

EVALUATING COMMERCIAL LOANS WITH ACTIVITY-BASED COSTING:

A Solution for Banks in Current Economic Times

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Introduction

In the early onset of the 2008 financial crisis, many large banks were crippled from lack of liquidity and uncertainty. While a majority of these banks were accepting emergency funds from the government to ensure survival, many community banks—which had practiced conservative lending principles—were growing at astonishing rates². It has, however, been five years since the collapse of Lehman Brothers, and now community banks are facing competitive pressures from new and unique sources. The Federal Reserve’s ambitious monetary policies left many unprepared to handle the current interest rate climate³, Excess liquidity has created balance sheet difficulties. These issues are exacerbated by the increase in competition from other local financial institutions as well as the large banks that are beginning to regain footing lost in 2008. All of these factors have contributed to the commoditization of the financial services industry. This means that community banks, which have long thrived on differentiation, are being forced to compete on price.

In general, community bankers have historically been considered to be “relationship” bankers rather than “transactional” bankers. Community banks are typically privately owned and locally controlled and generally make decisions using different criteria than larger, more decentralized banks. The Federal Depositors Insurance Corporation (FDIC) notes that a single definition for the community bank is challenging and the dollar-based yardstick for these institutions has been changing. Historically, an individual bank with total assets of \$1 billion or less was categorized as a community bank, but more recently \$10 billion has become the standard benchmark (FDIC Community Banking Study, 2012). Regardless, many of these banks lack the proper information to compete in a commodity-based industry. As a result, several are operating such that their long-term survival is in jeopardy. In contrast, larger banks have been implementing advanced costing systems for nearly two decades⁴. These systems have helped these larger banks to determine which products and which customers are the most beneficial.

The purpose of this case study is to examine one community bank with issues similar to those faced by others in the industry, and demonstrate how Activity-Based Costing (ABC) can help provide managers with information to address these issues. This study focuses on

²(St. Louis Fed Study Shows Community Bank Model Can Thrive In Good Times and In Bad, 2012)

³(Thornton, 2012)

⁴(Mays & Sweeney, 1994)

the commercial lending department at the bank, with the intent to determine the commercial lending products that are least and most profitable for the bank using ABC costing. The study concludes with suggestions for the bank based on these findings.

The Bank

.. *Bank A*, the name used for the bank in this case study, is modeled to simulate many community banks. It has approximately \$140 million in assets, including the building housing banking operations, and primarily operates in a local municipality. It is a full service financial institution and is well established in the community.

Like many local financial institutions, *Bank A* is well capitalized and emphasizes conservative lending practices and overall frugality. It markets itself as a community bank seeking to meet the financial needs of the local populace through excellent customer service and security. Since 2008 *Bank A's* annual profits have been increasing steadily.

Although primarily a mortgage lender, in the last decade *Bank A* has shifted its focus to develop a strong commercial lending department. Currently, commercial loans are approximately forty percent of its total loan portfolio and are continuous growth is projected. However, as a result of substantial economic development in the community, competition from local and regional competition increased.

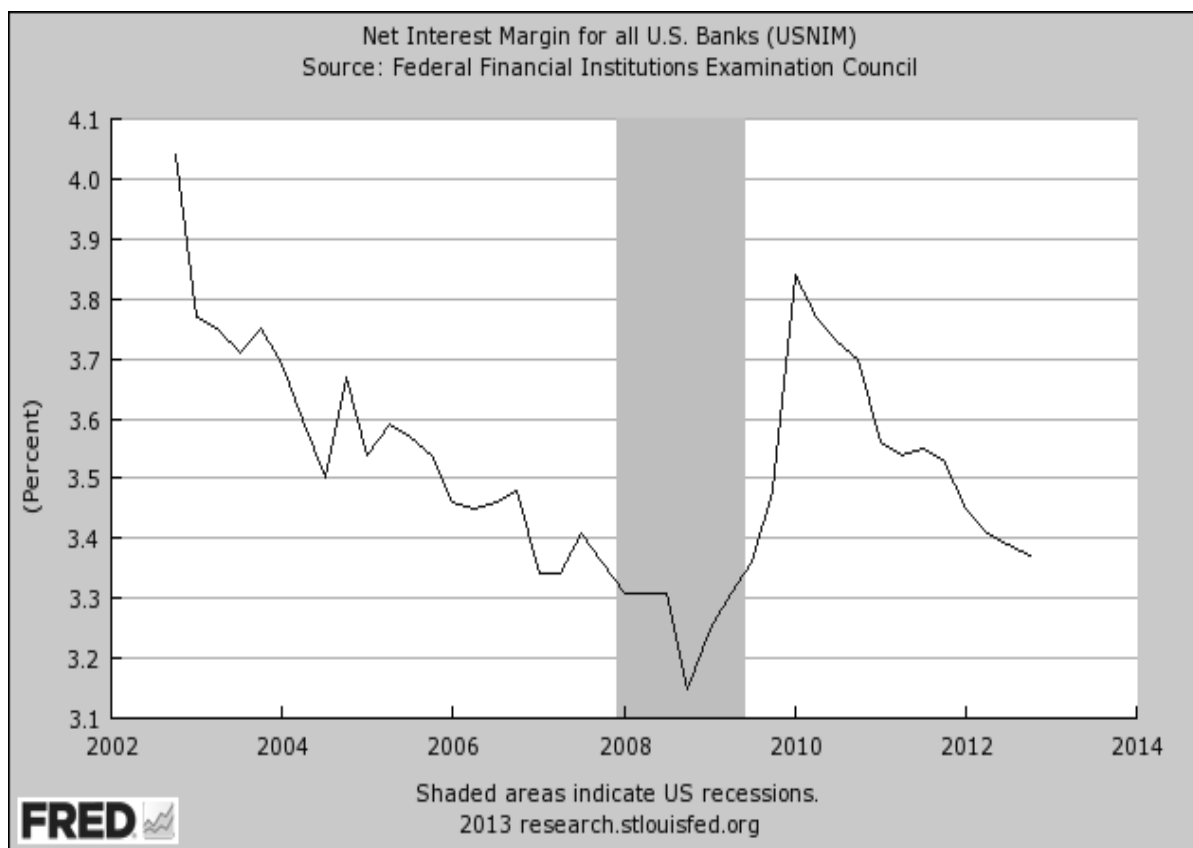
Current Issues

There are two substantial threats facing *Bank A*: (1) the rate environment and increased competition, and (2) the bank's uniquely high overhead costs. This section will discuss these threats in detail.

Rate Environment and Competition: As mentioned in earlier, the Federal Reserve has been pursuing an ambitious asset-purchasing program that has kept interest rates at historical lows. In the beginning of this program, banks were able to drop their cost of funds accordingly and stimulate demand; both positives for the banks. Cost of funds is the weighted rate which banks pay depositors to keep money at their institution. As this rate drops, the bank's interest expense to keep deposits needed to fund loans also drops. Since many local banks were well capitalized

during the financial crisis, they were able to lend money at market rates while the costs of their deposits continued to decrease. This juxtaposition improved their net interest margin⁵ significantly. Eventually the costs of funds bottomed out, and due to increasing competition, yields on lending products have been decreasing in lock step. Figure 1⁶ shows the average net interest margin for the past ten years. One can clearly see the sharp increase in the net interest margin following the Federal Reserve's response to the financial crisis and the continual decline as banks and the economy recovered and competition spiked. In particular, the growth in commercial lending has increased substantially⁷.

Figure 1.0



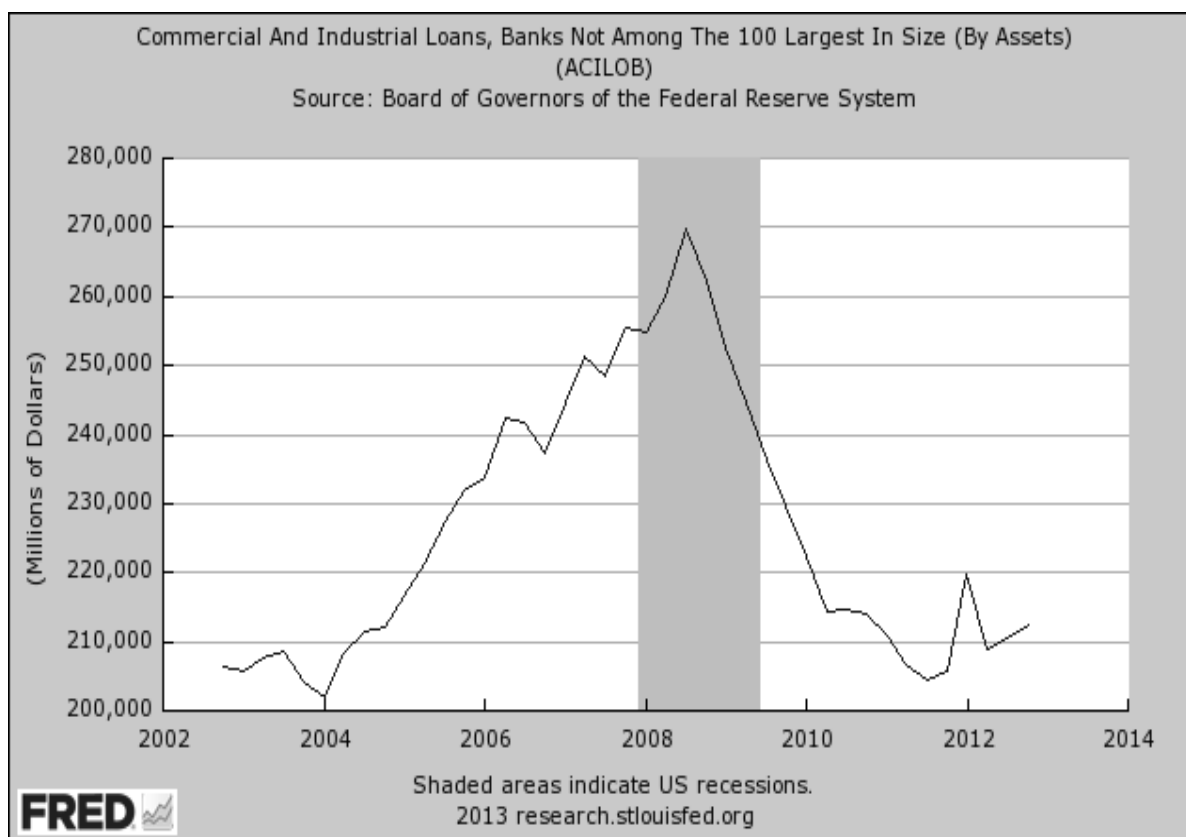
⁵Yield from interest earning assets net the rate from interest due from deposits

⁶(Economic Research Federal Reserve Bank of St. Louis)

⁷(Raice, 2013)

With banks loaded with excess liquidity and the commercial market largely being underserved in the past few years, business loans provided opportunities where the housing and consumer markets could not. Figure 2⁸ identifies the commercial lending activities for banks not in the top 100 largest in asset size from 2002-2013. The activity line clearly identifies a dramatic decrease in this type of lending in 2008—at the height of the financial crisis—followed by an increase in late 2011. What this increase means for *Bank A* is that it will have to continue to make concessions on rates. In order to maintain current trends in profitability, *Bank A*'s management has decided to pursue a strategy of increasing loan volume to offset the lower margins.

Figure 2.0



⁸(Economic Research Federal Reserve Bank of St. Louis)

Overhead: The second issue of concern, overhead costs, has left many community banks without a clear strategy. Traditionally, banks have used non-interest income to subsidize their overhead expenses. Banks receive non-interest income through a variety of sources including insurance and investment services, trust departments, and fees charged on deposit accounts. The fees charged on deposit accounts have constituted a large proportion of the non-interest income and has been a key factor in bank profitability in the past. However, in the wake of financial crisis, Congress passed multiple regulations limiting the methods banks could use to acquire these fees. As a result, non-interest income has significantly decreased, causing many banks to become creative in replacing lost income.

For Bank A, this loss of non-interest income is particularly troublesome. *Bank A* is heavily invested in fixed assets and must absorb the costs that these fixed assets (primarily their buildings) generate. As a result, *Bank A* is much less cost efficient than its competitors with the bank's interest income being used to cover much of its overhead costs. This vulnerability to changing market conditions emphasizes the need to reexamine its current costing system for both strengths and weaknesses in its loan product line.

ABC COSTING: A Brief Description

Activity Based Costing (ABC) is a method of gathering costing information. It assigns costs to cost objects by measuring the unique activities they consume. Developed by Robert S. Kaplan and W. Bruns in the late 1980s, this costing approach provided an alternative to traditional costing methods troubled with inaccuracies. Although it was designed for manufacturing, retail organizations quickly adopted the methodology for use as well.

ABC's true advantage is its ability to properly assign overhead costs to individual products, allowing managers to identify the profitability of each job/product more accurately. Managers are then able to eliminate inefficiencies and cross-subsidized products, and better plan for changes in demand for various product lines.

This costing approach is affected through a five-step process: The Company

1. defines the unique activities consumed to make the cost objective;
2. assigns the costs for each activity;
3. identifies the cost drivers for each activity;

4. determines the indirect cost rate; and
5. allocates the costs per product/job by multiplying the rate times the quantity of each activity the cost object consumed⁹.

The Model

In order to demonstrate the impact that overhead costs have on the overall profitability of *Bank A*, this model will compare its current costing method with an ABC method. The basis of measurement will be seventeen new commercial loans booked in the first quarter of the current year. These loans range in collateral, dollar amount, rate, and maturity. The first year's return on investment for each loan will be evaluated under both costing methods.

The Current Costing Method

Bank A currently uses the spread over cost of funds (or the net interest margin) as its primary measurement of profitability, principally because calculations are simple and quick. All overhead, such as building expenses, salaries, and IT expenses are grouped on the expense report. There are no calculations or estimations of overhead assignment to loan products.

The cost of funds has leveled-out to .90% with very little variation for nearly one year. Since the model will only be looking at the first year's return on investment for the newly booked loans, the cost to book these loans are simply calculated as the funds advanced multiplied by .90%. This gives managers the net interest margin and a basis to measure the loan's first year profitability.

ABC Costing Analysis

In contrast, ABC analysis will identify the primary activities consumed developing these loans, quantify them, and then use the additional cost to give management a more accurate analysis of which loans were more profitable.

First, there are four individuals involved in commercial lending activities: the loan officer, the credit analyst, the commercial processor, and the compliance officer. The loan officer is the direct contact to the borrowing entities and is responsible for issuing and managing the credit.

⁹(Anthony, Hawkins, & Merchant, 2011)

The credit analyst underwrites new and existing credit. The commercial processor books the loans, secures the collateral, and places the relationships on the bank's network to maintain the credit. Finally, the compliance officer reviews loans periodically to make sure they are being maintained properly to comply with local and federal laws and regulations.

Before identifying activities essential to commercial loan production, it is important to identify the assumptions used in the model. Since this model is measuring only first year's profitability of the loans in the previous quarter, much of the risk costs will be mitigated by the interest rate premiums. In addition, since *Bank A* is well capitalized, it does not assign *loan loss reserve*¹⁰ to a credit until it is considered to be in trouble of repayment. Since the loans being evaluated are new creed Commercial Lending Activity Member Rate Assignment "its, each were assigned a satisfactory grade.

Defined Activities

- **Underwriting** – the process of evaluating the credit worthiness of borrowing entities.
- **Processing** – the booking and recording of collateral and legal documentation of credit relationships.
- **Loan Officer Review** – the time spent by the loan officer preparing credit for approval.
- **Compliance** – the time spent by the compliance officer throughout the year reviewing the credit.
- **Loan Servicing** – the time expended by the loan officer working with borrowing entity during the process of, and after, extending credit.
- **Annual Review** – the review of credit at the end of the year.

In order to calculate the cost of performing each activity, the individual's rate for completing the activities must be determined. In the case of *Bank A*, the commercial lending department operates primarily from one branch location. All commercial loans are booked at this particular branch. The occupancy, equipment/supplies, and communication/IT expenses were portioned to reflect the consumption of these resources by the commercial lending department for year-end 2012. This allocation, using information from the branch's partial income statement, can be found in the second column at Figure 3.

¹⁰A portion of the interest income set aside to offset the loss experienced in a default

Figure 3.0			
Overhead Assignment			
	Total	Commercial Loan Department	Activity
Occupancy Expense	132,441.36	22,073.56	7,350.50
Equipment Expense	18,796.39	6,259.20	2,084.31
Supplies	7,552.04	2,514.83	837.44
Comm./ IT	15,975.30	5,319.77	1,771.49
TOTAL	174,765.09	36,167.36	12,043.73

The individual rate assignment for commercial lending activities can be viewed in Figure 4. Since each member of the commercial lending department consumes proportional amounts of overhead expenses, the loan officer, credit analyst, and loan processor were each assigned the same amount of overhead assignment (calculated as the sum of the third column, Activity, in Figure 3). In addition to the proportioned overhead expenses, each individual's total compensation was used to calculate the annual total expense. The model then divides the total number by 245 (assumed number of work days in the year net vacation time, sick days, and holidays) and then again by 6 (the assumed number of productive working hours in a day) to determine the hourly rate for each element. The compliance officer works through remote access. The only expense assignment for this activity is from her total compensation.

Commercial Lending Activity Member Rate Assignment"

Figure 4.0				
Rate Assignment				
	Loan Officer	Credit Analyst	Loan Processor	Compliance Officer
Salary and Benefits	55,000.00	35,000.00	30,000.00	60,000.00
Overhead Assignment	12,043.73	12,043.73	12,043.73	-
Total	67,043.73	47,043.73	42,043.73	60,000.00
Rate	45.61	32.00	28.60	40.82

The Cost Drivers

The two primary cost drivers identified to increase activity consumption are both the dollar amount of the loan and the type of collateral securing the loan. The dollar amount affects the type of approving process, the time retrieving and compiling financial information, compliance due-diligence, and the time the loan officer has to spend cultivating and managing the credit. These dollar amounts will be linked with the three thresholds for credit approving entities: \$0-\$200,000 requires individual loan officer approval, \$200,000-\$500,000 requires Loan Committee approval¹¹, and greater the \$500,000 must be approved by the Board of Directors. Each approval process requires additional time by both the loan officer and credit analyst to prepare and present the credit.

The larger dollar amount loans often require the loan officer to spend more time managing the credit relation. The financing projects are usually larger, and the due-diligence in appropriating the funds is more demanding. In addition, the compliance officer must review the larger customer's credit on routine basis to assess the credit risk posed to the bank's portfolio.

The collateral type also plays a demanding role in activity consumption. In most instances, business and personal cash flows, business and personal assets, and real estate collateral are used to secure commercial customers. Unsecured loans are funded through business and personal cash flow, Universal Collateral Codes(UCCs) are filed with the state to secure all titled collateral assets (such as vehicles and machinery), and mortgages are used to secure real estate assets. Each item requires additional steps in collateral analysis, processing, and review from the loan officer and compliance officer.

Figure 5 shows the activity key. Each dollar amount threshold and collateral type results in the particular activity time for the commercial elements. These times are used in the model to calculate total activity costs for the various loans produced.

¹¹Loan Committee consists of a group of senior lenders and the Chief Lending Officer

Figure 5.0

Activity Key								
		Underwriting/ Credit Analyst	Processing/ Loan Processor	Loan Officer Review	Compliance	Cost of Funds	Loan Servicing/ Loan Officer	Annual Review/ Credit Analyst
\$ Amount								
	0- \$200,000	3 hours	-	.5 hour	-	-	2 hours	1 hour
	\$200,000 - \$500,000	4.5 hours	-	1.5 hours	.25 hour	-	4 hours	2 hours
	Greater than \$500,000	8 hours	-	2.5 hours	.50 hour	-	8 hours	4 hours
Collateral Type								
	Unsecured	0	1 hour	.5 hour	.25 hour	-	-	-
	UCC	.5 hours	2 hours	.75 hour	.5 hour	-	-	-
	Mortgage	.75 hours	4 hours	1.5 hours	1 hour	-	-	-

The Analysis

Figure 6.0 shows the seventeen new loans produced in the first quarter for *Bank A*, summarizing the total expected income for the first year and the total costs associated with each activity. The suggested activity time and pre-determined rate along with other identified costs were combined to evaluate each loan's first-year profitability.

Figure 6.0

New Loan Summary for 1st Quarter

Loan Profile			Expense Summary										Net Income	
Loan #	Funding	Rate	Maturity	Cost of Funds	Approval	Collateral Type	Annual Review	Loan Officer Time (Hours)	Credit Analyst Time (Hours)	Loan Processor Time (Hours)	Compliance Officer Time (Hours)	Cost of Funds Expense	Total Expense	Net Income
1	565,000	3.25%	1 year	0.90%	Board	Unsecured	X	5.75	6	1	0.25	5,085	5,578	15,784
			10 year w/20 year am.											
2	658,000	5.25%	5 year w/10 year am.	0.90%	Board	UCC and Mortgage	X	12.75	13.25	6	2	5,922	7,181	31,909
3	120,000	4.00%	4.00% year am.	0.90%	Loan Officer	Mortgage	X	2.5	4.75	4	1	1,080	1,501	4,117
4	50,000	3.75%	1 year	0.90%	Loan Officer	UCC	-	3.25	3.5	2	0.25	450	778	1,347
5	375,000	4.50%	10 year w/20 year am.	0.90%	Loan Committee	UCC	X	6.25	7	2	0.75	3,375	3,972	15,661
6	296,000	4.00%	10 year w/20 year am.	0.90%	Loan Committee	Mortgage	X	7	7.25	4	1.25	2,664	3,381	9,780
7	160,000	3.75%	5 year w/10 year am.	0.90%	Loan Officer	Mortgage	X	4	4.75	4	1	1,440	1,930	4,977
8	210,000	5.25%	5 year w/10 year am.	0.90%	Loan Committee	UCC and Mortgage	X	7.75	7.75	6	1.75	1,890	2,735	8,900
9	1,700,000	3.50%	10 year w/20 year am.	0.90%	Board	UCC and Mortgage	X	12.75	13.25	6	2	15,300	16,559	46,989
10	75,000	3.25%	1 year	0.90%	Loan Officer	Unsecured	-	3	3	1	0.25	675	947	2,491
11	20,000	5.00%	5 years	0.90%	Loan Officer	UCC	-	3.25	3.5	2	0.5	180	518	715
12	50,500	4.25%	5 year w/10 year am.	0.90%	Loan Officer	UCC	-	3.25	3.5	2	0.5	455	792	1,714
13	175,900	4.25%	10 year w/20 year am.	0.90%	Loan Officer	Mortgage	X	4	4.75	4	1	1,583	2,073	6,293
14	3,200,000	2.95%	5 year w/10 year am.	0.90%	Board	UCC and Mortgage	X	12.75	13.25	6	2	28,800	30,059	60,585
15	80,000	4.00%	5 year w/10 year am.	0.90%	Loan Officer	UCC	-	3.25	3.5	2	0.5	720	1,058	2,521
16	125,300	4.25%	5 year w/10 year am.	0.90%	Loan Officer	UCC and Mortgage	X	4.75	5.25	6	1.5	1,128	1,745	2,528
17	100,000	4.00%	1 year	0.90%	Loan Officer	UCC	-	3.25	3	2	0.5	900	1,222	3,278
TOTAL	7,960,700							100	107	60	17	71,646	82,027	219,589

Activity Rates \$/hr	
Loan Officer	45.61
Credit Analyst	32.00
Loan Processor	28.60
Compliance Officer	40.82

Figures 7.1-3 compare the profitability between the current costing method and the ABC method. Figure 7.2 and 7.3 show the highest to lowest return on investments for each costing method, respectively.

Figure 7.1		
Loan #	ROI w/ Current Costing Method	ROI w/ ABC
1	2.88%	2.79%
2	5.04%	4.85%
3	3.78%	3.43%
4	3.35%	2.69%
5	4.34%	4.18%
6	3.55%	3.30%
7	3.42%	3.11%
8	4.64%	4.24%
9	2.84%	2.76%
10	3.68%	3.32%
11	5.26%	3.58%
12	4.06%	3.39%
13	3.86%	3.58%
14	1.93%	1.89%
15	3.57%	3.15%
16	2.51%	2.02%
17	3.60%	3.28%

Figure 7.2	
Loan #	ROI w/ Current Costing Method
11	5.26%
2	5.04%
8	4.64%
5	4.34%
12	4.06%
13	3.86%
3	3.78%
10	3.68%
17	3.60%
15	3.57%
6	3.55%
7	3.42%
4	3.35%
1	2.88%
9	2.84%
16	2.51%
14	1.93%

Figure 7.3	
Loan #	ROI w/ ABC
2	4.85%
8	4.24%
5	4.18%
13	3.58%
11	3.58%
3	3.43%
12	3.39%
10	3.32%
6	3.30%
17	3.28%
15	3.15%
7	3.11%
1	2.79%
9	2.76%
4	2.69%
16	2.02%
14	1.89%

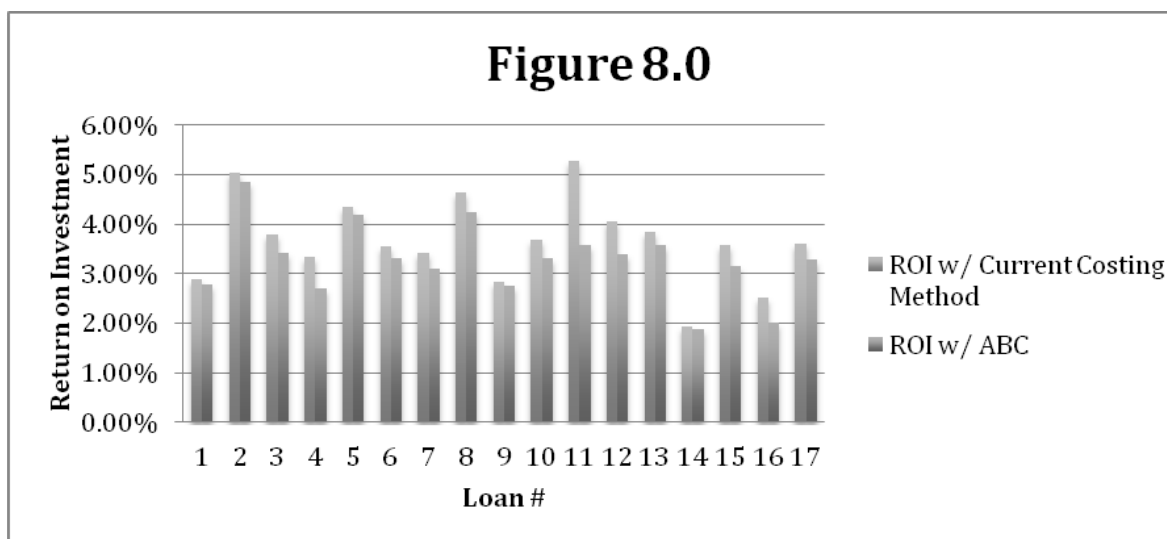
Summary of Findings

The model analysis identifies some interesting findings. However, there are further assumptions that need to be reviewed. First, when evaluating returns on investments, it is important to understand that commercial loans, while typically more profitable, carry significant risk in comparison to other portfolio investments. The loans were analyzed on a short-term basis, so the costs of these risks were not factored into the model. Secondly, fee income is hard to determine. Often commercial customers pursue credit from multiple financial institutions causing banks to cut rates and fee income to acquire the deal. Typically, fee income is the first to be discounted and predicting it has become challenging in recent years.

Considering these challenges, Figures 7.1, 7.2, and 7.3 highlight that each costing method shows a different mix of loan profitability. Loan # 11 appears to be the most profitable under the existing method and Loan # 2 is the most profitable for ABC costing. This was due, in

part, to the fee income issued to offset processing costs, but further review shows that loan # 11 required an UCC filing which increased activity on commercial loan elements therefore increasing production cost. Loan # 14 was the least profitable for both costing methods because the credit was designed to attract additional business rather than directly improve portfolio cash flows. In addition, the loan was short termed and the borrower was considered a prime credit, so there was relatively little risk involved.

Perhaps the most striking find in the analysis comparison is that the current method of costing shows that a majority of the loans with the highest interest rates provide the highest degree of profitability. This is not the case in the ABC costing method, which accounts for the real costs associated with producing a loan. Management should strongly consider the implications these findings have for loan evaluation. First, the yields calculated with the ABC costing method are lower than the current method, which should not be a surprise, as overhead allocation is impacting the profitability of individual loans. By reviewing Figure 8.0, one can see the difference between each loan evaluated under the current method (not assigned overhead costs) with the same loan evaluated using the ABC method. The current method of costing overlooks significant costs associated with the production of each loan.



By assigning overhead to these activities, management can now reconsider the costs that are in the details of each new deal. Further, they can identify which loans are consuming the most overhead to produce and find a balance of activity. In addition, they can measure and control the efficiency of these commercial elements and their rates in the future.

Finally, and perhaps the most important problem identified through this study, is that the current method of costing is incentivizing management to pursue higher interest rate assignments on to loans with the belief that it will make their portfolio more profitable. Interest rates cannot be the only factor considered. Charging higher rates of interest will only aggravate an already existing competitive environment problem being faced by community banks. Being able to analyze and identify loans with lower overhead and other processing costs where discounted interest rates can be offered will help incentivize further business in the commercial lending arena.

Conclusion

Although commercial lending only represents forty percent of the entire loan portfolio for *Bank A*, it is an excellent basis with which to study the benefits of ABC costing, not just for the bank, but also the modern banking environment. Through this analysis, it has been revealed that with the current costing method, the first year profitability of each commercial loan was skewed to show that most of the loans with the highest interest rates assigned provided the highest return on investment. This is clearly not the case. With continued ABC analysis, patterns will emerge to show the right ratio of interest rate assigned and activities performed. This in turn will give management better insight on how to approach the ever-competitive commercial market. It will also help management to lower their interest rate risks with the prolonged flat yield curve caused by proactive monetary policies.

As for the fixed overhead costs that *Bank A* expenses, the ABC method has proven that the yields on the examined commercial products have suffered as a result of the bank's excessive operational structures. For each activity, over twelve thousand dollars of overhead expenses was factored into annual consumption rates. Nevertheless, with new pricing derived from the ABC analysis, perhaps *Bank A* can identify lending products that mitigate the harm these structures cause. Aside from this approach, *Bank A* may want to consider new strategic objectives that will minimize these costs in the future.

For future consideration, it is recommended that the cost of funds should be reevaluated using the ABC costing method. Currently, *Bank A* does not allocate overhead costs into the cost of funds calculations. This is unfortunate seeing that there are many activities exclusive to managing and maintaining these funds. As a result, this cost is not perceived to be accurate by management of the bank, and once again loan pricing will be misstated. ABC costing cannot only mitigate the negative impacts of non-productive loans; it can also improve management's focus on specific lending products to push into the marketplace.

On a final note, the bank management should also consider applying ABC costing techniques to their deposit products as well. True efficiency and profitability comes from measures taken on both sides of the balance sheet. By using ABC strategies on deposits, *Bank A* could lower their cost of funds by targeting depositors that match the bank's size and overall objectives of the bank while minimizing subsidization that occurs on deposit accounts that are less expensive to maintain and increase profitability of the organization.

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