,309.22	\$147,720.70	\$15.12	\$0.19	0.10%	0.92%	0.15%	1.77%	\$19
Issuer Center Administration	\$4,343,986.79	\$1,589,058.98	\$985,449.74	\$426,508.62	\$43.66	\$0.56	0.28%	2.64%	0.42%	5.12%	\$55
Direct Operational Expenses by Natural Expense	\$80,693,301.28	\$30,939,386.63	\$18,004,849.12	\$8,332,232.83	\$853.01	\$10.96	5.39%	51.64%	8.21%	100.00%	\$9.67
Operating Profit	\$1,276,163,811.63	\$394,154,816.79	\$288,923,520.35	\$146,139,051.41	\$14,961.00	\$192.26	94.61%	905.78%	143.95%	1,753.90%	\$142.78
Indirect Expenses	\$1,069.37	\$13.74	\$6.76	\$4.74	\$0.01	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
Total Expenses	\$1,922.38	\$24.70	\$12.16	\$16.39	\$0.02	\$0.00	0.00%	0.00%	0.00%	0.00%	\$0
Profit Before Taxes	\$13,891.63	\$178.51	\$87.84%	\$41.04%	\$133.66%	\$1,628.54%	\$128.13%				

Direct Operational Expenses by Natural Expense Category
These are the operational expenses divided by natural expense category. That is to say, each natural expense category shown in this section represents the total of such natural expenses for all functional areas. Thus, these expenses are a reclassification by natural expense category of the Direct Operational Expenses by Functional Area and therefore they produce the same total figures.

The following example shows the Income Statement for the Issuer business segmented by socioeconomic strata cross-referenced with geographical regional segments.

CardProfit for Credit Card Profitability Measurement

Bank's ProfileConsumer BankingCredit Card Business StrategyIssuer MarketingIssuerAcquirer

FileEditSearchViewToolsWindowsHelp

Issuer's Segmentation
By Socioeconomic Strata

PeriodWeeklyPeriod Start Date14, 30 Mar 08CurrencyLocalScaleUnitPaint

Issuer DashboardFunctional ActivityFunctional Activity (Collections)ProfitabilityPerformanceIssuer Comparative Portfolio

Profitability By Socioeconomic Strata

Total

Pacific A

Pacific A Urban

Pacific A Rural

North A

Central A

Atlantic A

Stratum B...

Stratum C...

Profitability									
Income	\$1,360,916,004.25	\$156,287,442.25	\$136,684,528.29	\$300,504,811.21	\$165,866,266.58	\$150,711,786.12	\$601,423,389.10	\$667,326,414.45	
Incoming Purchase Commissions	\$396,995,799.49	\$45,008,446.96	\$48,902,349.50	\$73,906,255.10	\$54,417,158.96	\$34,497,623.38	\$182,106,724.25	\$207,273,162.05	
Cash Advance Commissions	\$425,728,952.70	\$51,807,042.13	\$21,527,364.56	\$90,355,272.16	\$50,724,935.62	\$45,129,606.44	\$182,731,878.59	\$195,813,323.40	
Annual Fees	\$144,157,862.75	\$15,300,892.77	\$16,747,490.60	\$35,984,621.33	\$16,605,578.48	\$15,628,608.93	\$44,605,776.05	\$55,202,685.95	
Regular Finance Charges	\$142,994,716.30	\$19,255,832.80	\$14,934,827.21	\$33,979,539.14	\$21,865,029.12	\$17,102,607.45	\$68,353,696.69	\$70,083,066.84	
Late Interest	\$142,872,019.21	\$11,162,924.07	\$12,755,567.79	\$28,233,869.90	\$11,054,288.90	\$15,649,204.28	\$58,805,639.62	\$77,676,765.65	
Returned Check Fees	\$108,166,653.81	\$13,752,303.53	\$21,816,928.62	\$38,045,253.57	\$11,199,275.49	\$22,704,135.65	\$64,819,673.89	\$61,277,410.54	
Direct Operational Expenses by Functional Area	\$64,304,305.35	\$3,727,953.10	\$3,079,002.76	\$4,278,911.40	\$1,461,110.54	\$4,507,702.12	\$15,859,658.43	\$16,930,414.50	
Direct Operational Expenses by Natural Expense Category	\$64,304,305.35	\$3,727,953.10	\$3,079,002.76	\$4,278,911.40	\$1,461,110.54	\$4,507,702.12	\$15,859,658.43	\$16,930,414.50	
Operating Profit	\$1,296,611,698.90	\$152,559,489.14	\$133,605,525.53	\$296,225,899.81	\$164,405,156.03	\$146,204,084.00	\$585,563,730.67	\$650,395,999.95	
Indirect Expenses	\$124,044,321.49	\$5,201,541.05	\$5,640,718.75	\$12,078,132.25	\$5,029,165.13	\$7,899,974.59	\$28,878,707.33	\$33,378,870.00	
Total Expenses	\$188,348,626.84	\$8,929,494.15	\$16,357,043.65	\$6,490,275.68	\$12,407,676.70	\$44,738,365.76	\$50,309,284.50	\$50,309,284.50	
Profit Before Taxes	\$1,172,567,377.42	\$147,357,948.09	\$127,964,806.78	\$284,147,767.56	\$159,375,990.90	\$138,304,109.42	\$556,685,023.34	\$617,017,129.95	

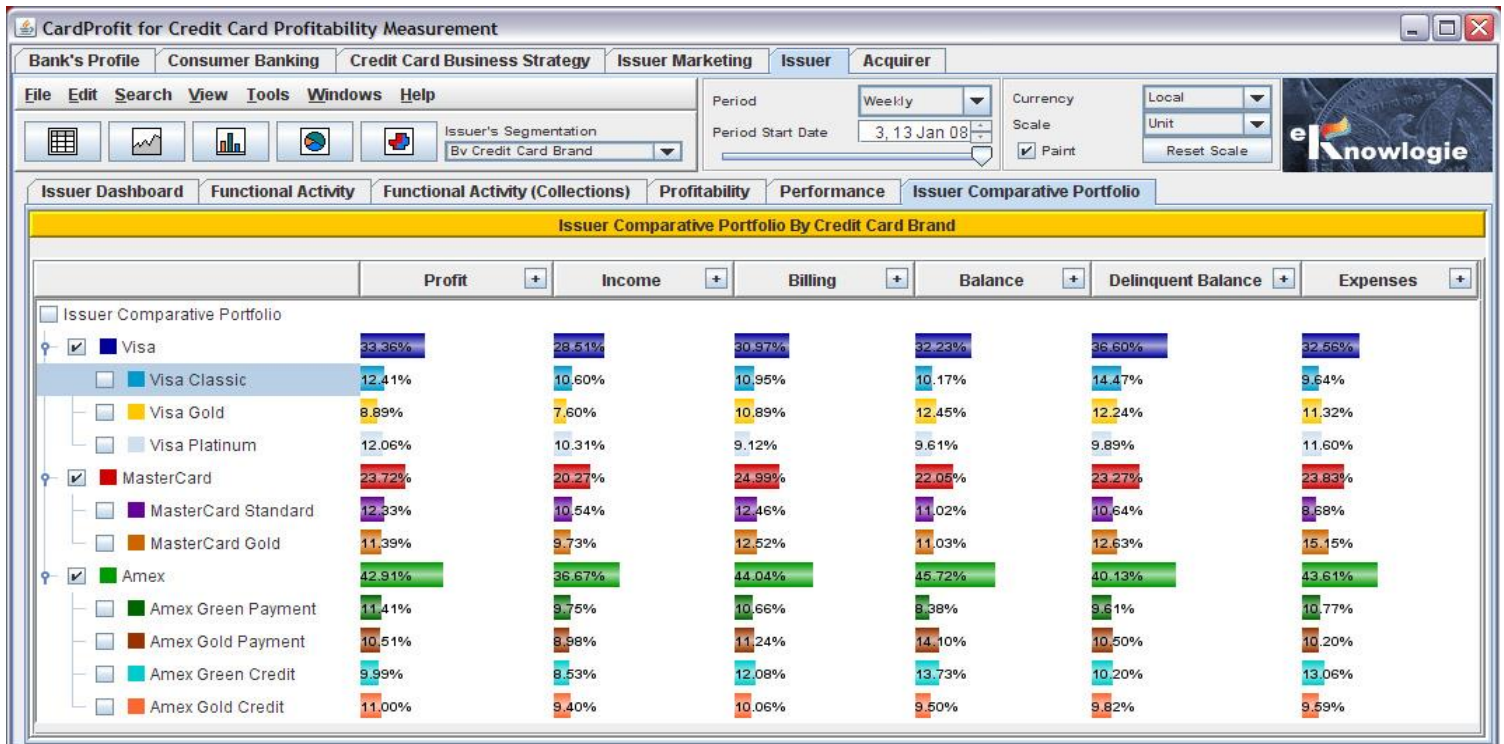
1.4 Issuer's Perspectives

A line of business can be managed from different **perspectives**, where each offers a particular analytical emphasis. The main perspective supported is profitability, but other perspectives include marketing, risk-management, CRM, and operations. CardProfit offers **executive perspectives** which are consolidated perspectives across multiple lines of businesses.

CardProfit's multidimensional market segmentation is uniquely suitable for CRM analysis, because it allows the evaluation of CRM segments from the profitability perspective. CRM tools for the credit card and payments industry do not support profitability measurement, rendering them unable to classify segments by their impact on the profitability of the business. This suggests that market segmentation for profitability measurement and CRM are inseparable, given that in order to carry out CRM impact studies on the bottom line, it is necessary that such a study be supported with a profitability and financial performance infrastructure.

Issuer Portfolio

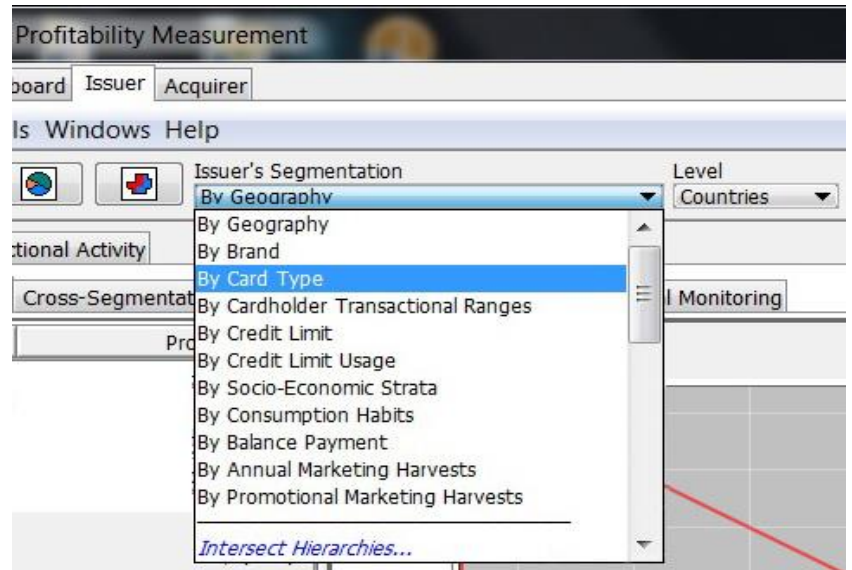
The following example shows a high-level view of the Issuer's consolidated portfolio segmented by credit card brands. Notice that this is a comparative panel where the indicators are shown graphically as percent bars. This same consolidated portfolio can be shown for any of the other Issuer segmentation models, for example, by credit card type, by socioeconomic strata or by geographic region, etc.



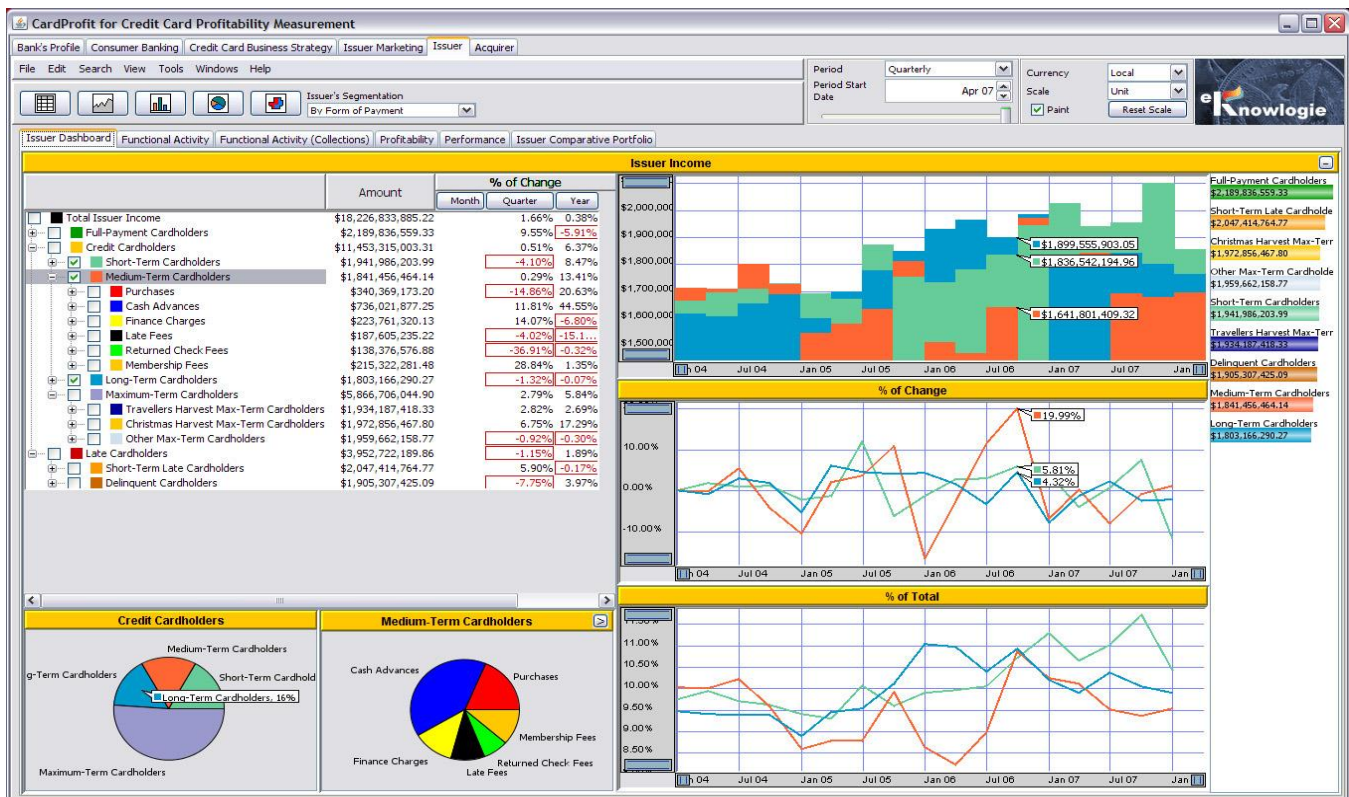
1.5 Multi-Dimensional Segmentations and Cross-Segmentations

A market, like the Issuer market, can be segmented according to any arbitrary criteria. Issuer can be segmented by credit card product, by geographic regions, by cardholder transactional frequency ranges, by credit limits, by credit limit utilization, by cardholder consumption habits (if available), by promotional campaigns, by account acquisition harvests, etc. CardProfit can be used to model a given segmentation in order to obtain a comparative profiling and differentiation of its segments in order to improve performance and profitability. For example, we will know via unit indicators the ways a classic product A might be under-performing a similar classic product B.

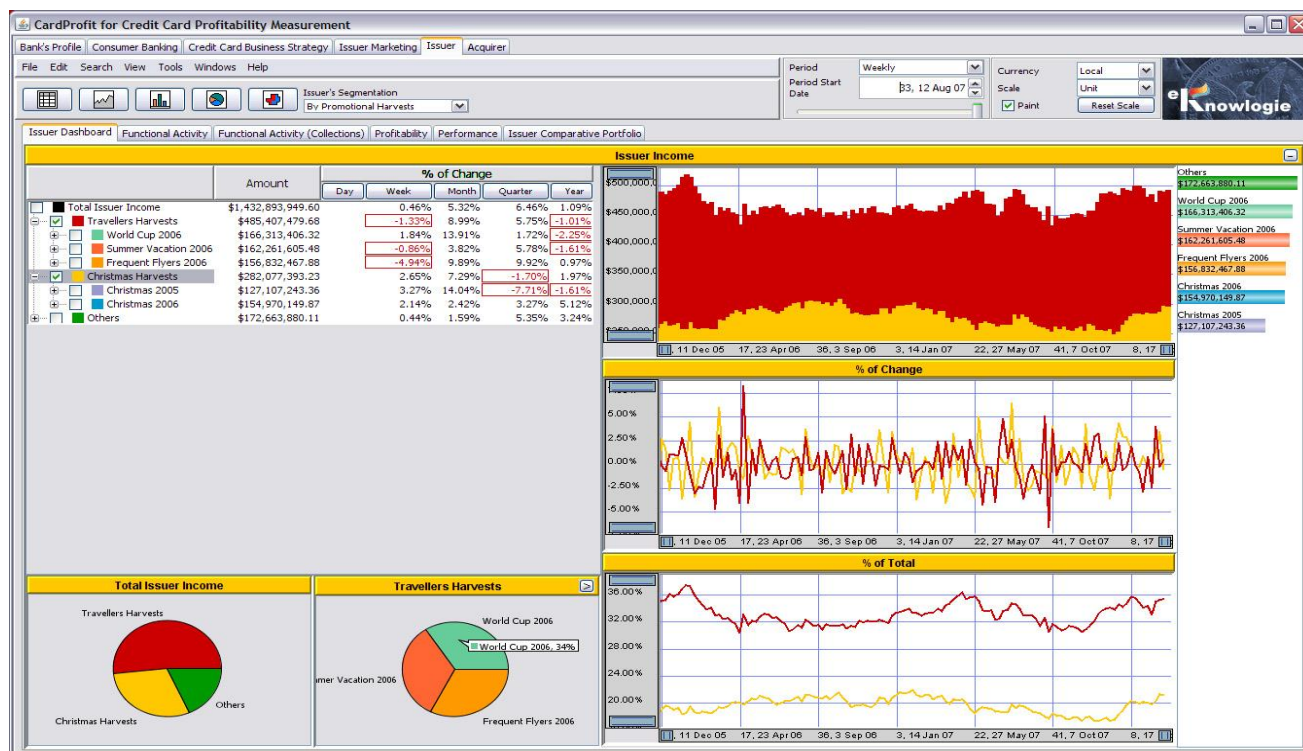
We can also *cross* these segmentations in order to obtain much more revealing insights that can further improve performance. For example, if we cross products with geographic regions and cardholder transactional ranges, we could discover that high transactor cardholders in a product Visa Gold in geographic region A are outperforming the high transactors for the same product in socio-economically similar geographic region B. Cross-segmentation can also allow us to differentiate delinquent cardholders according to the acquisition harvest or marketing campaign to which they belong. This allows us to answer numerous questions which we could not answer if we viewed every single segmentation separately. Then we can find out, for example, what percent of travelling cardholders pay their balance in full or revolving or become delinquent and further subdivide these segments by geographical regions. The example to the right shows a menu with some possible Issuer segmentations. Only the segmentation by product and product brand is required for Issuer. Other segmentations are optional.



The following example shows the Issuer Income for the Forms of Payment segmentation. Notice how the maximum-term cardholders segment (i.e. cardholders that extend their credit by making only the minimum monthly payments) is cross-referenced by the marketing campaign harvests. These market segmentations allow us to analyze the campaigns' effectiveness in selecting new credit-oriented cardholders with low incidence of delinquency.



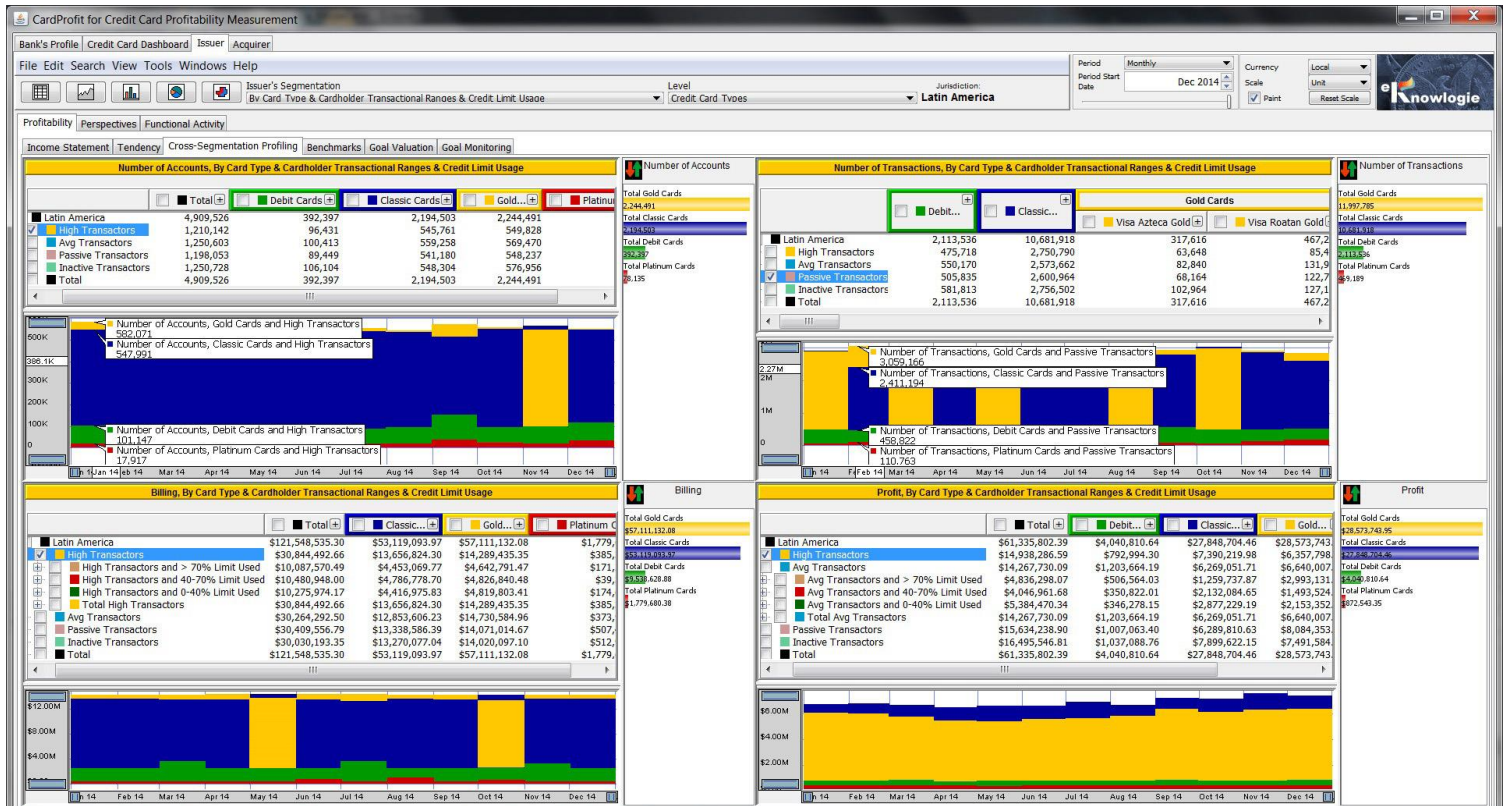
The next example shows the Issuer Income for the Marketing Campaign Harvests segmentation, using a hierarchy that classifies them by type of promotional campaign.



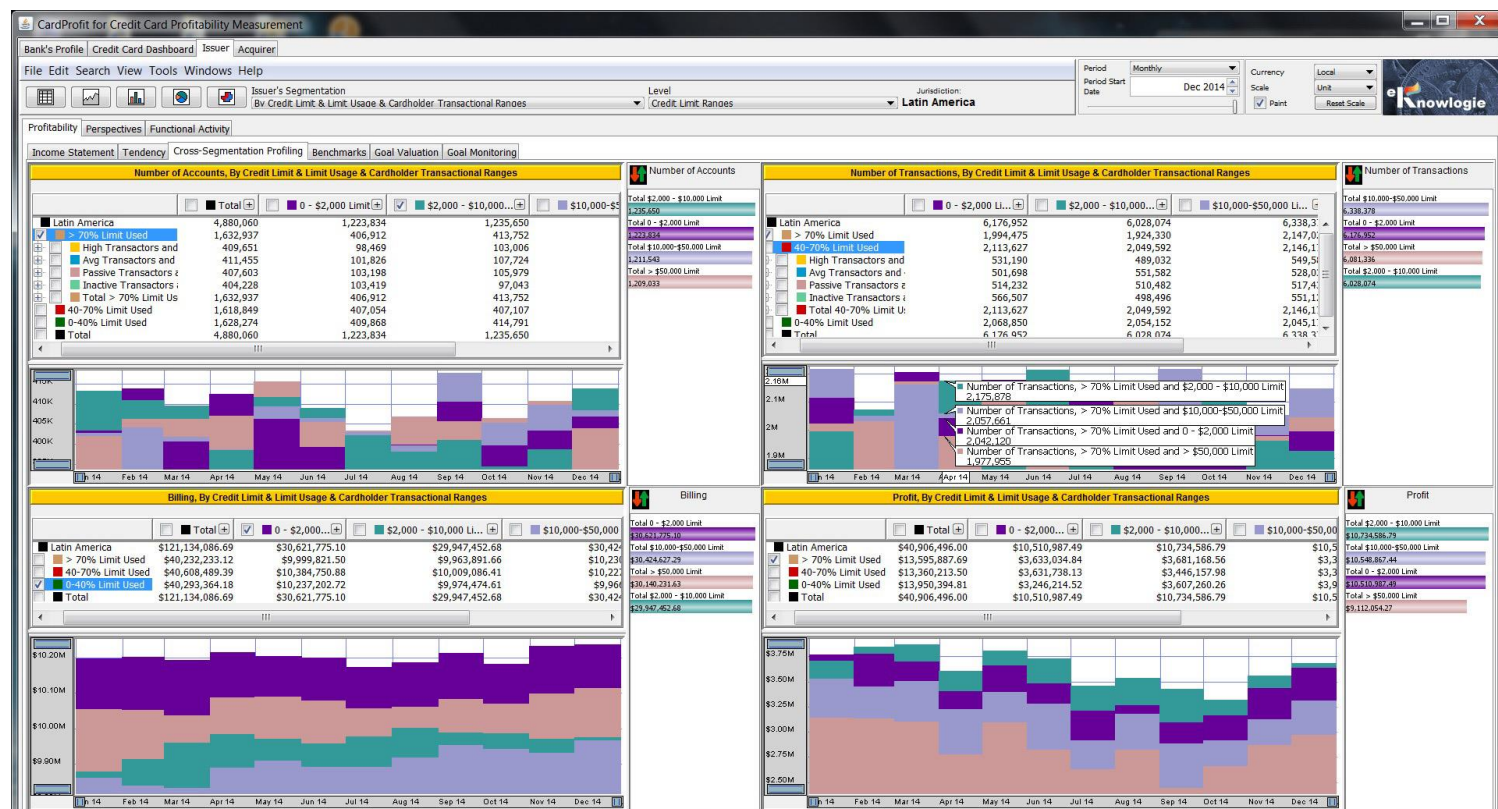
Intersecting or Crossing Credit Cards by Type with Cardholders by Transactional Frequency Ranges

Product types (e.g. classic, gold, platinum) can be profiled by the expected percentage of cardholders in different transactional volume ranges (e.g. high transactors are cardholders who use the given card for most of their transactions and they contribute the majority of the transactional volume for that given product). The panel below shows the intersection or crossing of three segmentations, by product type, by cardholder transactional ranges, and by credit limit usage. Then we can readily identify how effective these products are in maximizing transactional volume according to their intended markets, and what cardholder population redistributions are necessary in order to increase these volumes towards the expected profiles.

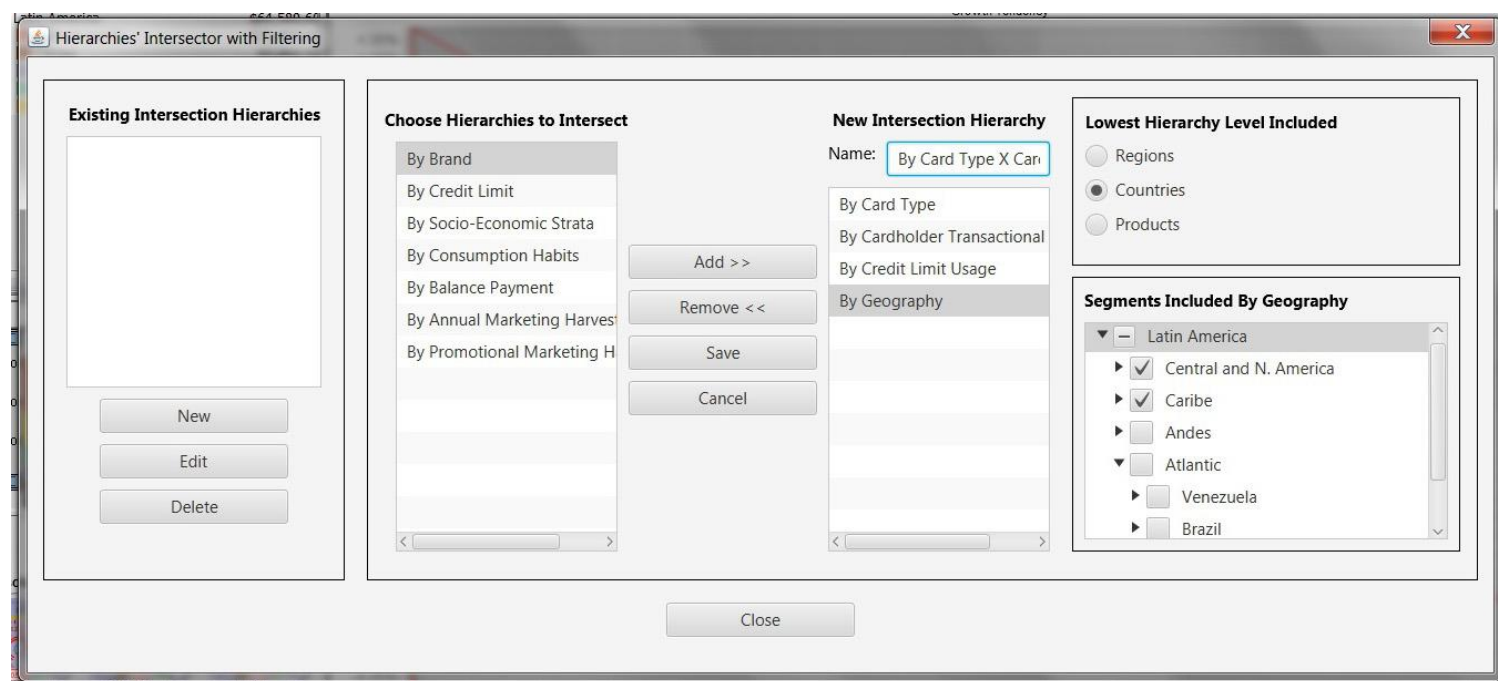
Because of the hierarchical nature of these tables, card type columns such as Classic and Gold can be opened up so that specific products can be analyzed. Similarly, ranking bars can be shown for any level in the intersection, e.g. by card types, by card types per cardholder transactional type, or by product per cardholder transactional type. This hierarchical level management is conducive to the presentation of detailed insights which illustrate the comparative essence of these product populations and leads to informed recommendations and decision making. Again, figures in the example below are random and do not reflect the realistic expectations of these segment intersections.



In addition, other market segmentations such as cardholders by balance and credit limit utilization can be used to make these redistribution recommendations by identifying opportunities to retarget these cardholder populations. The panel below shows the intersection or crossing of three segmentations, by credit limit, by credit limit usage and by cardholder transactional ranges.

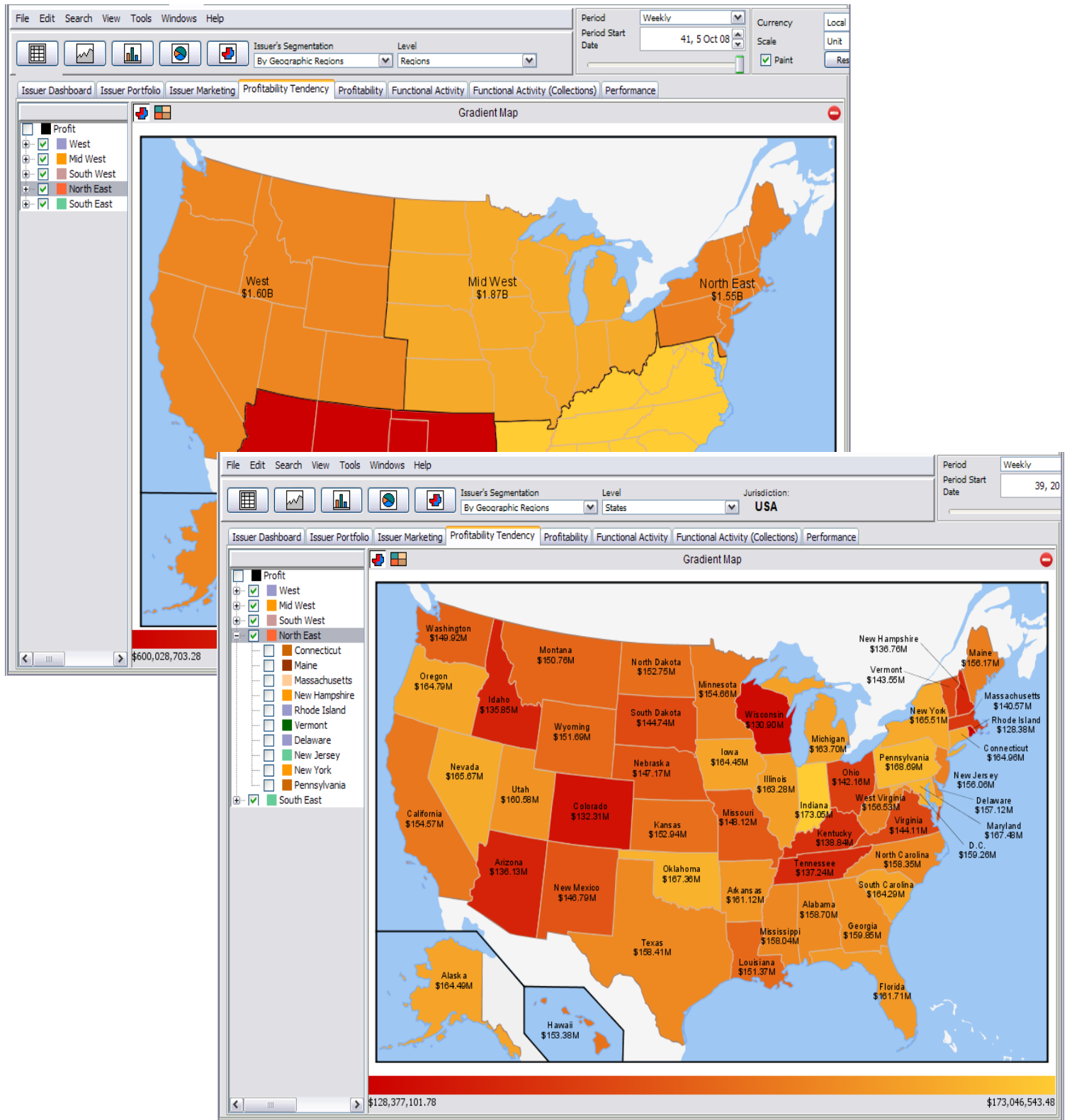


These segmentation crossings or intersections shown above are designed and configured by the user interactively using the panel below. This panel allows the user to cross or intersect any number of segmentations, in any order, and to specify the levels and segments that will be visible for each segmentation. This is an example of the power of this technology.

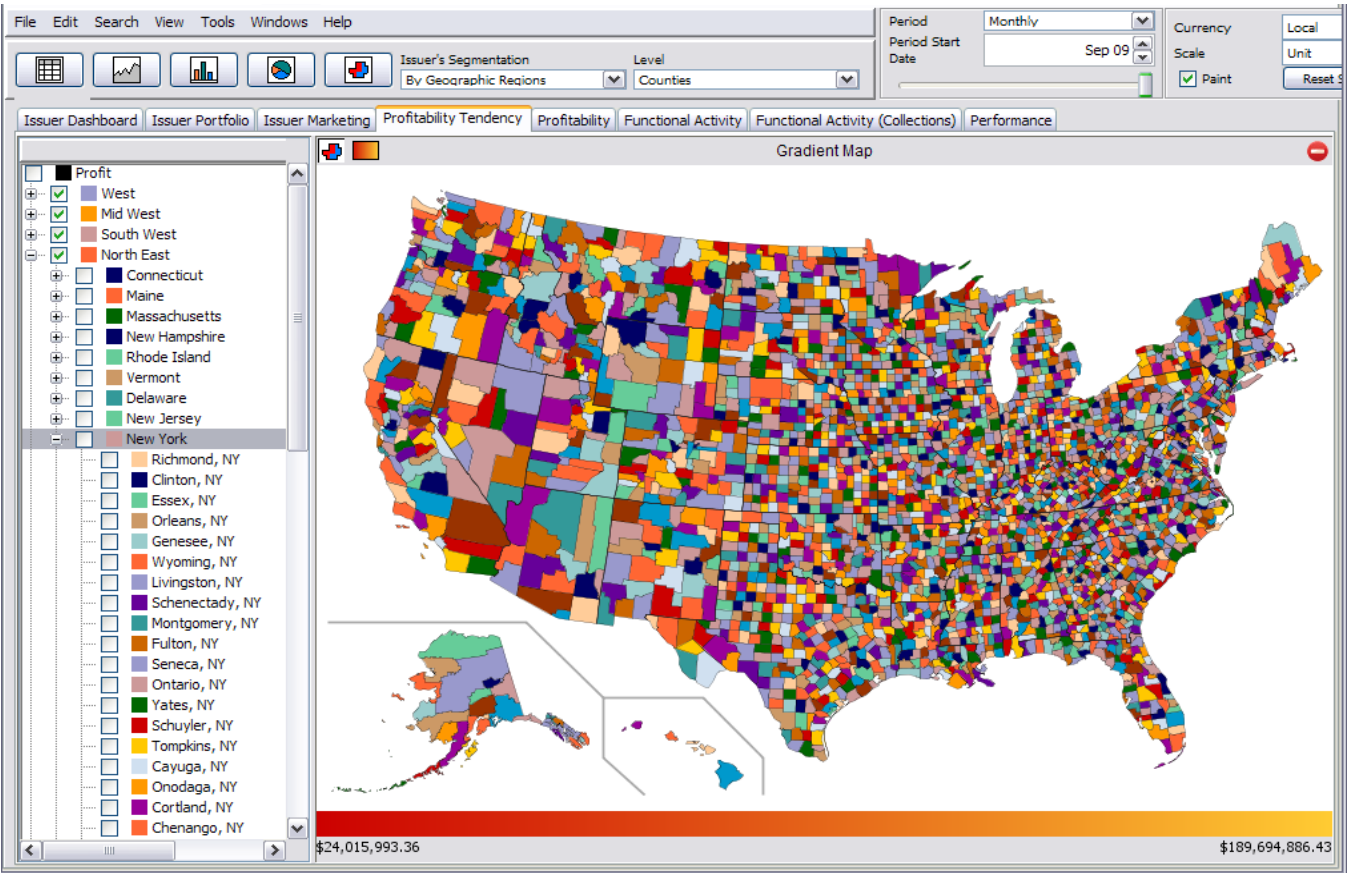


1.6 Geographic Visualization

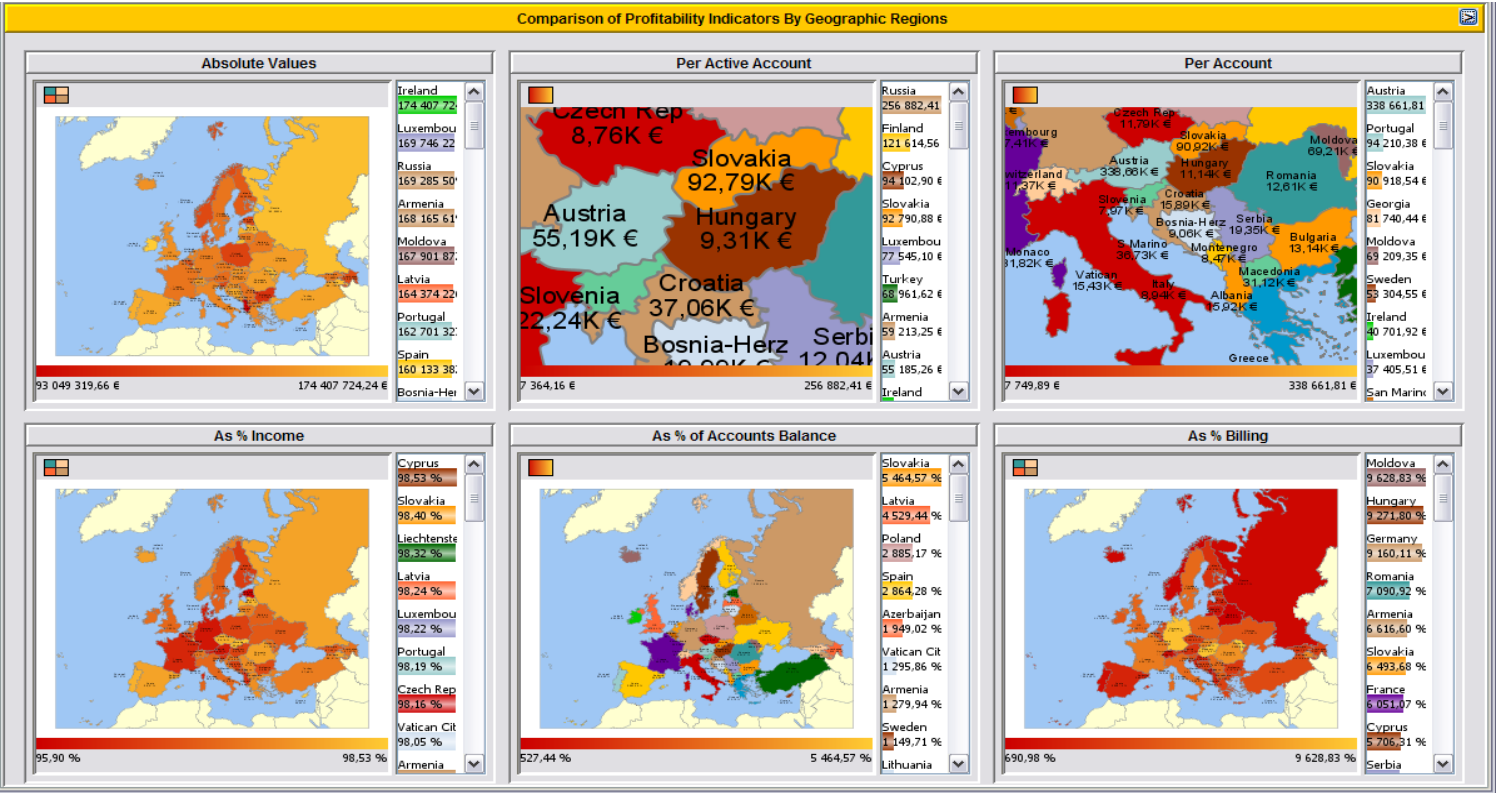
The panels below show CardProfit's scalable choropleth maps (color-coded statistical maps) displaying profitability indicators segmented geographically, where performance is visualized in a chromatic scale from red (lowest performance) to yellow (highest performance). As shown below, geographical segmentations can be visualized at their various hierarchical levels of detail.



Maps can also be used for color encodings other than gradient performance.

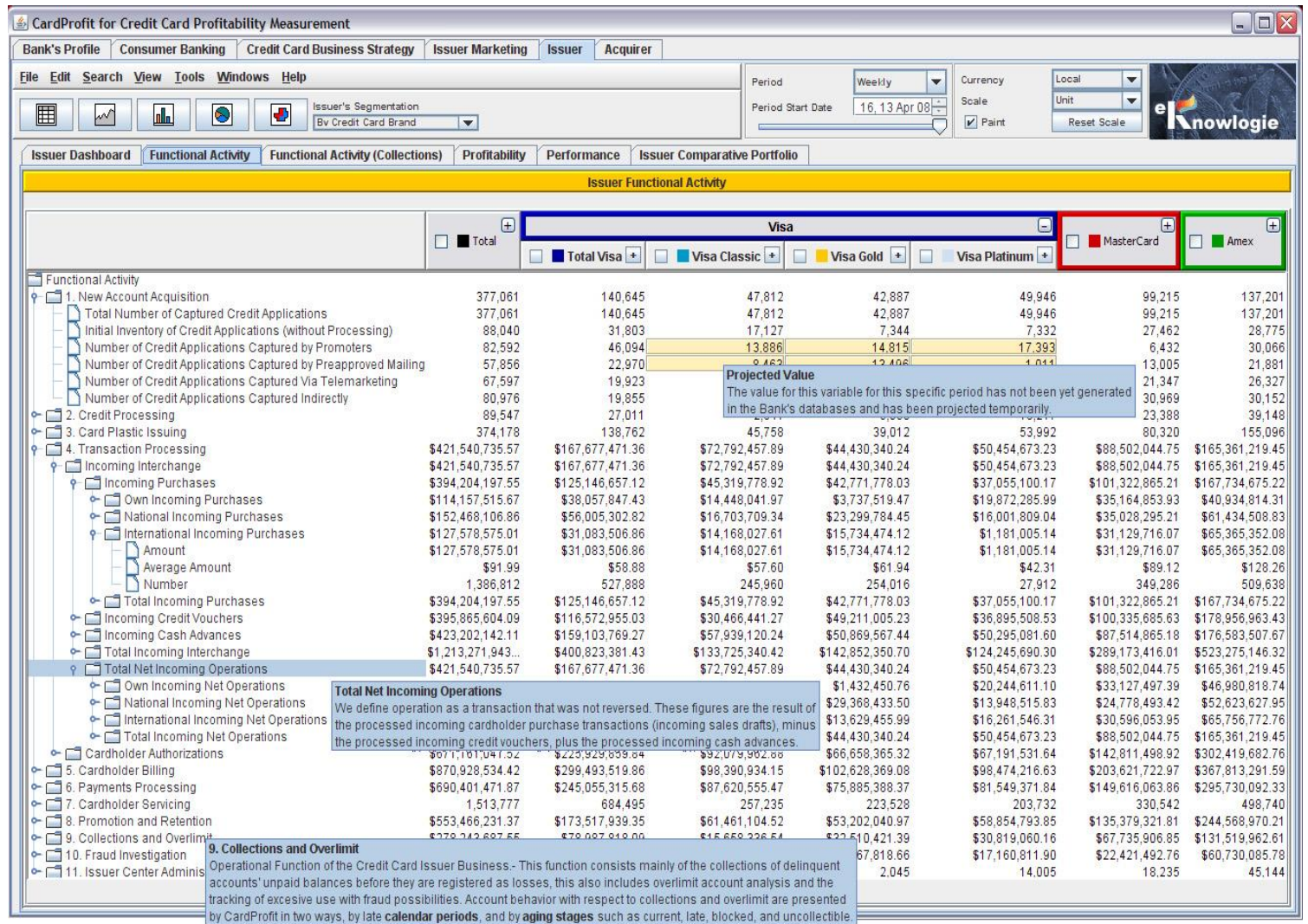


Profitability can be measured through a wide array of indicators as shown by the thumbnails in the following example.



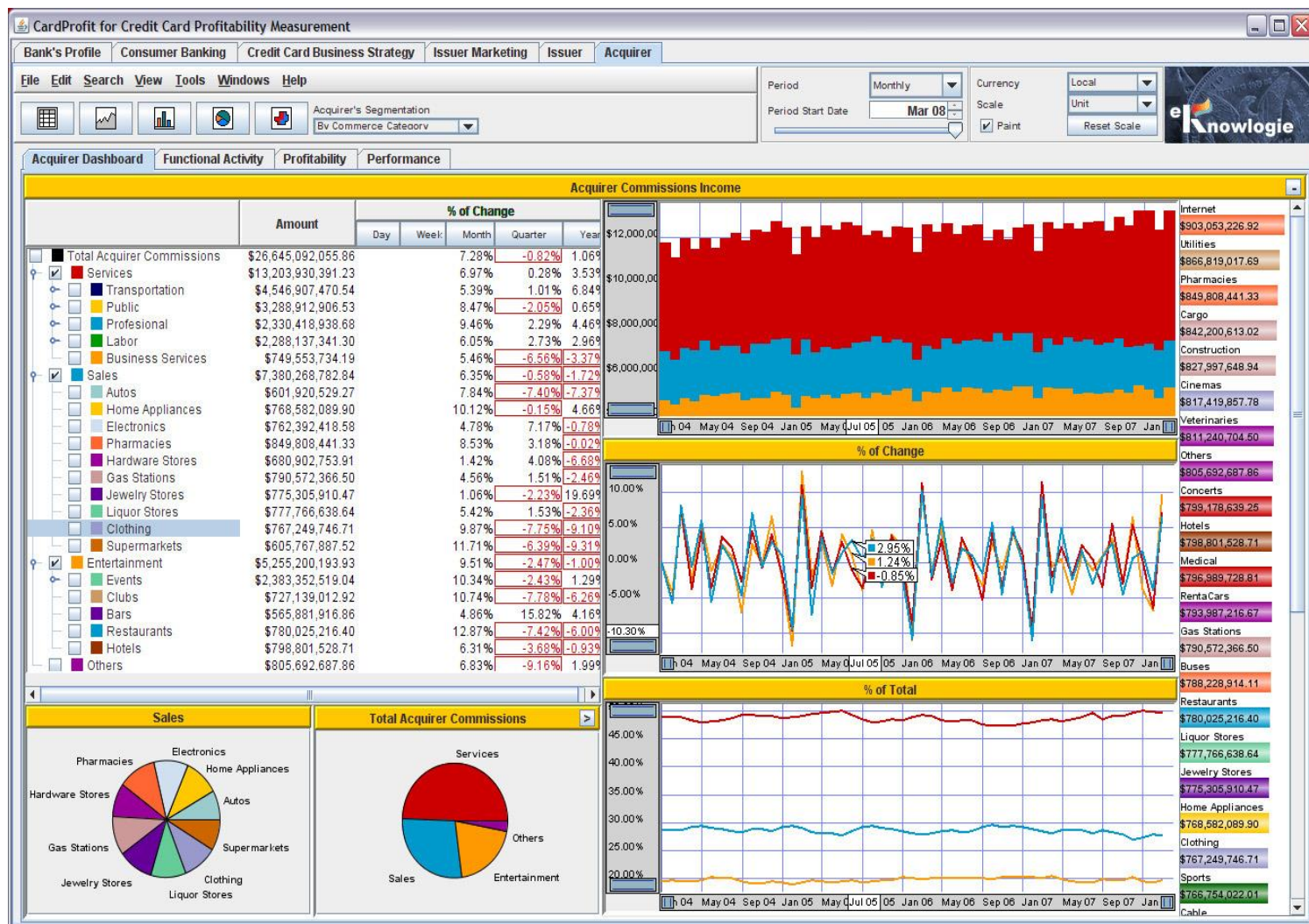
1.7 Issuer's Functional Activity

The following example shows in detail the indicators and variables of the Issuer's functional activity segmented by credit card brand. Observe how the pop-up help window explains the "Collections and Overdraft" category. These pop-up help windows exist not only to explain the CardProfit functionality, but also to describe each of the more than 1,100 indicators in the credit card business



2 Acquirer

All the CardProfit functionality shown for Issuer is also applicable to Acquirer. The example below shows the study page of the Acquirer Income, using a monthly period. Notice that commerce categories are shown ranked by their income for the currently selected period.



The example below shows the Acquirer business' functional and operational activity for each commerce category.

CardProfit for Credit Card Profitability Measurement

Bank's Profile Consumer Banking Credit Card Business Strategy Issuer Marketing Issuer **Acquirer**

File Edit Search View Tools Windows Help

Acquirer's Segmentation
By Commerce Category

Period: Weekly
Period Start Date: 16, 13 Apr 08
Currency: Local
Scale: Unit
Print

Acquirer Dashboard **Functional Activity** Profitability Performance

Acquirer Functional Activity

Entertainment

Services Sales

Total Entertainment Events

Total Events Concerts Cinemas Sports Clubs

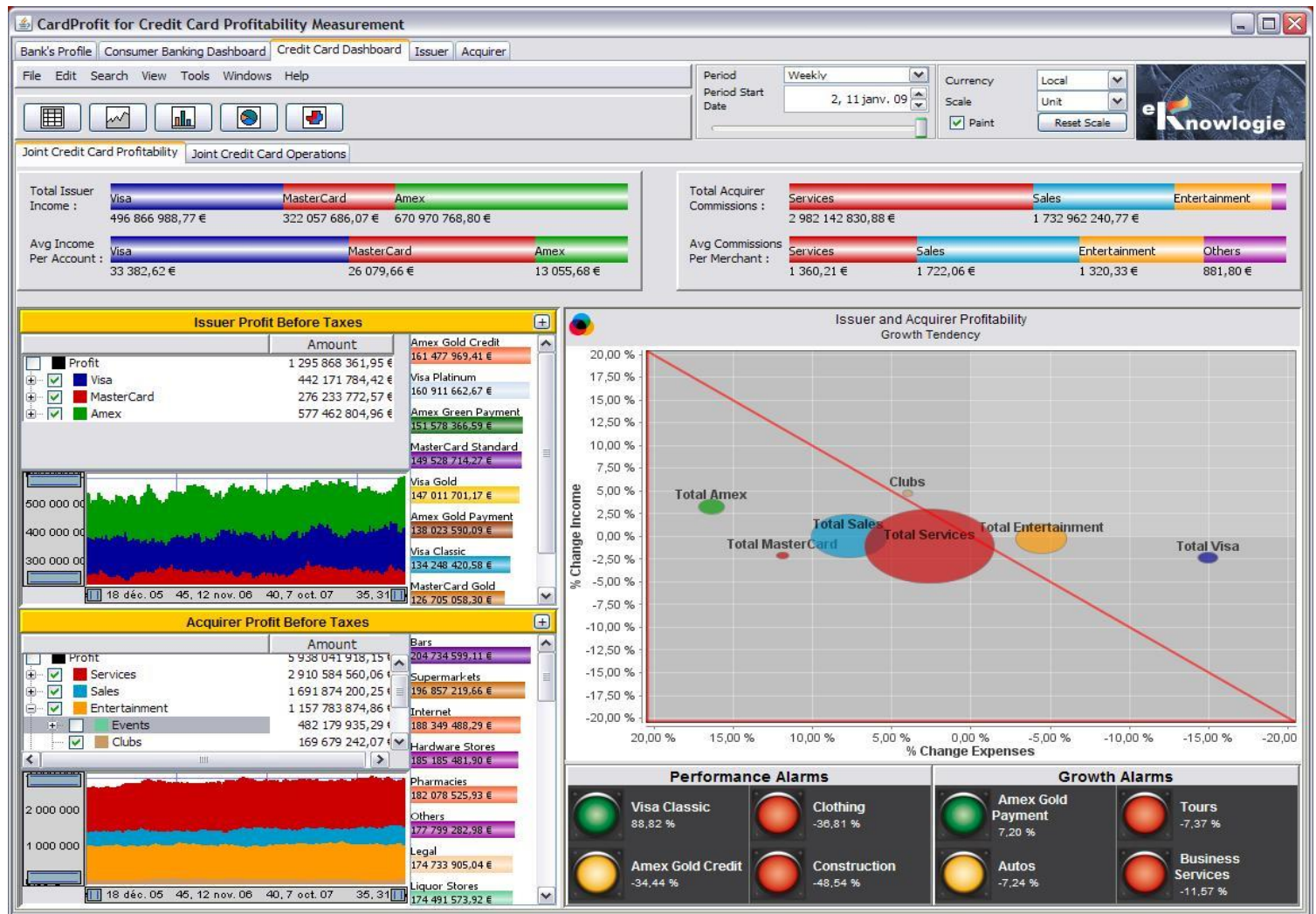
Functional Activity	Total	Services	Sales	Total Entertainment	Total Events	Concerts	Cinemas	Sports	Clubs
Transaction Processing	\$3,205,711,694.04	\$1,608,097,881.24	\$904,942,233.20	\$594,456,704.01	\$270,137,572.82	\$102,012,818.55	\$91,722,424.87	\$76,402,329.41	\$75,186,468
Outgoing Interchange	\$3,205,711,694.04	\$1,608,097,881.24	\$904,942,233.20	\$594,456,704.01	\$270,137,572.82	\$102,012,818.55	\$91,722,424.87	\$76,402,329.41	\$75,186,468
Outgoing Sales Drafts	\$1,626,256,072.99	\$797,863,708.09	\$471,747,468.59	\$304,682,482.90	\$129,426,867.32	\$51,668,474.45	\$35,202,436.84	\$42,555,956.03	\$38,343,168
Outgoing Credit Vouchers	\$70,729,639.01	\$33,861,391.01	\$21,446,240.97	\$13,220,779.47	\$5,395,121.06	\$2,292,305.10	\$1,305,569.03	\$1,797,246.93	\$2,196,495
Outgoing Cash Advances	\$1,650,185,260.06	\$844,095,564.16	\$454,641,005.59	\$302,995,000.58	\$146,105,826.55	\$52,636,649.19	\$57,825,557.05	\$35,643,620.31	\$39,039,795
Outgoing Net Merchant Operations	\$3,205,711,694.04	\$1,608,097,881.24	\$904,942,233.20	\$594,456,704.01	\$270,137,572.82	\$102,012,818.55	\$91,722,424.87	\$76,402,329.41	\$75,186,468
Own Outgoing Net Operations	\$1,040,326,235.16	\$510,949,695.21	\$290,277,808.72	\$210,339,489.21	\$86,211,625.52	\$32,513,293.81	\$22,980,159.97	\$30,718,171.75	\$31,988,916
National Outgoing Net Operations	\$1,099,181,703.41	\$569,837,015.84	\$304,434,367.62	\$188,945,823.27	\$81,683,847.18	\$33,869,634.33	\$33,960,161.74	\$13,854,051.12	\$31,630,825
International Outgoing Net Operations	\$1,066,203,755.48	\$527,311,170.19	\$310,230,056.86	\$195,171,391.53	\$102,242,100.12	\$35,629,890.41	\$34,782,103.16	\$31,830,106.55	\$11,566,726
Amount	\$1,066,203,755.48	\$527,311,170.19	\$310,230,056.86	\$195,171,391.53	\$102,242,100.12	\$35,629,890.41	\$34,782,103.16	\$31,830,106.55	\$11,566,726
Average Amount	\$278.28	\$348.64	\$220.56	\$214.27	\$442.12	\$262.22	\$1,302.07	\$463.58	\$39
Number	3,831,396	1,512,460	1,406,571	910,849	231,255	135,880	26,713	68,662	289.3
Total Outgoing Net Operations	\$3,205,711,694.04	\$1,608,097,881.24	\$904,942,233.20	\$594,456,704.01	\$270,137,572.82	\$102,012,818.55	\$91,722,424.87	\$76,402,329.41	\$75,186,468
Outgoing Cash Advances by Non Merchants	\$1,687,404,534.98	\$815,906,100.82	\$494,399,429.21	\$332,487,663.60	\$123,696,376.69	\$49,911,487.36	\$33,694,982.21	\$40,089,907.12	\$55,815,803
Proof and Capture	\$2,099,410,010.01	\$1,044,167,893.29	\$613,394,008.21	\$392,187,717.84	\$143,059,248.29	\$58,574,661.99	\$49,666,707.65	\$34,817,878.64	\$52,299,194
Merchant Authorizations	\$4,781,811,999.62	\$2,257,017,051.40	\$1,369,106,866.05	\$1,013,169,041.53	\$429,428,072.27	\$130,438,950.43	\$141,533,106.62	\$157,456,015.22	\$139,552,082
Merchant Affiliation and Services	4,454,461	1,810,301	1,410,690	1,191,109	494,077	256,316	20,750	217,011	171.9
Merchant Affiliation	4,454,461	1,810,301	1,410,690	1,191,109	494,077	256,316	20,750	217,011	171.9
Number of Affiliated Merchants	3,749,336	1,892,916	1,192,365	538,537	321,579	202,453	56,075	63,051	37.8
Avg Number of Affiliated Merchants for Period	5,109,262	2,408,493	1,670,823	1,006,587	506,367	78,493	252,578	175,296	28.9
Number of Active Merchants	4,454,461	1,810,301	1,410,690	1,191,109	494,077	256,316	20,750	217,011	171.9
Avg Number of Active Merchants for Period	4,333,277	1,927,215	1,505,360	858,117	532,324	220,587	172,659	139,078	23.4
Number of Information Bulletins to Merchants	3,742,723	1,787,811	960,014	799,638	383,956	64,131	211,009	108,816	93.9
Number of POS Units	4,505,692	1,951,289	1,431,651	1,036,554	356,218	31,516	256,698	68,004	236.5
Avg Number of POS Units for Period	5,386,129	2,510,581	1,908,876	802,009	503,845	147,270	239,200	117,375	30.4
Number of ATM's	4,028,748	2,063,058	1,016,571	831,340	309,434	178,225	1,038	130,171	242.1
Avg Number of ATM's for Period	4,223,512	1,980,041	1,167,516	955,119	431,706	212,670	131,950	87,086	188.1
Merchant Services	\$1,662,832,623.58	\$819,796,452.19	\$443,729,578.90	\$343,139,973.73	\$144,798,214.35	\$45,422,758.39	\$48,063,331.83	\$51,312,124.13	\$49,131,853
Acquirer Risk Administration	\$1,109,044,975.47	\$549,555,873.79	\$309,899,719.44	\$220,171,762.25	\$99,904,784.15	\$33,358,873.70	\$36,384,702.38	\$30,161,208.08	\$33,105,190

3 Combined Issuer and Acquirer

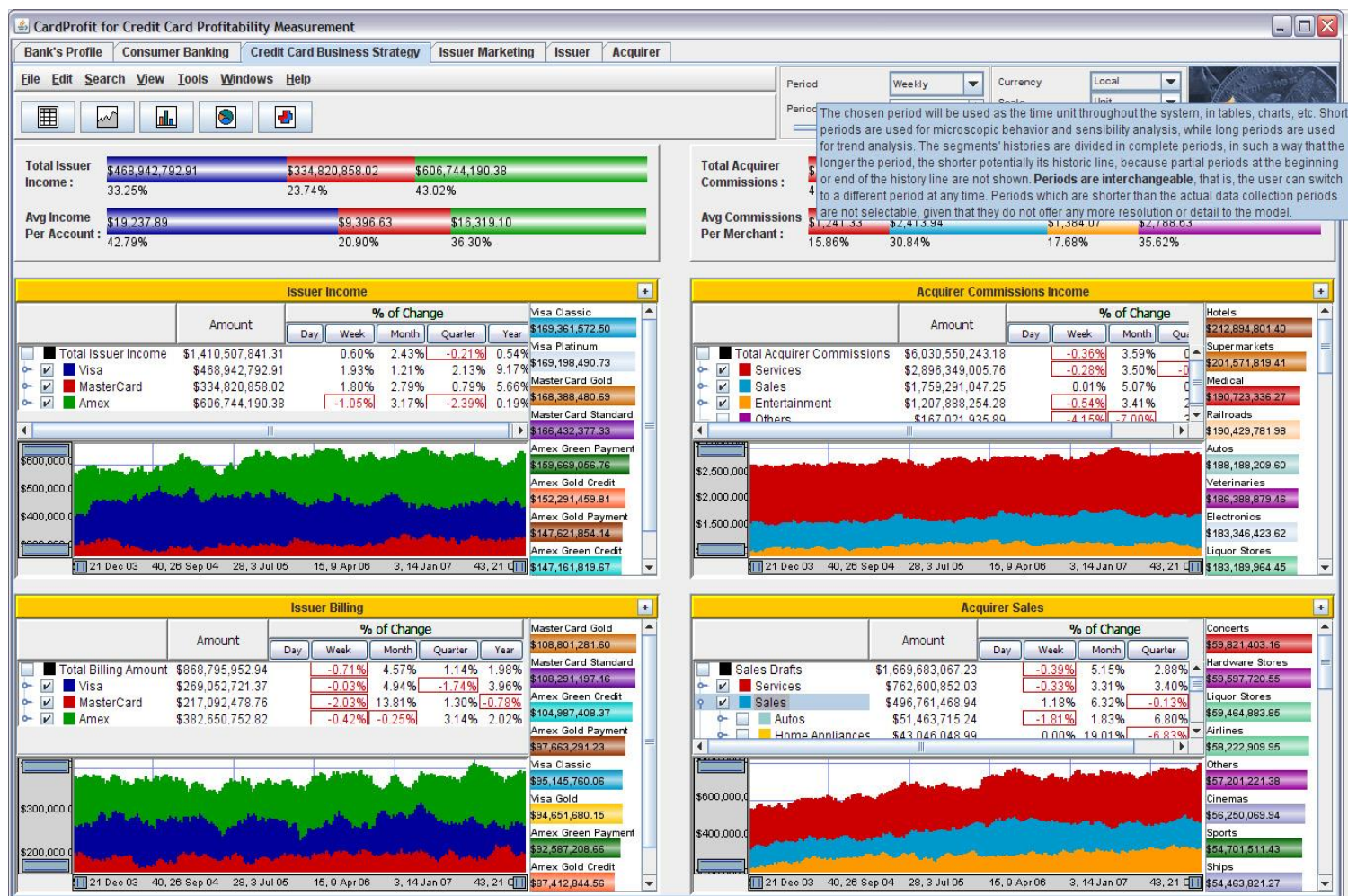
With respect to the credit card Issuer and Acquirer lines of businesses, CardProfit manages more than 1,100 different primary variables which are specific to such businesses. CardProfit can be started effectively with 25 variables from each business line and gradually extended as justified by the added benefit of additional measurements. CardProfit produces profitability and performance indicators by product or by any other arbitrary user-defined market segments, as well as operational figures and indicators of natural expenses and productivity specific to the functional areas of the Issuer and Acquirer businesses.

Each variable or unit indicator in the model can be visualized historically and through time periods of any duration. CardProfit can be configured for any currency and world region or locale. Although initially configured for English and Spanish, it can be easily configured for any other language.

CardProfit offers consolidated combined perspectives for multiple lines of businesses. The following dashboard shows combined Issuer and Acquirer profitability tendencies. The indicators represented in this bubble chart are normalized, which permits the comparison of otherwise heterogeneous segments from both lines of businesses. Notice that the values in these examples have been generated randomly and thus they are not realistic.



The following example shows another dashboard for the Issuer and Acquirer businesses. Each mini panel can be maximized in order to visualize it in more detail and with additional instrumentation. Notice one of the many pop-up help windows, which in this case describes the use of time periods throughout the application.



4 Client's Running Environment

The CardProfit Server architecture is highly scalable and is designed to run in the cloud under elastic servers with massive storage and processing capacity. CardProfit clients run in 64 bit Windows 7, 8 and 10 laptops. CardProfit makes use of multi-processor architectures for parallel execution of computation-intensive calculations.

