



Journal of Performance Management

An Introduction to Risk Transfer Pricing
- VINCE WOODWARD -

Leveraging Process Documentation for Time-Driven Activity Based Costing
- MITCHELL MAX -

Using Activity-Based Costing (ABC) to Measure Profitability
on a Commercial Loan Portfolio in a Small Community Bank
- MEHMET C. KOCAKULAH -

Using Business Intelligence Tools to Conduct Better Margin Analytics
- JAIME GARZA -

The Journal of Performance Management seeks articles from management information professionals on subjects related to management information in the financial services industry.

Manuscripts should be typed with double spacing and generous margins. Please contact AMI*fs* for complete Manuscript Guidelines prior to submitting your article.

Submit manuscripts to:

AMI*fs*

3895 Fairfax Court

Atlanta, GA 30339

(770) 444-3557 FAX: (770) 444-9084

Email: ami@amifs.org

Web: www.amifs.org

All articles in the Journal reflect the views of the authors and should not be construed as the opinions of the Association for Management Information in Financial Services. Contributing authors are required to sign a copyright agreement.

AMI*fs* Research Committee

Pat Treleaven, Bank of Montreal, Chair

Alen Gibbons, Countrywide

Greg Fitzgerald, AmTrust

Jennifer Woodham, Countrywide

William Di Filippo, Frost Bank

Chris Rebant, Huntington

The Research Committee can be contacted by email at Research@amifs.org

For a complete list of previous Journal issues, refer to the AMI*fs* web site at www.amifs.org. Orders for previous issues may be placed directly on the website under the Education page.

Copyright ©2007 by the Association for Management Information in Financial Services. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Leveraging Process Documentation for Time-Driven Activity Based Costing

Mitchell Max

Managing Partner, DecisionVu

mmax@decisionvu.com

The alignment of two seemingly unrelated stars in the Finance universe is creating a new opportunity for CFOs. Recently, companies have invested heavily in documenting and strengthening controls over business processes to support improved risk management in accordance with requirements such as Sarbanes – Oxley (and, for financial services organizations, Basel II), or to support process improvement initiatives such as Six Sigma. At the same time, a new and innovative approach to developing accurate and meaningful cost information - *Time-Driven Activity-Based Costing*, has been evolving which directly leverages process documentation, dramatically reducing implementation time and cost.

Organizations that made early forays into Activity-Based Costing (ABC) have often struggled to capture significant ongoing value from their ABC investments. Traditional approaches to ABC rely heavily on surveys and estimates, and large staff groups to maintain the systems, provide reports, and interpret the information for users. While few question the value of the information, the cost of developing and maintaining it continues to escalate. The rise of Time-Driven ABC, however, is beginning to provide CFOs with better information at lower cost.

This paper explores some of the weaknesses of traditional ABC and demonstrates how the new Time-Driven ABC overcomes many of these problems. At the same time, the paper shows how Time-Driven ABC leverages existing process documentation to support development of accurate and actionable cost information in a cost effective and timely manner.

Limitations of Traditional Activity-Based Costing

Costing is not an exact science. Traditionally, it relies heavily on estimates and averages. The basic approach is shown in Exhibit A. For example, in an ABC study the practitioner asks employees to allocate their time across a number of pre-defined activities, for example, processing loan applications. While widely used, this approach is appropriate only in situations where roles remain relatively static over time, and where the effort to service customers is relatively homogeneous.

Where averages and estimates were deemed to be inappropriate, practitioners introduced different approaches. For example, if work effort changes significantly from period to period, survey frequency could be increased (e.g., monthly). This requires a significant investment in costing infrastructure to obtain and process updated time surveys. In situations where consumption patterns differed, for example, based on ranges of service complexity, complexity weightings would be estimated and established for different products or customers.

Change in company operations is a constant. Centralized operational areas have greater ability to make wide use of flexible work arrangements, shifting resources on an ongoing basis to match work volumes, aided by cross-training and intelligent technologies. Allocation of effort on this basis would require much more in-depth time tracking if a traditional ABC approach is used.

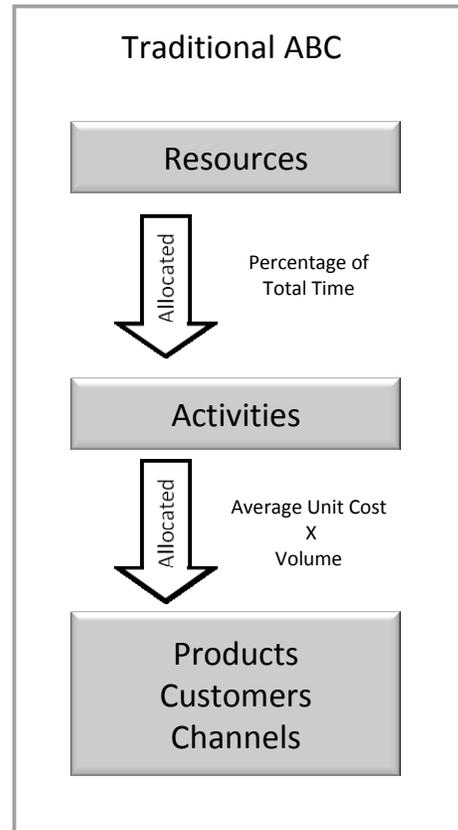


Exhibit A

At the same time, our experience continues demonstrate that ‘average’ cost consumption by products and customers has never been more inaccurate: wide variations from the average are the norm, based on the need to meet unique customer requirements to win business (often with little impact on price). Exhibit B demonstrates a typical example, where activity unit costs exhibit significant dispersion from the average (calculated by dividing the activity cost by the total volume of loan applications) when measured *individually*. Using average costs as the basis for decision-making can hide the wide variations that come from different service levels, unique customer demands, product features, service channels, etc.

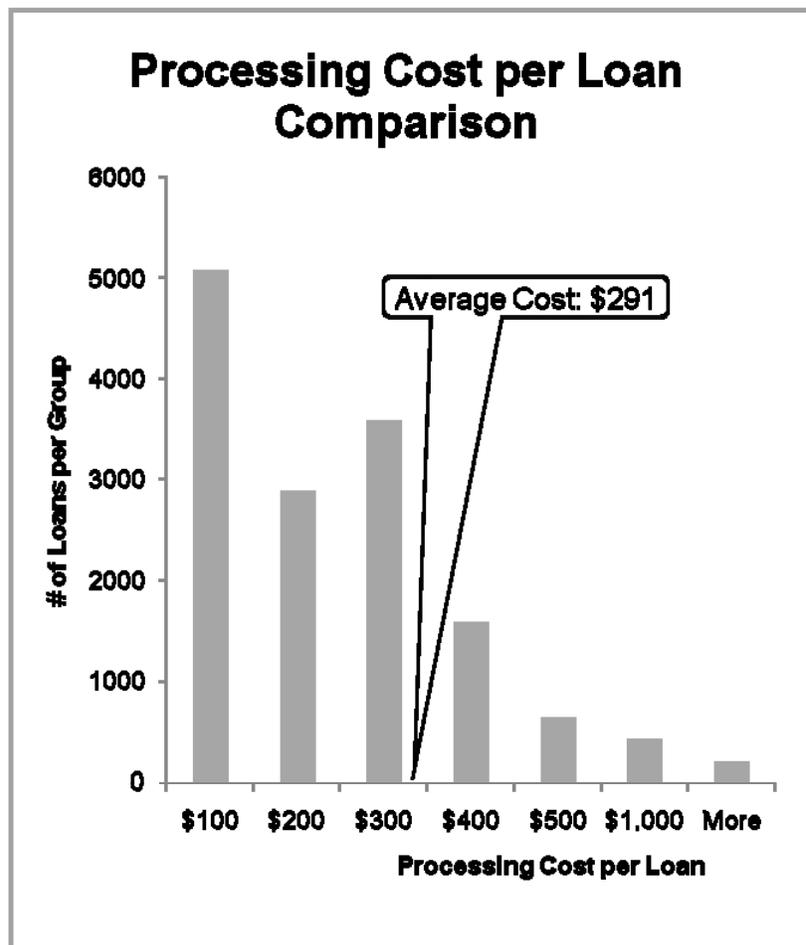


Exhibit B

The reliance on cost averages diminishes the accuracy and transparency of cost and profitability information, which in turn creates skepticism around the output produced and distrust of it for decision-making. For these reasons, Finance organizations often have difficulty justifying ongoing use of the information other than for limited purposes, and legacy systems are often targeted for “simplification”. To truly use ABC information for strategic information – pricing of products and services to specific customers or segments – the specific costs of service must be understood and managed in a more accurate fashion.

Cost information – even though expensive to produce - continues to be utilized for specific purposes: for example, to provide relative product cost information or to support allocations. Few organizations, however, have been able to make the transition to a comprehensive use of cost information as the foundation for Performance Management.

The New Alternative

Against this backdrop, we began a search for a different approach which would allow organizations to derive high value from cost and profitability information, but a significantly lower cost of development and maintenance. Time-Driven ABC emerged as a new approach that we have been able to employ in many of our client engagements. Described at length by Dr. Robert Kaplan and Steve Anderson¹, Time-Driven ABC provides a method which is both simple in concept and powerful in execution.

Coincidentally, our work led us to discover the synergies that exist between Time-Driven ABC implementations and the use of existing process documentation. Recently, organizations have spent significant amounts of cost and effort to document business processes. This is a requirement, both for compliance with Sarbanes-Oxley or Basel II, and also for analysis and ongoing measurement for process improvement initiatives such as Six Sigma. Time-Driven ABC is able to capitalize on this investment by translating process flow documentation into a cost flow model, and in turn by placing reliance on process consistency as the basis for model building.

¹Kaplan, Robert S. and Steven R. Anderson, “Time-Driven Activity-Based Costing”, Harvard Business School Publishing, 2007

In essence, Time-Driven ABC works by understanding the amount of effort required to process any given transaction, and by attaching cost to each specific transaction accurately measures costs by activity (process), products, customers (and/or segments), and channels. A simplified example is shown in Exhibit C.

Consider a loan application processing operation: (An illustrated example is provided later in this article.) In a traditional ABC approach, the ABC project team interviews groups of personnel to determine what types of activities they engage in (for example, application processing, credit checks, loan fulfillment, etc.), and what portions of their time are spent in each respective activity. The number of times these activities are

performed is recorded and used as the basis for allocating activity cost to products, customers, channels, etc. This generally requires the capture of a large number of driver volumes, often manually, to complete the cost allocations each period.

In a Time-Driven approach, rather than interviewing or observing personnel, existing process documentation is reviewed to determine the amount of effort required to complete each stage of the business process. Where complexity occurs, for example if additional steps are required for a given loan type, the practitioner will seek to understand what attribute of the transaction would give rise to that additional effort (e.g., a secured loan which requires additional documentation). Supplementary observation may be used to validate specific time standards, as needed.

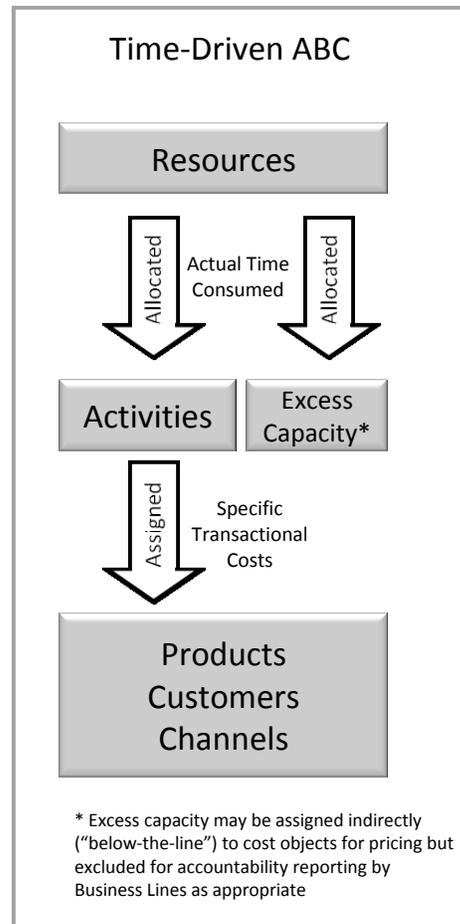


Exhibit C

The next step is to use the operational transaction files themselves as the basis for calculating costs. Rather than requiring separate extracts of transaction volume counts for each activity (or requiring manual transaction counts by employees), each transaction's attributes indicate the work steps that should have been required to process the transaction. In the example of a secured loan, we could assume that the required procedures were followed to verify the loan security of each given type (i.e., drive-by, appraisal, legal review, etc.) and compute the total amount of effort required from each resource as the basis for computing cost. In essence, *the organization places reliance on process consistency and controls in lieu of specific activity counts*. This is a direct benefit of the reliance on process documentation.

This approach has several advantages over the traditional ABC methods:

1. Costs are highly transparent and explainable to management. Rather than indicating that costs are allocated, this is a true consumption model (often referred to as a "bottom-up" approach) that is able to show the amount of effort required by each product, customer, etc. As such it is much simpler for management to understand, and facilitates an understanding of the linkage between costs, activities and outputs. Particularly when cost is used as a basis for pricing based on the level of service customers receive, the ability to trace and explain costs based on the actual service volumes and costs is a significant advantage in supporting effective communication. This approach has provided many organizations with the ability to significantly improve their price margins with key customers.

2. Costs (and profitability) are accurately captured in all dimensions (product / customer / channel etc.) at the same time, since costs are recorded at the lowest level (i.e., the account). This makes it much easier to model and analyze cost behaviour and profitability dynamics.

3. In a traditional model, the costs of the entire resource group are allocated to all users of that resource. In the Time-Driven approach,

only the costs of time (or effort) expended are assigned to outputs. The cost of unused capacity is not automatically assigned, but is explicitly reported and made available for management purposes. In a world with significant fixed levels of capacity, the ability to better manage available capacity is critical to profitability. In at least one of our clients, this has provided millions of dollars of benefits and has been recognized as a key driver of their strengthened profitability.

4. In a similar manner, Time-Driven ABC explicitly recognizes the distinction between fixed and variable costs, allowing an understanding of actionable cost to be developed. For example, when developing re-engineering plans, it is critical to identify the true variable impact on costs. This approach also supports the utilization of cost information for driver-based planning and forecasting purposes, and enables effective simulation and what-if analysis based on underlying changes to business volumes.

5. Time-Driven ABC is able to accurately compute the cost of excess capacity and isolate it from ongoing activity and cost object costs. This provides two direct benefits:

- a. Excess capacity – in most areas resulting from sub-optimal staffing arrangements – can be measured and managed.
- b. Unit cost variances exclude the impact of volume against fixed capacity. The cost to service a specific loan application, for example, should be constant unless something impacts the time taken to perform the activity or the cost of the resources themselves (e.g., salary increase). This is not the case in a traditional, full-absorption method.

6. Development and maintenance are significantly reduced, in a number of areas:

- a. The use of existing process documentation reduces the need to interview and map effort;
- b. Since process work levels only change when systems or processes themselves are changed (i.e., re-engineered), updates to effort levels are not required on a regular basis. Volume changes dynamically drive changes to the levels of effort and corresponding costs;

- c. There is significantly less need for time-tracking on an ongoing basis, except for situations where time is the only driver and the amount of effort is not predictable (i.e. advisory work); and
- d. System extracts are simplified, as the tools themselves determine the volumes based on the transaction logs, instead of custom-built queries.

In a practical measure, our experience has allowed us to model business areas and generate actionable information in significantly less time – and at lower cost - than ever before. We are building high-quality models in as little as 2-3 weeks with minimal operational intrusion, dramatically improving our ability to drive action in organizations and “strike while the iron is hot”.

Some organizations have employed detailed time-engineering statistics or “time-wands” as the basis for costing. Our experience is that, while we can use this information as the basis for a Time-Driven model, the level of granularity is too detailed to be maintained effectively. Experience with these approaches has also shown that operator compliance in effectively recording time can often be problematic, requiring frequent adjustment to the “captured” time standards. A higher level of analysis, combined with a better understanding of the sources of process differentiation, can provide the desired level of accuracy at a lower cost.

Time-Driven ABC may not be appropriate in every situation within a company. In areas where there is little differentiated complexity or work effort, costs are relatively fixed or the outputs are homogeneous, (for example, a group responsible for data input or imaging) a simple allocation may provide sufficient accuracy. Similarly, for situations where the amount of time cannot be effectively predicted, such as advisory work or consulting, a more formal time-tracking system may be required. It is important that users select a costing system which has the flexibility to adapt to use the most appropriate method in each situation *within the same model*.

Process Documentation and Management with ABC

With the increasing compliance with Sarbanes-Oxley requirements, banks have a ready supply of process information, and are able to demonstrate compliance with these processes. For example, for a particular type of secured loan, there may be specific tasks to perfect each lien, and these processes are often highly controlled. In building cost models which leverage this information, we are able to build accurate and transparent models much more rapidly than in the past. More importantly, model maintenance effort is greatly reduced under this approach, as process changes need to be communicated and managed for compliance purposes, and this will trigger changes to the ABC model as well. Since Time-Driven ABC models rely on process performance times instead of time allocations, the frequency and effort of model updates is greatly reduced.

There are other benefits from integrating process management with ABC. By measuring process performance and using it as a basis of allocation, cost and process effort data can be used to support process re-engineering efforts and/or Six Sigma requirements.

In particular, we have found that this methodology is directly aligned with the management processes and metrics that operational managers use daily in running their business, and as such they can more easily begin to leverage the information in their operational management programs. For example, operational managers explicitly manage productivity measures such as the *number of applications per hour*, that can be directly translated into the effort component in a cost model. This builds quick buy-in outside of Finance and ensures that consistent information is used across the business. Cost and process information can be integrated into a complete scorecard to support an efficient, effective and comprehensive operational performance management process.

Leveraging Your Finance Investment

Over the past few years, Finance organizations have made considerable investments in their infrastructure. While most CFO's value the

information that a good ABC system can provide, the appetite for yet another project with its associated funding has limited appeal.

Based on our client work, we encourage CFO's to create synergies by utilizing ABC information to satisfy other business requirements. ABC can provide new or improved information for other purposes, such as:

- Cost allocations for Line of Business reporting;
- Performance Measures (KPIs) for operational scorecards;
- Process cost information to support re-engineering and continuous improvement measurement

Too often, the value of ABC information is viewed in a silo. In the past, practitioners urged their clients to choose between strategic ABC information (e.g., product or customer segment profitability) or operational ABC information (e.g., process cost and performance management). Traditional systems necessitated that these two views could not co-exist in the same application, as the level of detail required for the latter would make it cumbersome to produce the former. Our experience with Time-Driven ABC is showing that these two different approaches can – and in fact should – be incorporated in the same model. Thus, it is truly practical for ABC to be built from the bottom-up and yet still be used to serve strategic cost analysis. A bottom-up build is critical for supporting cost allocation models on a basis that satisfies the need for information transparency within the organization.

Conclusion

Banks are increasingly able to leverage their investments in risk management process documentation and control to develop and use cost information quickly and cost-effectively, by applying Time-Driven ABC. This methodology creates higher value than traditional methods by providing improved accuracy and transparency, and has a significantly lower cost of development and maintenance. Organizations that have abandoned ABC should re-evaluate this strategy. For those that have not yet embarked on an ABC program, the cost of entry is now much less than ever before.

Applying Time-Driven ABC – An Example

ARN Financial Corporation undertook an ABC study for the Line of Credit origination process. Before commencing the study, the ABC team obtained and verified a process map which had been prepared for the department, and obtained time estimates (in minutes) for each major step in the process. The process map is shown in *Figure 1*:

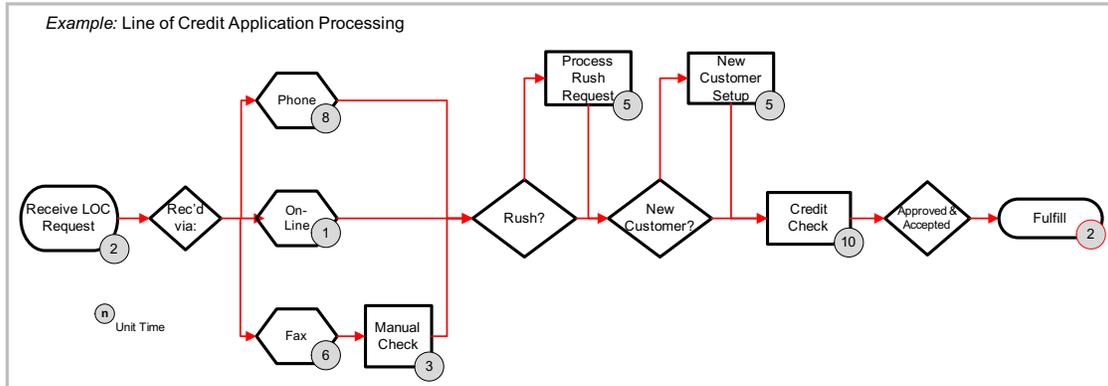


Figure 1

The first step was to calculate the cost per minute for time worked. In this example, we elected to treat all costs as a single cost pool for purposes of illustration. Further, all costs were assumed to be variable. *Figure 2* shows the calculations.

Department: LOC Processing	
EXPENSES	GL \$
SALARIES AND BENEFITS	
PERSONNEL COSTS - FULL TIME	300,000
PERSONNEL COSTS - HOURLY	40,000
BENEFITS	119,000
FACILITIES	80,000
COMPUTER COSTS	130,000
TELECOM COSTS	44,000
POSTAGE, COURIER & FREIGHT	23,000
STATIONERY, SUPPLIES AND REPAIRS	6,000
TRAVEL & ENTERTAINMENT	4,000
OTHER	2,000
Subtotal - Departmental Expenses	748,000
FTE's	82
Capacity [21 days @ 7.5 hrs/day x 60 mins]	774,900
Capacity Mins @ 80%	619,920
Cost per Minute @ "Normal" Capacity	\$ 1.21

Figure 2

Based on a workday of 7.5 hours, and assuming normal utilization at 80% of capacity, we calculated a total cost per minute of \$1.21.

Using actual volumes for each step in the study period, we (1) determined the total minutes of time consumed by the resources for each step, (2) multiplied the minutes by the cost per minute, and (3) calculated the amount of used and unused capacity (Figure 3):

Time-Driven Analysis					
Task	Time	Volume	Minutes	Cost	Unit Cost
Request LOC	2	30,000	60,000	\$ 72,396	\$ 2.41
Receive LOC via Fax	6	6,000	36,000	43,438	7.24
Receive LOC via Web	1	15,000	15,000	18,099	1.21
Receive LOC via Phone	8	9,000	72,000	86,876	9.65
Manual check	3	6,000	18,000	21,719	3.62
Perform rush request	5	4,500	22,500	27,149	6.03
Perform credit check	10	27,000	270,000	325,784	12.07
Setup new customer	5	9,000	45,000	54,297	6.03
Complete LOC	2	22,500	45,000	54,297	2.41
			<u>583,500</u>	<u>\$ 704,055</u>	
Actual Cost				<u>\$ 748,000</u>	
Difference (unused capacity)				<u>\$ 43,945</u>	

Figure 3

In our example, although costs in aggregate are \$748,000, only \$704,055 can be directly attributable to work performed. The balance of \$43,945 represents unused capacity which is available to handle additional work volumes.

Next, each the activity costs are applied to each loan transaction. For illustration, we have pre-aggregated the transactions. ARN's interest is in analyzing costs by Product and Channel. The volumes for each product/channel combination are costed out separately (Figure 4). In addition, we segregated the loans into two groups: funded loans and those which dropped out as they moved through the origination process.

		Request LOC	Receive LOC via Fax	Receive LOC via Web	Receive LOC via Phone	Manual check	Perform rush request	Perform credit check	Setup new customer	Complete LOC	Total Activity Cost	
Unit Cost		\$ 2.41	\$ 7.24	\$ 1.21	\$ 9.65	\$ 3.62	\$ 6.03	\$ 12.07	\$ 6.03	\$ 2.41		
Total Vol		30,000	6,000	15,000	9,000	6,000	4,500	27,000	9,000	22,500		
Total Minutes		60,000	36,000	15,000	72,000	18,000	22,500	270,000	45,000	45,000	583,500	
Product	Channel	Loan \$										
Secured	Direct	\$ -	2,100	600	1,200	300	600	300	1,200	0	0	32,216
Secured	Direct	\$ 703,107,000	4,500	1,800	2,100	600	1,800	660	4,500	1,200	4,500	115,110
Secured	Broker	\$ -	900	0	900	0	0	120	300	0	0	7,602
Secured	Broker	\$ 731,231,280	3,900	0	3,900	0	0	540	3,900	3,600	3,900	95,563
Unsecured	Direct	\$ -	2,700	2,400	0	300	2,400	180	1,500	0	0	54,659
Unsecured	Direct	\$ 600,547,200	4,800	1,200	1,800	1,800	1,200	840	4,800	900	4,800	124,160
Unsecured	Broker	\$ -	1,200	0	1,200	0	0	300	900	0	0	17,013
Unsecured	Broker	\$ 474,807,630	3,300	0	3,300	0	0	240	3,300	3,300	3,300	81,084
Overdraft	Direct	\$ -	600	0	600	0	120	600	0	0	0	15,203
Overdraft	Direct	\$ 38,940,000	6,000	0	600	5,400	0	1,200	6,000	0	6,000	161,444
			30,000	6,000	15,000	9,000	6,000	4,500	27,000	9,000	22,500	
			<u>\$ 2,548,633,110</u>									<u>\$ 704,055</u>

Figure 4

Finally, we summarized the costs and the originated loan values by Product and Channel, and determined a number of key metrics associated with this process (*Figure 5*). As a result, vastly different unit costs and cost per dollars of loan originated are apparent under each product / channel combination. In addition, recall that the cost of unutilized capacity has not been applied to these dimensions, but is reported separately for management.

		Channels		
		Direct	Broker	Total
Products	Secured			
	Cost of Sales	147,327	103,165	250,492
	Unit Cost	\$32.74	\$26.45	\$29.82
	Cost as % of Sales	0.0210%	0.0141%	0.0175%
	Unsecured			
	Cost of Sales	178,819	98,097	276,916
	Unit Cost	\$37.25	\$29.73	\$34.19
	Cost as % of Sales	0.0298%	0.0207%	0.0258%
	Overdraft			
	Cost of Sales	176,647		176,647
	Unit Cost	\$29.44		\$29.44
	Cost as % of Sales	0.4536%		0.4536%
Total Cost of Sales		502,793	201,262	704,055
Total Unit Cost		\$32.86	\$27.95	\$31.29
Total Cost as % of Sales		0.0374%	0.0167%	0.0276%

Figure 5

The reader can transparently examine any particular cost item to understand which activities and costs gave rise to it by referencing the associated volumes. This facilitates a proactive discussion of the opportunities available to better manage cost, and ultimately profitability.