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Improving the quality and quantity of commercial loans for today's lenders

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IMPROVING THE QUALITY AND QUANTITY OF COMMERCIAL LOANS FOR TODAY'S LENDERS

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Business Administration

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by

Jeffrey Scott Kowallis

June 2008

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ABSTRACT

For the modern bank, the key to defining profitability and success is the efficiency ratios such as "return on assets." With modern accounting methods such as active based accounting, it has made it increasingly easier to identify those issues affecting the bottom line and these efficiency ratios. Once these issues can be identified, actions can be taken to reduce in-efficiencies. Reallocation of assets here and there will make a difference, but because banking is a service industry, its largest expense item is almost always salaries.

How can a bank use the power of technology to maximize the efficiency of its employees? Through the use of technology, the average teller these days is relatively uneducated and paid accordingly little but can still be a very productive employee of a bank. Bank income is primarily generated as banks are able to wield their deposits into profitable loans. To make gains in efficiency a bank may choose to pay minimal salaries to its loan officers. This often results in little loan production or bad loans. Conversely, a bank may pay high salaries resulting in a lot of loan production and higher quality loans because of the loan officer's competence. In

either case there is no real gain in efficiency. Through proper financial models, techniques, and technology a bank can make significant head way in its search to become more efficient. This can be achieved by hiring less skilled employees at lower pay yet still maintain loan volume and quality. This project sets out to identify the financial models and techniques that will achieve this highly efficient mix.

DEDICATION

I dedicate this project to my wife who has sacrificed so much to allow me the time necessary to complete this Master's Degree. It has been a long road and I will be forever grateful for her caring and understanding.

Additionally I would like to thank my parents who provided the funds for the classes and prayers that I would make it through. The completion of this project would not have been possible without the input of previous associates in the work place and my professors at California State University at San Bernardino. Through years of learning both in and out of the classroom, I have been able to gain the understanding of financial risk sufficient to create this project.

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CHAPTER ONE

PURPOSE AND OBJECTIVE

The idea for this project has been in formation for some time. Once I earned my undergraduate degree in 2002, I immediately went to work for a small one-branch commercial bank in Chino, CA. While employed there it became clear that this bank was trying to accomplish high efficiency through relatively low pay and the reliance on technology to improve the other wise unskilled loan officers. In reality, this was just a pipe dream because the standardized technology was and is not available, at least to a bank of that size. My undergraduate degree is in Business Administration with an emphasis in Information Management. Efficiency through the use of technology was a constant theme through out my courses. The "best practices" formulated by bank's examining agencies were also a key contributing factor to the development of this project. This existing knowledge, coupled with my newfound knowledge of finance found in this M.B.A. program, has aided me in producing this project.

As mentioned previously banking is a service industry. Satisfying the customer's expectations is key to a bank's success. One of the major hurdles for small banks

is the speed at which they can provide the customer their loan. With these financial models and techniques, the speed of the analysis process for loans will be dramatically improved. Although the bank wants to provide the speed, it doesn't want to sacrifice accuracy or increase the lending risk. In summary, this project's goal is to create financial models and techniques that will streamline the loan process as well as improve the risk quality.

CHAPTER TWO

REVIEW OF THE LITERATURE

As the title indicates the primary concern of purpose of this project was to improve the quality and quantity of commercial loans for lenders. The quantity issue was addressed through the use of technology. The quality portion of the project was centered in a basic model referred to as the "Three C's of Credit" model.

Although I cannot attribute the origination of the "Three C's of Credit" model to any one individual, I have researched what has been written about it in several books including "Commercial Banking" volume 2, by William Kniffin and "Credit and Collection Handbook" by Michael Dennis. In my research, I have seen references to this model going back to as early as 1917. I know that this model is simple yet timeless because on my first day on the job after graduating from college, I was handed a paper outlining the "Three C's of Credit". Almost any long time lending practitioner will know the basics of this model.

The details of this model are outlined in the methodology portion of this paper. As described in the text that was researched, the three concepts are virtually

universal in application with greater emphasis placed on different portions of the model based upon the credit being extended. Based on the text reviewed, the model is virtually universal, but the specific application to each potential loan is vague. This seemed especially true when it comes to the loans outlined in this project. In other words, the model points the user in the right direction, but then allows the user to figure out the details. This project attempts to bridge the gap by providing detailed information on the application of the model to certain loans outlined within it.

CHAPTER THREE

METHODOLOGY

Guiding Financial Model

The guideline for each of these financial models created for this project is centered in the generally accepted "Three C's of Credit" model. This model is a solid basis for this project because it contains fundamental questions that need to be addressed when making a lending decision. To set the framework for this paper I will explain the three C's.

The first C is character. In this model, character primarily assesses the borrower/guarantor's past borrowing performance. Have they made their monthly payments and have they paid their debts back within the terms of the loan? A lender wants to know that if for some reason the business is not performing or the collateral's value is reduced, the borrower or guarantor will step up to fully repay the debt. Some of the text reviewed argued that personal visits and relationships would go a long way to determining character.

The second C is capacity. Capacity is the assessment of the borrower/guarantor's ability to fully repay the credit. The primary way to look at this is by determining

all the available cash flow and subtracting all debt. This portion of the model is very objective. The primary question that comes into play regarding this portion of the model is the source from which the lender is obtaining both the income and debt information. For many loans, this is the primary source of repayment. Thus, the quality of the information becomes key to making this portion of the model useful to the lender.

The third C is collateral or capital. There is an important distinction between collateral and capital but often they are grouped together in this model. First of all, collateral is usually specific to a particular loan whereas capital often refers to the borrower/guarantor's access to capital from all sources including cash, real estate, etc.... Whether it is referred to as collateral or capital, both need to be analyzed when making a credit decision. In some cases, the collateral is the source of repayment thus emphasizing the importance of its valuation. If the capacity and collateral do not fully repay the loan, capital or the liquidation of capital becomes a source of repayment. As each financial model and technique is presented in this paper, I will explain how it relates to the "Three C's of Credit" model.

CHAPTER FOUR

ANALYSIS OF PROJECT

With the financial models and techniques provided in this project, banks can provide a loan to its customer in a timely manner without sacrificing accuracy or increasing risk. In fact, to the contrary, a bank will see more accurate analysis and less lending risk. For this project, Microsoft Excel was used extensively to build the suite of financial models presented here. Although Excel might not seem robust enough for a major bank function such as this, I believe this to be an error. First of all Excel is a very common financial tool which will facilitate ease of use. For example, Washington Mutual, one of the largest banks in the United States, uses Excel to quickly price and analyze its commercial real estate loans.

The residential mortgage industry has been revolutionized in recent years thanks to standardized financial models and techniques. The financial models have come so far that with access to the internet a kid fresh out of high school can make a good living doing refinances and new purchase loans. There is no reason banks cannot standardize some of their other products as well. The list of possible financing options provided by banks is very

long. In fact, there are several loan types that not only return a good profit to the lending bank but also by there nature could benefit greatly from standardized financial models and techniques. The following is a list of loans that will be addressed hereafter.

- Commercial real estate secured term financing
- Residential construction financing
- Commercial construction financing

For the completion of this project, I took the perspective of a loan officer who may or may not have an extensive knowledge of how to work a financial calculator, but simply want to earn a living by providing good loans to good customers. It can't be underestimated how vital it is to make good loans not just fast loans. In a recent publication from the Federal Deposit Insurance Agency (FDIC), the following was found. "Prudent underwriting standards should be developed that consider relevant credit factors, including the capacity of the borrower, income from the underlying property to service the debt, the value of collateral, the creditworthiness of the borrower, the level of equity invested, and any secondary sources of repayment". Within this paper each of these requirements are addressed. As stated previously, these financial models not only help the loan officer but the

bank as well. By deconstructing the process, I was able to come up with a suite of financial models that can achieve not only speed but also more importantly consistency and accuracy.

Steven Covey has a famous saying that goes "begin with the end in mind". As I looked at each financial model, I focused first on what the end result of that financial model needed to be. Secondly, I identified what information was needed to arrive at the desired results. The real power of the project comes from the deep understanding of credit which allows reasonable assumptions to be built in thus streamlining and simplifying the process immensely.

For what I refer to as the "quick financial models", I have been able to strip down the process of the construction of a retail strip center and the financing of an apartment complex to two questions each. For the strip center, a loan officer simply needs to know the purchase price of the land and the size of the land. For the apartment complex loan a loan officer needs to ask the borrower the desired loan amount and the gross monthly rental income of the complex.

Beyond the quick financial model's ease of use, most of the additional financial models contained in this

project use linked cells and calculated fields which not only speed up the analysis process but also ensure greater accuracy. Many banks will error on the side of caution when analyzing loans partially because they do not fully understand the request or do not trust the analysis. With the safeguards built into these financial models, a bank should be more confident in the loan officer's analysis and thus approve a greater number of loans resulting in increased income.

CHAPTER FIVE

FINDINGS OF PROJECT

This section is a summary of the various financial models and techniques that were created for this project.

Commercial Real Estate Secured Long Term Financing

Commercial real estate loans are attractive to banks because the terms are typically 5 to 15 years. Thus for the bank that wants to lend the money and forget about it for several years this can be a good option. Of course, the real estate collateral also helps to assure the bank that it will be paid back in full.

With these pluses there are some risks as well. First of all, with terms of 5 to 15 years interest rate risk can become a problem. For example if a bank offers a fixed rate for 5 years at 7% and after two years the market for a fixed rate is 9% that lent money is under performing by 2% annually. Banks typically will compensate for this risk by not fixing the rate and putting a floor rate which is typically the starting rate. If this is done, the rate will never go lower but it can go up. With a program so favorable to the bank, it may not be competitive in the market place.

In any loan there is a default risk as well. Most of the time with an accurate and complete analysis of the credit much of this default risk will be eliminated. This is one reason why this suite of financial models can be so valuable to a bank.

A lender needs to understand how specialized the real estate is. The more specialized it is, the less likely new tenants could be brought in and thus the more dependant the loan is upon the current tenant which increases the risk. For example, a gas station is very specialized and would not make a suitable building for a fast food restaurant. Thus if a bank decides to lend on a gas station it better be sure that gas station will produce sufficient income to support the debt. Although these financial models are very helpful, the final credit decision should still remain with the chief credit officer who has the experience to see the fine details that may affect the loan. As a wise bank officer once said "lending is an art not a science".

In this area there are two primary types of real estate. This is important to identify because it determines how the loan will be analyzed. These types are;

- Owner occupied real estate
- Non-owner occupied real estate

Real estate occupancy	Owner Occupied	Non-Owner Occupied
Source of repayment	Cash flow from owners business	Rental cash flow from tenants
Financials to review	business tax returns & balance sheet	Rent roll or tax returns from operating entity.

Figure 1. Order of Operation for Commercial Real Estate

Current Credit Analysis

The first step to improving something is to review the current system and outline potential weaknesses. A loan officer must know where to start and as indicated above he or she must initially identify if the property is owner occupied or not. Once that is established one of two financial models are utilized to initially determine the feasibility of the credit.

Owner Occupied Commercial Real Estate

Of the two options, this is the more labor intensive to evaluate. As established earlier the source of repayment is the owner's business. For this analysis, a

detailed worksheet and a quick worksheet were developed depending on what information the borrower provides. Because the source of repayment is the borrower/business, it would be important to obtain Profit and Loss statements or tax returns as well as a matching Balance Sheet. The following is a worksheet that was developed to aid in this detailed analysis. Based on the "Three C's Credit" model, capacity is addressed here.

Table 1. Business Cash Flow Analysis

	Tax Return 2006	Tax Return 2005	2 yr. Average
Sales / Total Receipts	$1,000,000	$ 900,000	$ 950,000
Cost of Goods Sold	$ 650,000	$ 600,000	$ 625,000
Misc. Income Grants	$ -	$ -	$ -
Gross Profit	$ 350,000	$ 300,000	$ 325,000
Gross Profit (%)	35%	33%	34%
Total Expenses	$ 200,000	$ 200,000	$ 200,000
Net Income	$ 150,000	$ 100,000	$ 125,000
(+)	Interest	$ -	$ -
(+)	Depreciation/	$ 20,000	$ 25,000
(+)	Accrued income/	$ -	$ -
Gross Cash Flow of Business	$ 170,000	$ 125,000	$ 147,500
(+)	Officer's Salary(s)	$ -	$ -
Total Cash Flow	$ 170,000	$ 125,000	$ 147,500
Projected Business	$ 75,083	$ 75,083	$ 75,083
Excess/<Short Fall>	$ 94,917	$ 49,917	$ 72,417
Debt Service Coverage	2.26	1.66	1.96
	Please list	Monthly	Annual
	Working capital	$ 854	$ 10,250
	Subject real	$ 5,403	$ 64,833
	Total	$ 6,257	$ 75,083

As this information is input in the spreadsheet, the cash flows to other cells on the worksheet. The following sheet addresses not only capacity but collateral as well. It uses an income approach to value the collateral for the loan.

Table 2. Quick Capacity and Collateral Review Model for Commercial Real Estate

Estimated Value/ Purchase Price	$ 6,200,000
Loan Request	$ 750,000
% RATE	6.90%
Years	25
Pmt	$ 5,253.10
Estimated Cap rate	6.50%
Building sq. ft.	15,000
Market Lease	$ 2.75
Market Vacancy	6%
Estimated NOI	$ 425,700
DCR	2.74
LTV	12%
Cap Difference	0.37%
Value Difference	$ 349,231

If the debt service coverage ratio (DSCR) and loan to value (LTV) are in line with bank lending policy they will turn green. If not they will turn red indicating to the loan officer a problem. The DSCR indicates that the company has sufficient cash flow after cost of goods, expenses, and any other debt burden to make the monthly payment plus 20% profit. That 20% gives the bank room to work with if revenue decreases. The LTV assesses the value of the collateral against the loan amount. In effect, the bank again is giving room for the real estate to decrease

and still provide sufficient collateral to liquidate if necessary.

The cap difference and value difference lines are set up to give immediate feedback to the officer about the value of the property. Using an estimated net operating income (NOI) and an estimated capitalization rate (cap rate), the spreadsheet creates an estimated value which is compared to what the borrower estimates the value to be. If the cap rate is different by more than 1.25% or the value differs by more than $500,000, the cells will turn red. This will indicate that the borrower may be overly optimistic on the value of the real estate and there may be an issue.

The balance sheet must be assessed as well. Depending upon the type of business the analysis will be very different. For some industries like retailing, the liquidity ratios such as the quick ratio are fundamental. The analysis of a balance sheet is much more complex than an income statement. So for the purposes of this project it is suggested that this analysis should be left to someone other than the loan officer. With much experience, an astute analyst can extract the pertinent information regarding the health of an entity. In the big picture this

would be fundamental to the repayment of an owner occupied building.

The following financial model was developed for a loan officer who has a potential borrower on the phone and nothing in writing to analyze. The Loan officer could ask the potential borrower the following

- What is the purchase price or estimated value?
- How much money are you requesting?
- What is your companies' average net income?
- What is your companies' monthly debt burden?
- Do you have any significant annual depreciation?
- How big is the building?

With these six simple questions, the loan officer will have sufficient information to make a preliminary lending decision. This model addresses the capacity and collateral portion of the "Three C's Credit" model.

Table 3. Quick Verification of Value Model for Commercial Real Estate

Estimated Value/ Purchase Price	$ 5,000,000
Loan Request	$ 750,000
% RATE	6.90%
Years	25
Estimated Cap rate	6.25%
Avg. Net Income	$ 100,000
Monthly debt	$ 1,600
Depreciation	$ 200
Cash Flow	$ 98,600
Loan pmt	$ 63,037
Building sq. ft.	15,000
Market Lease	$ 2.00
Market Vacancy	6%
Estimated NOI	$ 309,600
DSCR	1.6
LTV	15%
Cap Difference	-0.06%
Value Difference	$ (46,400)

Once complete, the DSCR would turn green for a ratio of more than 1.2 or red for a ratio of less than 1.2* (based upon banks loan policy).

In the example above the loan officer would see green lights for 2005 and 2006. It seems as though the owner's

business can support the loan, but there is still one more key step after this is complete. The LTV must be within lending policy. A quick and reasonably accurate way to determine the value of the building is to use the form found in Table 3. Again, the loan officer is looking for four green lights.

This financial model was developed specifically for retail commercial, but could easily be modified to accommodate commercial office or industrial buildings. The key changes would be the typical expense ratios. The DSCR, LTV, cap difference, and value difference are the key calculated cells in this financial model. The DSCR is determined by dividing the cash flow from the owner by the payment which was determined by the loan request, interest rate, and amortization period (years). The LTV divides the loan by the purchase price or estimated value. Both the DSCR and LTV are simple calculations. For analysis purposes, it is very useful to determine a general value of the property. If the owner did not occupy the building, the value would be determined by lease rates and the going market CAP rate. Thus with the building size, market lease rate, and vacancy factor a Net Operating Income (NOI) can be generated. By dividing that NOI by the estimated value a CAP rate is determined. Then this generated CAP rate is

subtracted by the loan officer's best guess at the market CAP rate. If there is a greater difference than 1%, the cell turns red. Similarly, the LTV difference uses the NOI divided by market CAP rate minus the estimated value/purchase price to determine the difference between what the borrower's indicated the value to be and what the market says the value should be. If there is a difference of more than $500,000, the cell turns red.

Non-Owner Occupied Commercial Real Estate

Typically, a non-owner occupied piece of real estate is identified when the owner's company occupies less than half of the building. Once the loan officer establishes that the building is non-owner occupied, he would need to ask the following

- Total dollar of loan request
- Total lease-able square footage of building
- Current vacancy
- Type of leases (NNN, modified gross...etc.). NNN is assumed in the quick pre-qualifying financial model.
- Average lease income per foot

With the quick pre-qualifying financial model seen below, the loan officer can quickly identify potentially solid

loan requests. The easy to read red or green lights greatly increases the efficiency of sifting through loans and with the background formulas doing the technical analysis, the accuracy has been much improved. The market lease rate element of this financial model will take some work to insure accuracy. A loan officer may not know what the lease rates or cap rates for a typical office, industrial, or retail building would be. Using the Internet those typical lease rates would need to be researched on websites such as Grubb & Ellis and CB Richard Ellis. With a little research, management can publish a simple list of market rental rates for each segment as well as an average cap rate. The following two spreadsheets address capacity and collateral.

Table 4. Quick Pre-Qualification Model for Commercial Real Estate

Estimated Value/Purchase Price		$ 1,400,000
Loan Request		$ 700,000
% RATE		6.90%
Years		25
Estimated Cap rate		7.00%
Loan pmt		$ 58,834.67
Building sq. ft.		7,500
Market Lease		$ 1.28
Market Vacancy		6%
Estimated NOI		$ 99,072
DSCR		1.7
LTV		50%
Cap Difference		0.08%
Value Difference		$ 15,314

If a full operating statement for the property has been provided, the officer could use the more extensive worksheet.

Table 5. Detailed Commercial Real Estate Qualification Tool

Rental Information		Annualized
Type of Lease		NNN
$1.28 @ 7,500 sq. ft.		$ 115,200
describe income		$ -
Total		$ 115,200
Less Vacancy Allowance @	6%	$ 6,912
Effective Gross Income (EGI)		$ 108,288
Forecasted Expenses		
Taxes		$ -
Insurance		$ -
Utilities		$ -
Maintenance & Repairs		$ 5,760
Parking Area/ Landscaping		$ -
Water/Sewer		$ -
Professional Management		$ 3,456
Replacement Reserves		$ -
Gardner		$ -
Other		$ -
Total Operating Expenses		$ 9,216
Net Operating Income		$ 99,072
Annual Debt Service		
Existing Financing		$ -
This Request		$ 58,835
Total Debt Service		$ 58,835
Margin		$ 40,237
DSCR		1.68
LTV		49%

By customizing and inputting actual costs, the loan officer can get a more accurate view of how well this real estate is producing cash flow to service the debt. Again, the red light green light concept is implemented in this financial model.

As a contingent form of repayment, an analysis of any guarantor's financial situation should be made to measure their capacity to make the payments if the leasing income fell short of the debt service. Because the length of real estate loans only the annual income minus debts should be used to determine the guarantor's capacity. With tax returns, the following financial model can be utilized to address the capacity portion of the "Three C's Credit" model.

Table 6. Personal Cash Flow Analysis Model

		Tax Returns	Tax Returns
		2005	2006
		12	12
Sales / Total Receipts			
(+)	W-2 Wage Income	$ 41,083	$ -
(+)	W-2 Income (spouse)	$ -	$ -
(+)	Interest & Dividend Income	$ -	$ 447
(+)	Sole Proprietorship	$ 252,082	$ 330,850
(+)	Capital Gains & Losses	$ -	$ -
(+)	Rental Income before debt service	$ 55,878	$ 55,801
(+)	Partnership Income (Net K1 Dist.)	$ -	$ -
(+)	S-Corp. Income	$ -	$ -
(+)	Other Income	$ -	$ -
(-)	Other Deductions	$ -	$ -
Gross Annual Cash Flow		$ 349,043	$ 387,098
		n/a	11%
(-)	Fed, State & Other Taxes	$ 38,773	$ 68,617
(-)	Real Estate Taxes	$ 1,250	$ 4,775
(-)	FICA / Employer Ded (est.)	$ -	$ -
Total After Tax Cash Flow Available to Service Debt		$ 309,020	$ 313,706
Projected Personal Debt Service		$ 81,575	$ 81,575
Excess/<Short Fall> Cash Flow		$ 227,445	$ 232,131
Debt Service Coverage		3.79	3.85
Debt to Income Ratio		26.40%	26.00%
	Description of Debt	Annual Payment	Outstanding Balance
	GMAC auto loan	$ 3,540	$ 12,000
	Countrywide mortgage	$ 19,200	$ 270,000
	Subject loan	$ 58,835	$ 700,000
	Total	$ 81,575	$ 982,000

This financial model uses the debt to income (DTI) ratio which is commonly used in the residential mortgage industry. In this financial model a percentage less than 45% turns green, between 45% & 55% turns yellow and greater than 55% turns red. With green lights in the DTI area a loan officer will know that the guarantors' have the capacity to make the monthly payment if the rental income does not. Although these ratios are useful in simplifying the process, a loan officer should realize that these are simply ratios and the excess cash flow should be looked at if the DTI is too high. For example, a DTI may be 60% yet the excess cash may be $200,000. Logically speaking the guarantor should be able to support the debt because he or she has a significant excess cash flow, just not proportional to their debt burden.

Apartment Financing

According to a Sperry Van Ness report published in the third quarter of 2006, the most economically viable and profitable areas of the country for multi-family homes or apartments were Riverside/San Bernardino Counties followed by Orange County. This may represent a good opportunity for Southern California banks to generate revenue from these loans. If these areas are good for

investors, they should make good loans for the bank. To capitalize on this potential another financial model was developed to assist the loan officer in his or her analysis. As with the other quick financial models it simplifies the analysis down to a couple of simple questions.

In this financial model the officer asks what the loan request amount is and then asks what the monthly rental income is for the apartment complex. The loan officer would then enter in the bank's current interest rate. The results indicate the strength of the request. These results address capacity and collateral of the potential credit. The result can be one of four messages;

"Very good prospect" (green light)

"Probably do-able" (yellow light)

"Weak request" (orange light)

"Loan request too high" (red light)

Table 7. Quick Pre-Qualification Model for Apartment Financing

Loan request	$ 450,000	Probably do-able	
Monthly rental income	$ 6,200	$ 6,200	$ 6,200
Current Int. rate	6.75%	6.75%	6.75%
Max loan amount	$ 403,814	$ 466,630	$ 533,932
Expense ratio 40% to 35%	40%	35%	30%
Annual NOI	$ 44,640	$ 48,360	$ 52,080
DSCR	1.25	1.2	1.15
CAP rate typically 5% to 6%	6.00%	5.50%	5.00%
LTV	54%	53%	51%

After talking to a couple of expert loan officers from Washington Mutual, I developed a range of expenses as a percent of income and a range CAP rates typical in the Southern California market. With this range of assumptions, all other cells are calculated fields. The monthly income is annualized and reduced by the expense ratio resulting in the NOI. The NOI is then reduced by the DSCR which results in a potential monthly payment. Based upon the resulting payment, a 30-year amortization, and

the inputted interest rate, the PV or in this case, the maximum loan amount is determined. The maximum loan amount is subtracted by the loan request to determine the feasibility of the request. To produce the LTV the loan request is divided by the value which is determined by dividing the CAP rate by the Annualized NOI.

Residential Construction Financing

Inherent Risk in Residential Construction

As displayed in the last few years, residential construction financing can be a roller coaster of a ride. Currently, lenders are seeing that homes are not selling at a fast pace and even the value of the lender's collateral is beginning to erode. This section will address why construction is attractive to banks and steps and financial models to mitigate some of the risk.

Some banks attempt to increase profit margin by providing short-term construction loans; typically 1-year terms. By doing this banks can obtain another fee typically 1.25% of the loan amount. The faster the bank can flip those funds the sooner it can collect another fee on those funds, thus increasing the net interest margin to the bank. For example, the subject example had a loan amount of $4,718,097 and based on experience the bank will

see an average of 60% disbursed over the year term resulting in an average principal balance of $2,831,344.20. Although the interest charged is based upon a rate of 9.25% the gross rate of return to the bank is approximately 11.02% because of the fee. As that loan fee is stretched over more months, the gross rate is reduced. Thus, banks put a high priority on completing projects on time. Unfortunately, there is no formula to insure the successful and timely completion of a project. As previously mentioned, only a seasoned credit officer should determine the capabilities of the actual developer.

First of all, there will always be risk in lending and it is important to remember that construction lending is more an art than a science. The first step in determining the credit worthiness of a construction project is actually looking at the project independent of potential guarantors or even the borrower. To do this the loan officer must obtain a construction budget which will be used in determining the appropriate loan amount. Once the loan amount is determined, the project is measured against two calculations. The first is the "loan to cost" or developer's equity in the project. The second is the "loan to value" calculation based upon the potential completed value of the project. Both of these address the

collateral portion of the "Three C's Credit" model. Using the financial models developed to calculate these ratios not only simplifies and accelerates the process, but also improves the accuracy of these two vitally important ratios. The main concern in this area is the amount of time it takes to calculate. Thus, I developed two template worksheets in Excel to quickly and accurately calculate these important measures. The following are the resulting templates.

Table 8. Construction Budget, Interest Reserve, and Closing Cost Estimating Model

	BUDGET	EQUITY	LOAN
LAND	$ 1,640,000	$ 1,640,000	$ -
ARCHT/ ENG	$ 15,000	$ -	$ 15,000
PERMITS & FEES	$ 167,000	$ -	$ 167,000
G & A	$ 156,028	$ -	$ 156,028
SITE WORK	$ 818,951	$ -	$ 818,951
DIRECT COSTS	$ 2,577,106	$ -	$ 2,577,106
OVERHEAD & SUPERISION	$ 512,000	$ -	$ 512,000
CONTINGENCY	$ 131,915	$ -	$ 131,915
INTEREST RESERVE	$ 264,718	$ -	$ 264,718
LOAN FEE	$ 47,189	$ -	$ 47,189
FINANCE	$ 29,000	$ -	$ 29,000
ADDITIONAL CASH EQUITY	$ -	$ -	$ -
TOTAL	$ 6,358,907	$ 1,640,000	$ 4,718,907
%TOTAL	100%	26%	74%
DOES INT. RESERVE BALANCE	INTEREST RATE	9.25%	% disbursed
YES	INTEREST RES.	$ 264,718	60%
DOES LOAN FEE BALANCE	LOAN FEE RATE	1.00%	
YES	LOAN FEE	$ 47,189	
Fee Estimator			
Processing Fee	$ 250		
Doc Fee	$ 600		
Credit Report (3 per)	$ 150		
Inspection Fee 12 mths	$ 4,600		
Recording UCC	$ 30		
Appraisal	$ 6,500		
Flood Report	$ 25		
Wire Fee	$ 25		
Funds Control	$ 1,783		
Title Insurance	$ 9,438		
25% buffer	$ 5,600		
Finance Fee	$ 29,000		

With the construction cost breakdown, the loan officer simply inputs the various costs in the

spreadsheet. The interest reserve, loan fee, the estimate of the closing fees, and the all-important "loan to cost" calculation are generated by the embedded equations. This dramatically reduces the chances of human error and speeds the process along. Of particular importance is the interest reserve, which for the bank helps to ensure the monthly interest payment will be made during construction. With a calculator, the process of determining a detailed accurate interest reserve is arduous. By pre-determining which budget items will be immediately disbursed and which items will be disbursed over time, the proper and accurate interest reserve can be calculated very quickly and accurately.

This financial model is flexible in that additional months of interest reserve could be calculated if the loan officer saw fit. Another key feature to this financial model is that when the proper interest reserve and loan fee have been inputted, the red light turns to green, thus insuring accurate calculations.

Table 9. Loan to Value Calculation Model

"As Completed" Market Value	$ 6,560,000
"As Completed" minus selling costs	$ 6,035,200
This request	$ 4,718,907
Equity	$ 1,316,293
Loan to Value	78%

This is the loan to value calculation which is the collateral portion of the "Three C's Credit" model. The "This request" cell is automatically generated from the results in the total loan amount outlined in the previous worksheet. The market value is reduced by 8% to account for selling costs and then the "This request" cell is divided by the "As Completed" minus selling costs cell which is automatically generated as well from another spreadsheet.

Many of the construction loans produced are for tracts of production homes. In order to outline and determine the potential value of the project the following was developed.

Table 10. Development Detail and Cost per Foot Model

PLAN	MIX	Bedroom/Bath	SQ. FT.	Total SQ. FT.	BASE PRICE	$/S.F
1	3	3/2	1,700	5,100	$ 320,000	$ 188
1x	3	3/2	1,917	5,751	$ 330,000	$ 172
1xx	1	3/2	1,700	1,700	$ 328,000	$ 193
2	3	3/2	1,930	5,790	$ 338,000	$ 175
2x	1	2+den/2	2,141	2,141	$ 348,000	$ 163
2xx	1	3/2	1,930	1,930	$ 346,000	$ 179
2xxx	1	4/3	2,141	2,141	$ 354,000	$ 165
3	2	3+den/2	2,068	4,136	$ 345,000	$ 167
3x	2	4/2	2,274	4,548	$ 358,000	$ 157
3xx	1	4+den/3	2,274	2,274	$ 364,000	$ 160
3y	1	4/2	2,068	2,068	$ 348,000	$ 168
Totals	19			37,579	$ -	
Direct building costs per sq. ft.			$68.58			

This template automatically calculates the total square footage, the price per square foot, and the direct cost per foot by tying it in with the direct cost line in the budget worksheet. All of this is used to determine collateral and capacity of the project to repay the loan. In the analysis of a construction loan the direct cost per sq. ft. for residential is typically $65 to $85 currently. If this calculation is below the $65 per sq. ft., the cell turns red. This indicates that perhaps the budget is too low and there will not be sufficient funds in the loan to complete the project. If the cost is greater than $85 per

sq. ft., this may indicate that the general contractor does not know what he is doing and is trying to fluff up the numbers to cover his in-experience. In either case these are negatives that need to be addressed if found.

Table 11. Calculation of Release Price Model

Plan	Mix	Base Price	Total	Minimum Release	Total
1	3	$ 320,000	$ 960,000	$ 294,400	$ 883,200
1x	3	$ 330,000	$ 990,000	$ 303,600	$ 910,800
1xx	1	$ 328,000	$ 328,000	$ 301,760	$ 301,760
2	3	$ 338,000	$1,014,000	$ 310,960	$ 932,880
2x	1	$ 348,000	$ 348,000	$ 320,160	$ 320,160
2xx	1	$ 346,000	$ 346,000	$ 318,320	$ 318,320
2xxx	1	$ 354,000	$ 354,000	$ 325,680	$ 325,680
3	2	$ 345,000	$ 690,000	$ 317,400	$ 634,800
3x	2	$ 358,000	$ 716,000	$ 329,360	$ 658,720
3xx	1	$ 364,000	$ 364,000	$ 334,880	$ 334,880
3y	1	$ 348,000	$ 348,000	$ 320,160	$ 320,160
Total	19		$6,458,000		$5,941,360
Avg. release price			$ 312,703		
Loan paid off after			15.091	homes	

The minimum release price is a percent generally 92% of the base price of the home. In simple terms every time a home is bought, 92% of the purchase price will be used to pay down the principal on the construction loan. In effect, this further addresses the collateral portion of

the "Three C's Credit" model. With the average release price being calculated, the loan officer can see which phase should pay off this loan and it can be estimated that the loan will be paid off after the close of the 16th home. Depending upon the selling order of the homes, there may be some variances. But this should give a very good forecast if the base prices of the homes are realistic.

If a note will not be repaid within the subject phase of the project, a par value must be determined. This par value is the remaining encumbrance divided amongst the remaining collateral, which generally are the extra residential lots. This par release price must be established to ensure that as the phases of the project progress the note from the previous phase is being paid down or off. A miscalculation on this can result in a lot of aggravation and expense to the bank later. The following financial model was developed to quickly, easily, and accurately determine the par release price.

Table 12. Calculation of Par Release Price Model

PLAN	MIX	BASE PRICE	BASE PRICE TOTAL	MINIMUM RELEASE PRICE TOTAL
1	3	$ 320,000	$ 960,000	$ 883,200
1x	3	$ 330,000	$ 990,000	$ 910,800
1xx	1	$ 328,000	$ 328,000	$ 301,760
2	3	$ 338,000	$ 1,014,000	$ 932,880
2x	1	$ 348,000	$ 348,000	$ 320,160
				$ 3,348,800
		Previous phase loan amount	$ 4,000,000	
		Minimum release price total	$ 3,348,800	
		Remaining encumbrance	$ 651,200	
		Remaining lots	20	
		Par encumbrance per lot	$ 39,072	

For this project a financial model was developed that calculates the spread of encumbrance upon all collateral and produces a liquidation price for that collateral if the bank needed to foreclose. It further clarifies the collateral position and the capacity of the project to fully repay the loan. Additionally, this liquidation price gives the bank a level at which it knows the developer could move prices if the homes were being sold slowly. Of course, this is a key piece of knowledge. With an inability to move prices lower, the bank will be more

likely to foreclose because the developer will have no financial incentive to continue.

Table 13. Calculation of Liquidation Price Model

Plan	Mix	Base Price	Minimum Release	Liquidation Base Price	% Reduction	$ Reduction	80%
1	3	$320,000	$294,400	$ 256,000	20%	$ 64,000	$ 706,560
1x	3	$330,000	$303,600	$ 264,000	20%	$ 66,000	$ 728,640
1xx	1	$328,000	$301,760	$ 262,400	20%	$ 65,600	$ 241,408
2	3	$338,000	$310,960	$ 270,400	20%	$ 67,600	$ 746,304
2x	1	$348,000	$320,160	$ 278,400	20%	$ 69,600	$ 256,128
2xx	1	$346,000	$318,320	$ 276,800	20%	$ 69,200	$ 254,656
2xxx	1	$354,000	$325,680	$ 283,200	20%	$ 70,800	$ 260,544
3	2	$345,000	$317,400	$ 276,000	20%	$ 69,000	$ 507,840
3x	2	$358,000	$329,360	$ 286,400	20%	$ 71,600	$ 526,976
3xx	1	$364,000	$334,880	$ 291,200	20%	$ 72,800	$ 267,904
3y	1	$348,000	$320,160	$ 278,400	20%	$ 69,600	$ 256,128
Total	19			$5,166,400			$4,753,088
					Loan Amount		$4,718,907
							$ 34,181

The breakdown of the project from one of the previous financial models is automatically brought over. The calculated fields use the total loan from the breakdown minus the total release price to determine a total shortfall. The loan officer simply needs to input the number of remaining collateral lots. The par release price is the total shortfall divided by remaining lots times 20%. The extra 20% added on will help to repay the loan at

an accelerated pace, making those funds available for funding of other loans.

Because all the information filters from former spreadsheets all that needs to be done in this worksheet is adjust the % in the top right corner until the bottom right hand corner turns green. Again, the automation saves time and reduces errors. For the loan officer he can easily see that the homes could be reduced by 20% or on average more than $64,000, which in an uncertain housing market brings a lot of comfort.

Another financial model developed to aid in the analysis of the proposed project is an extensive worksheet used to calculate the developer's potential profit of the project. This is important because if the developer has no financial incentive to complete the project, he or she is apt to walk away from it leaving the lending bank to finish it if possible. Banks are not in the real estate development industry and do not wish to be. This is another financial model to analyze the risk of the project as well as address the capacity and character and a forecast of the potential profit to the developer.

Table 14. Calculation of Developers Potential Profit Model

			Cost per foot		Gross net profit	ROI				
			$68.58		$559,385	12%				
Home size	# of units	Raw lot cost	Cost to finish lot	Cost for vertical	Financing costs	Sales price	Future price adj.	Future sale price	Selling cost	Net profit
1,700	3	$52,800	$52,800	$116,583	$17,775	$320,000	-5%	$304,000	$24,320	$39,722
1,917	3	$54,450	$54,540	$131,465	$19,229	$330,000	-5%	$313,500	$25,080	$28,826
1,700	1	$54,120	$116,583	$116,583	$17,985	$328,000	-5%	$311,500	$24,928	$43,853
1,930	3	$55,770	$55,770	$132,355	$19,512	$338,000	-5%	$321,100	$25,688	$32,004
2,141	1	$57,420	$57,420	$145,825	$20,933	$348,000	-5%	$330,500	$25,448	$21,552
1,930	1	$57,090	$57,090	$132,356	$19,723	$345,000	-5%	$320,700	$25,295	$36,145
2,141	1	$58,410	$58,410	$145,825	$21,092	$354,000	-5%	$335,300	$25,904	$24,658
2,058	2	$56,925	$56,925	$141,820	$20,454	$345,000	-5%	$327,750	$26,220	$25,406
2,274	2	$59,070	$59,070	$155,947	$21,927	$358,000	-5%	$340,100	$27,208	$16,878
2,274	1	$60,060	$60,060	$155,947	$22,085	$364,000	-5%	$345,800	$27,664	$19,983
2,068	1	$57,420	$57,420	$141,820	$20,533	$348,000	-5%	$330,600	$26,448	$26,959
Totals		$1,066,570	$1,066,570	$2,577,106	$376,660					$559,385

The raw lot cost, cost to finish lots, and financing costs are all automatically generated based upon the sales price of the home. These numbers obviously are general estimates based on information provided by a Mr. Larry Traughber who is an appraiser out of Upland CA. If the actual costs of the raw lots are known, then that amount is input into the worksheet.

Based upon experience these estimates in Southern California have proven to be very accurate. Additionally there is a column to adjust prices based on the loan

officer's opinion on where the home prices are headed. There are many forecasts to assist in this including forecasts from the Anderson School of Business at UCLA, Chapman University, and the Real Estate Research Council at Cal. Poly Pomona. Even the future selling costs of the homes are generated. All of this is done to get a general sense of what the developer can reasonable expect the return on investment (ROI) to be.

Although no spreadsheet can be created to measure this, the single greatest factor in determining the success of a residential tract is the experience of the developer. A personal visit to the developer's previous projects will go a long way to determining the credit worthiness. A long distinguished resume is key as well as a high net worth. The financial strength of the loan guarantors will be addressed latter in this paper.

Commercial Real Estate Construction Financing

As with any credit the less a loan officer knows regarding the industry the less likely he or she is able to make a sound credit decision. These financial models are to a degree developed to make up the gap. Commercial construction and real estate generally is divided into three categories;

- Industrial
- Office
- Retail

The loan officer must identify which type of building will be constructed in order to begin.

As with the residential construction loans a cost breakdown or budget for the construction is used to determine the loan amount. This budget will indicate the amount of equity the developer has in the deal which is generally at least 15% to 20%. After establishing a loan amount, the second key factor is the LTV. This is where identifying the type of property becomes very important. Each type of property has different lease rates and expenses. The following financial model can be used to determine the completed value of a project. Both capacity and collateral are addressed here.

Table 15. Detailed Commercial Real Estate Cash Flow Analysis Model

Rental Information		Monthly	Annualized
Type of Lease		NNN	
Liberty Tax Service		$ 3,055	$ 36,660
Mexican Restaurant		$ 3,369	$ 40,425
No tenant 1,925		$ 4,813	$ 57,750
No tenant 1,500		$ 3,750	$ 45,000
Total		$ 14,986	$ 179,835
Less Vacancy @	5.5%	$ 824	$ 9,891
Effective Gross Income (EGI)		$ 14,162	$ 169,944
Estimated Rental Expenses			
Taxes		$ -	$ -
Insurance		$ -	$ -
Utilities		$ -	$ -
Maintenance & Repairs		$ 425	$ 5,098
Parking Area/ Landscaping		$ -	$ -
Water/Sewer		$ -	$ -
Professional Management		$ 749	$ 8,992
Replacement Reserves		$ -	$ -
Gardner		$ -	$ -
Other		$ -	$ -
Other		$ -	$ -
Total expenses		$ 1,174	$ 14,090
Net Operating Income		$ 12,988	$ 155,854
Take out financing pmt.		$ 12,040	$ 144,480
This Request		$ -	$ -
Margin		$ 948	$ 11,374
DSCR		1.08	1.08

This breakdown is very detailed and is most helpful if the developer provides a pro-forma income statement. With this financial model, the estimated income is identified as well as expenses resulting in an anticipated NOI. Following the NOI, the total loan is amortized over 25 to 30 years at an appropriate interest rate to determine the expected debt once the project is completed and taken out with long term financing. Because the source of repayment for the construction loan is often time long term commercial financing, the DSCR becomes very important. If the DCR is below 1.15, the likelihood of obtaining long term financing is not good without a cash infusion to reduce the construction loan amount. Without the ability to obtain take out financing the credit may not be attractive to the lender.

The following fields are used to identify a value for the completed project, which is a part of the collateral section of the original model.

Table 16. Range of Potential Capitalization Rates for Commercial Real Estate Model

Capitalization rate	6.25%	6.50%	6.75%
Value based on NOI	$2,493,664	$2,397,754	$2,308,948
Loan to value	73%	76%	79%

Using the estimated NOI and based upon a range of cap rates, a value and loan to value are automatically generated. Depending upon the type of real estate the maximum loan to value will be 70% to 75%. The other source of repayment is the sale of the completed building(s) to real estate investors. In this case, the DSCR is often ignored by investors who are usually far less leveraged than the average homeowner is. Often real estate investors will come in with 50% cash when purchasing with the hopes of realizing capital appreciation of the project.

A quicker less detailed financial model was developed for this project as well. It is as follows:

Table 17. Quick Project Analysis for Commercial Real Estate Development Model

Land Price		$ 800,000	
Site Sq Ft		28,500	
Development Sq Ft.		6,270	
Development cost per ft.		$ 220	
Development cost		$ 1,379,400	
Total Cost		$ 2,179,400	
Cash into deal		$ 333,000	
ENTER INFO HERE			
Rental Information		Monthly	Annualized
Type of Lease			
2.50 per ft.		$ 15,675	$ 188,100
Total		$ 15,675	$ 188,100
Less Vacancy @	5%	$ 784	$ 9,405
Effective Gross Income (EGI)		$ 14,891	$ 178,695
Estimated Rental Expenses			
Maintenance & Repairs		$ 298	$ 3,574
Professional Management		$ 470	$ 5,643
		$ 768	$ 9,217
Net Operating Income		$ 14,123	$ 169,478
Existing Financing		$ -	$ -
This Request		$ 12,834	$ 154,007
LTV		90%	
Income after debt service		$ *1,289*	$ 15,471
DSCR		1.10	1.10
Capitalization rate		7.00%	
Value based on NOI		$ 2,421,116	
Profit		$ *241,716*	
ROI		47%	
Equity money fees		155,822	
Net profit		85,892.86	
Additional cash to get term loan		$ 363,563	

This financial model was specifically developed for retail construction and does look at capacity and collateral. The key input for the loan officer is the purchase price of the land and the total square feet of the land. Although other fields may be manipulated, the financial model is set up with only those two inputs and then the complete project could be estimated.

Obviously in order to simplify this financial model some key assumptions needed to be made. To determine those assumptions an analysis of previous retail construction loans were done. Based upon the research, approximately 22% of the total land will be approved to develop into a building and the total cost per square foot minus land costs are $220. This cost includes all architecture, financing costs, leasing costs, site work, and vertical construction. The $220 per sq. foot is a conservative estimate and often times costs less, but for the purposes of this financial model, it is a solid estimate. What makes this financial model so powerful is that it goes so far as to determine a ROI for the developer even if the project requires mezzanine financing. The last line indicates the amount to which the original construction loan would need to be paid down if the developer were to refinance the construction loan.

Borrower/Guarantor Analysis

To this point, the primary focus of the lending decision was based on the project or building (excluding owner occupied) or in other words the collateral. The primary source of repayment is the viability of the buildings to produce rental income or the sale of completed homes or commercial buildings. Justifiably, those are the key factors to making a lending decision. For added comfort, the lending institution should take a look at the borrowing entity or guarantor's financial situation which, in the "Three C's Credit" model is capacity and character. This is addressed latter in this section. Specifically the lender wants to know that if the project is delayed in construction or the sales or leases come slower than projected, there will be funds to make the monthly payment.

In a construction loan there is a built in interest reserve depending upon how quickly the money is disbursed and how quickly interest rates change. This is to provide sufficient funds to make the monthly interest payment of the project until it is completed and either sold or refinanced. Funds used for construction are disbursed out of the budget in line with the actual work being completed on the project. Because the monthly payment is based upon

the amount disbursed, the interest reserve runs low faster if there are slow sales as apposed to a slowly built project. If the interest reserve is exhausted, the borrower/guarantor is responsible for the monthly payment until all outstanding principal is repaid. In order to understand the borrower's ability to make the monthly payment, I have developed another financial model to address this issue. This model was strongly recommended by the examiners and the board of directors.

A hot button topic today is the idea of global analysis which is that all sources of cash flow is reduced by all current liabilities to reveal the borrower/guarantor's ability to repay the note. This general idea is not new in the banking world. Because the source of repayment for the construction or commercial real estate loan is not from the borrower/guarantor (except for owner occupied), but from the cash flows from lease or the sale of the completed project, this topic had been pushed down the lists of risk factors. Obviously if the monthly payment can be made the bank will most likely not foreclose on the property. Thus, this added analysis is one more additional financial model in assessing potential risk of a construction or commercial real estate loan. The worksheet is shown on the next page.

Table 18. Borrower/Guarantors Carrying Capacity Analysis Model

		2004	2005	2004	2005	2004	2005	2004	2005
		current rate	current rate	rate shock 1%	rate shock 1%	rate shock 1.5%	rate shock 1.5%	rate shock 2%	rate shock 2%
Jon Doe	cash flow	$ 250,000	$ -	$ 250,000	$ -	$ 250,000	$ -	$ 250,000	$ -
Jon Doe	debt ser	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000
Living exp		$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000
net cash flow		$ 159,000	$ (91,000)	$ 159,000	$ (91,000)	$ 159,000	$ (91,000)	$ 159,000	$ (91,000)
Liquid assets		$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000
				$ -	$ -	$ -	$ -	$ -	$ -
Jack Black	cash flow	$ 190,000	$ -	$ 190,000	$ -	$ 190,000	$ -	$ 190,000	$ -
Jack Black	debt ser	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000
Living exp		$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000
net cash flow		$ 110,000	$ (80,000)	$ 110,000	$ (80,000)	$ 110,000	$ (80,000)	$ 110,000	$ (80,000)
Liquid assets		$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000
Total Cash Available for Debt Service		$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000
Subject Loan Monthly Payment		31,667	31,667	35,000	35,000	36,667	36,667	38,333	38,333
Months Loan Could be Carried		87	73	78	66	75	63	72	60
Jon Doe	cash flow	$ 250,000	$ -	$ 250,000	$ -	$ 250,000	$ -	$ 250,000	$ -
Jon Doe	debt ser	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000
Living exp		$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000
net cash flow		$ 159,000	$ (91,000)	$ 159,000	$ (91,000)	$ 159,000	$ (91,000)	$ 159,000	$ (91,000)
Liquid assets		$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000
Jack Black	cash flow	$ 190,000	$ -	$ 190,000	$ -	$ 190,000	$ -	$ 190,000	$ -
Jack Black	debt ser	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000	$ 44,000
Living exp		$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000
net cash flow		$ 110,000	$ (80,000)	$ 110,000	$ (80,000)	$ 110,000	$ (80,000)	$ 110,000	$ (80,000)
Liquid assets		$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000	$ 975,000
Total Cash Available for Debt Service		$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000	$ 2,744,000	$ 2,304,000
Contingent liabilities		$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000
Subject Loan Monthly Payment		$ 31,667	$ 31,667	$ 35,000	$ 35,000	$ 36,667	$ 36,667	$ 38,333	$ 38,333
Months Loan Could be carried		37	31	36	30	35	29	34	29

All cells in this worksheet are derived from other worksheets in the spreadsheet. Not only does this worksheet analyze the current interest rate but also potential future higher interest rate. A lender must take into account that the primary sources of repayment for the construction loans are the projects themselves. This financial model gives the lender a sense of the borrower's capacity to make the payments over a period of time. In the first section, the contingent liabilities are assumed to have interest reserve which will not require cash from the borrower. In the second section, it is assumed the contingent liability has no interest reserve and the full burden of the debt must be paid by the guarantor. By producing the best and worst case scenarios, the lender can see a range of potential debt burden and can make a decision on this information. In this example, the best-case scenario is that the borrower could support the debt for 72 months and in the worst case scenario, the borrower could support the debt for 33 months on average.

Perhaps more than any other piece of information relating to the analysis of credit is the amount of experience the lender and the borrower have with one another. In an attempt to easily display and quantify this experience the following financial model was created.

Table 19. Total Borrower/Guarantor Credit History Analysis Model

Borrower Name	Loan #	Loan Description	Total Activity	Outstanding Commitment	Outstanding Balance	Loan Boarding Date	Loan Payoff Date	Months Outstanding
	xxxx		$ 194,984	$ -	$ -000	Nov-03	Jun-05	19
ACME	xxxx	Quiznos, EB Games	$ 1,361,836	$ -	$ -000	Feb-04	Oct-06	32
ACME	xxxx	Construction Indio	$ 1,873,730	$ -	$ -000	Jan-04	Mar-06	26
ACME	xxxx	Construction Palm Desert	$ 1,658,762	$ -	$ -000	Mar-04	Oct-05	19
ACME	xxxx	Construction Barstow	$ 1,087,950	$ -	$ -000	May-04	Jul-05	14
ACME	xxxx	Land Purchase	$ 477,750			Aug-04	Jul-06	23
ACME	xxxx	Compton Land	$ 1,028,428			Feb-05	Jan-06	11
ACME	xxxx	Compton Perris	$ 370,128			Nov-04	Nov-05	12
ACME	xxxx	Land San Bernardino	$ 211,957	$ 210,751	$ 210,473	Mar-05		32
ACME	xxxx	Perris Land	$ 528,183			Sep-05	Dec-05	3
ACME	xxxx	Wendy's Rest. Palm Springs	$ 4,569,143	$ 3,169,142	$ 2,813,316	Oct-05		25
ACME	xxxx	Compton Land	$ 423,183	$ 423,110	$ 423,110	Nov-05		25
ACME	xxxx	Construction Compton	$ 4,841,268			Jan-06	Apr-07	15
ACME	xxxx	Apple Valley Land	$ 2,811,250			Apr-06	Sep-06	5
ACME	xxxx	Pomona Land	$ 432,250	$ 432,250	$ 432,259	Jun-06		17
ACME	xxxx	Coachella Land	$ 4,131,749	$ 4,131,749	$ 3,943,660	Jul		16
ACME	xxxx	Apple Valley on & off sites	$ 6,432,666			Sep-06	Mar-07	6
ACME	xxxx	Land in Covina	$ 360,750	$ 360,750	$ 341,385	Nov-06		12
ACME	xxxx	Coachella Participation	$(2,500,000)	$(2,500,000)	$(2,311,009)	Sep-06		14
ACME	xxxx	Perris Construction	$ 2,643,093	$ 2,643,093	$ 908,949	Apr-07		7
ACME	xxxx	Land Compton Frsh & Easy	$ 1,125,348	$ 1,125,348	$ 1,029,815	Jun-07		5
ACME				$ 672,750	$ -			
Total			$34,064,335	$10,668,943	$ 7,791,949			
Lending Limit				$15,000,000				
Participations to be sold				$(4,331,057)				

This financial model does several things. First of all, it outlines all previous loans provided to the borrower which is the primary consideration when considering the character of a borrower/guarantor. Additionally, it uses calculated fields to indicate how long the loan is or was outstanding. For construction loans, the ideal time frame is 12 to 18 months. By looking at this financial model, a loan officer can see that a lot of money has been lent and for the most part the loans have been repaid in a reasonable amount of time.

CHAPTER SIX

CONCLUSIONS

With the things I have learned in both my undergraduate and graduate work, I have been able to objectively analyze and develop financial models that not only stream line the construction loan process, but also increase its accuracy and above all aid in the judgment of risk associated with these loans. Speed and accuracy are good for business and thus good for the bottom line and the company's shareholders.

Although the completion of this project has taken literally months of work, it is not complete. It is detailed and would be very helpful in the analysis of lending risk, but just as education is a continual process so this project can be. I have continued to refine the existing financial models by fixing problems or even just simplifying the look of the financial models. It is very common that someone will say something that will spark an idea and I will then create yet another financial model to further enhance the analysis process. This project has been an obsession of mine for a long time and I trust that it will demonstrate sufficient skill and educational level to be worthy of a Master's Degree.

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