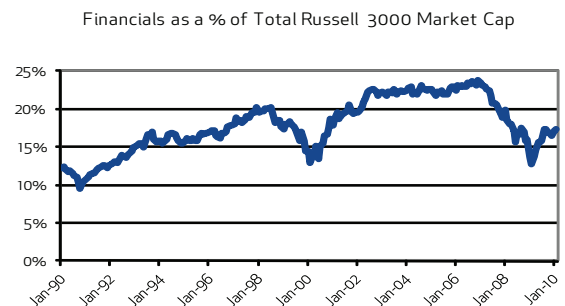# Markit Bank & Thrift II

Markit's Bank & Thrift II seeks to generate consistent outperformance by leveraging specialty data sources to create bank-and-thrift-specific factors which complement a set of broad factors exhibiting strong performance within the bank and thrift industries. Bank & Thrift II is designed as an update to Markit's original Bank & Thrift composite (2006); both models are based on the same component structure and contain many equivalent or similar factors. However, Bank & Thrift II incorporates additional research performed subsequent to the introduction of the original model, as well as lessons learned through the turbulent markets of 2007 – 2008. Like the original Bank & Thrift model, Bank & Thrift II is designed to add value for both the long-only and long-short investor.

INTRODUCTION

The US banking industry endured extraordinary shocks in 2007 – 2008, the effects of which are still being felt. The problems began as a credit crisis involving subprime borrowers, yet spread to impair almost the entire global financial services industry. Although governments have taken steps to stabilize the system, the banking industry is not yet out of the woods. To that end, governments remain heavily involved in the day to day affairs of many institutions, the regulatory environment is more fluid than usual, balance sheets remain impaired, and the number of bank failures continues to grow. As a result, we have seen demand from both investors and regulatory agencies for the creation of early warning signals capable of predicting future stress at the individual firm level. This Investment Recipe has been directed towards developing a multi-factor model that incorporates recent issues within the Bank & Thrift industry, while maintaining its alpha-producing characteristics throughout the return to a more normal environment.

Financial firms often present a challenge to quantitative analysis. Due to sharp accounting differences, many investment managers identify the financial sector as an area of particular weakness relative to their overall universe. Furthermore, for this reason, some well-known academic studies have excluded the industry altogether. The differences between financial related and other firms generally include the level and/or interpretation of leverage, interest expense, depreciation, revenue, inventories, and other items. Meanwhile, as of February 2010, financial firms still represented 17.3% of the Russell 3000 by market capitalization. Graph 1 (see

page 1) displays the trend of the financial sector's relative importance over the last 10 years. The sector's prominence, and recent wild swings in performance, makes this issue all the more pressing.

Financials as a % of Total Russell 3000 Market Cap

Graph 1

A MOVE FROM 'ALPHA' TO 'BETA' MARKETS

On June 13, 2006, Markit introduced the Bank & Thrift Model. At the time, we were striving to address the growing demand for sector and industry-specific models used as a compliment to other more broad based multi-factor approaches. We further enhanced the unique signal generation potential of these models by using a specialty data source to offer targeted insights beyond those available through standard financial statement data providers.

The results obtained through our original research were impressive. From July 1990 through October 2005,

the 1-month IC was 0.11 with a standard deviation of 0.11 and a hit rate of 84%. The average monthly top-bottom decile spread was 2.62% (standard deviation = 3.14%), with a hit rate of 83.70%. Shortly after going live in 2006, we encountered unprecedented headwinds brought about by the peak of the credit bubble and the following financial crisis of 2007 - 2008. As bank stocks adjusted to this new reality of repriced risk, many fundamental investment approaches experienced substantial performance reversals. Moreover, the bank and thrift industry as a whole underperformed the broad market.

Since the beginning of 2009, however, performance of the original Bank & Thrift Model has recovered sharply; through February 2010 the average monthly top-bottom decile spread was 2.31% and the mean monthly IC was 0.026. While this performance may continue in the future, lessons learned over the last few years present an opportunity to re-evaluate the model. Just as we have gained substantial knowledge through the market turmoil, we also have a wealth of additional research to incorporate.

LITERATURE REVIEW

Due to the differences between financials and other firms (degree of leverage, for example), many academic studies simply exclude the sector from historical testing. For example, Fama and French's seminal 1992 paper "The Cross-Section in Expected Stock Returns" documenting the size and book-to-market effects excluded the financial sector. However, there is a wealth of literature focusing on the characteristics of financials in general, and banks and thrifts specifically. For example, in 1997, Barber and Lyon extended the work of Fama and French by analyzing value and size factors within the financial sector. Barber and Lyon found that the size and book-to-market effects within the financial sector are similar to the non-financial sectors.

Cooper, Jackson, and Patterson (2003) examined several key characteristics of banks and their relation to future stock returns. Change in non-interest income to total income, leverage, loan loss reserves to total loans, and standby letters of credit to total loans were among the factors found to be predictive of future bank stock returns. The authors determined that the predictability was not due to excess risk.

Beaver and Engel (1996) and Ahmed, Takeda, and Thomas (1999) discussed the discretionary nature of the loan loss provision and loan loss allowance account. Ahmed, Takeda, and Thomas found that after the adjustments made to capital regulations in 1990, banks used the loan loss provision to manage their capital structure but not their earnings.

DeYoung and Rice (2004) examined the trend toward non-interest income in the banking industry. They documented an increase in non-interest income to operating income of more than 100% during the period between 1980 and 2001. However, in light of these trends the authors found that expansion of non-interest income-generating activities decreased the risk-return trade-off. That is, while an increase in non-interest income increased profits, the variance of the profits increased more significantly.

Stanton (1998) investigated patterns in bank lending and the relation to firm leverage. The author theorized that when a firm is overleveraged, it has less flexibility to invest in profitable ventures. As applied to banks, poor asset quality can lead to unintended increases in leverage as loans are charged off leading to reduced capital.

Goh, Ng, and Yong (2009) find that mark-to-model assets are priced less than mark-to-market assets. Given that mark-to-model assets suffer from greater illiquidity and information risk, they conclude that the fair value estimates for mark-to-model assets are not sufficiently factored into these considerations. The authors find declines in the pricing of mark-to-model assets over the course of 2008 consistent with increasing market concerns about liquidity and information risk associated with these assets. The mark-to-model assets are priced higher by investors for banks with higher capital adequacy. Since higher capital adequacy mitigates concerns that banks will be forced to sell their assets at unfavorable prices, especially for less liquid assets, they conclude that asset liquidity is an important consideration when investors price the banks' assets.

Preece (2009) investigates the transparency in CDS markets by comparing the share price of financial institutions with their CDS spreads. The author finds that the two measures move in tandem, thereby making it more difficult to manipulate the market. He cites the example of Lehman Brothers prior to its failure. While the spikes in its CDS spread supported the notion that the market was volatile and prone to overshoot, the symmetry of price formation suggested that information was impounded in CDS spreads in the same fashion as equity prices. Moreover, judged by the absence of significant leading/lagging price movements, the findings show little scope for market abuse.

RE-EVALUATING THE BANK & THRIFT MODEL

While little research exploring quantitative strategies within the bank and thrift industries has emerged since the global financial crisis of 2007 and 2008, we have found that many factors which were once successful predictors of future returns have not done well in recent years. In retrospect, we have encountered almost two separate investing environments—the first one existing prior to 2007 and post 2008, the second reigning from 2007 through 2008.

The Bank & Thrift Universe

The universe of stocks used for testing the Markit Bank & Thrift II is the same as that of the original model. It consists of banks and thrifts that are also members of the Russell 3000 index, have a price above $5 and market cap above 0.1% of the largest bank. We have found that historically, on average, the smallest bank within the Russell 3000 had a market cap equal to approximately 0.1% of the largest bank in the index. As of September February 2010, the Markit Bank Universe contained 253 stocks, accounting for almost the entire Russell 3000 banking industry. Fannie Mae and Freddie Mac are specifically excluded from the universe, while thrifts and mortgage finance companies have approximately the same coverage as commercial banks.

In upgrading Markit's Bank & Thrift Model (QBM) to Bank & Thrift II (QBM2), we retained the same overall structure, starting with the original eight components:

- Balance Sheet Strength
- Valuation
- Management Quality
- Asset Quality
- Earnings Momentum
- Investor Sentiment
- Price Momentum
- Earnings Quality

We first identified several factors which substantially underperformed during the crisis period. These include Loan Loss Reserves to Book Value (a former Balance Sheet factor) and Total Realized Gain to Assets (a former Earnings Quality factor), as candidates for replacement. In order to find possible substitutes, we turned to a variety of sources, including internal testing, publications, and conversations with clients. This process identified a number of new factors, including Interest Income Growth vs. Loan Loss Provision Growth (Management Quality) and Other Real Estate Owned to Book Value (Asset Quality), which enhanced performance, factor diversification, and made the overall model more intuitively appealing. We also made a few adjustments to existing factors in order to enhance their intuitive feel. After finalizing our factor set, the components were reweighted based on overall performance, optimization results, and practical insight. Table 1 summarizes these changes.

We have also added new signals, such as the Profitability Ratio, in a non-linear fashion. This factor penalizes those banks and thrifts with negative trailing operating income. Finally, a small group of additional indicators, such as the Texas Ratio, are bundled as separate sell indicators that identify distressed banks; however, these indicators do not affect model ranks.

Investment Recipe

	QBM		QBM2	
	Factors	Weight	Factors	Weight
Composite Model	30	100%	32	100%
Balance Sheet Strength	3	20%	4	15%
Valuation	3	20%	4	20%
Management Quality	2	20%	3	15%
Asset Quality	5	10%	6	15%
Earnings Momentum	7	10%	7	10%
Investor Sentiment	2	10%	3	10%
Price Momentum	5	5%	3	10%
Earnings Quality	3	5%	2	5%

Table 1: Summary of Bank & Thrift Model Changes

Model Component Details:

Balance Sheet Strength

This component was designed to measure a bank's ability to weather poor macroeconomic conditions. We have expanded the original scope by adding two new factors. The first is focused on total loans, whereby a high level of total loans might signal aggressive lending. The second considers total securities held, given research suggesting banks holding more securities tend to outperform. We removed one factor focused on total loan loss reserves as it was redundant, while keeping the remaining two which center on discretionary loan loss reserves (as noted in the literature review) as well as Tier 1 (most stable) capital.

Valuation

Valuation measures the market's pricing of a bank's equity and earnings power. For this module, we use four factors based on earnings and book value. One substitution was made relative to QBM (using core earnings in place of net income) and a new factor was added—Price-to-Book Return-on-Equity Combination (PB-ROE)—to improve the simple price-to-book ratio by accounting for earnings potential.

Management Quality

This component contains three factors that identify management's ability to effectively generate profits based on available resources. We continue to focus on management's ability to achieve loan growth, but have also added factors to account for doing so in a responsible (loss provisioning) and profitable manner. Given the introduction noted in valuation, we have removed the size-neutralized combination of return on equity and book-to-price.

Asset Quality

This component measures the quality of the assets on a bank's balance sheet, based primarily on the portion of loans that are either nonperforming or are likely to become non-performing in the future. The focus is on loans more than 30 days past due as well as those declared nonperforming. Additionally, we have added a factor to consider the value of properties already foreclosed.

Earnings Momentum

Earnings Momentum measures analyst expectations for a bank's prospects, as well as recent earnings and net interest income surprises. Compared to the original model, we have made only small adjustments. Where price was used in the denominator of the QBM factors, it has been replaced with the standard deviation of estimates.

Investor Sentiment

The investor sentiment component uses several measures of stock short interest to gauge market opinion. In general, high and increasing levels of short interest indicate lower future returns. As a change to the original model, we have relocated one option-implied volatility factor to this module from the Price Momentum component.

Price Momentum

The price momentum component leverages both the longer term momentum characteristics of bank stocks as well as shorter term price reversals.

Earnings Quality

This component identifies those banks with higher-quality earnings, which are characterized as earnings from ongoing operations that are expected to be recurring. The earnings quality component contains two factors that are based upon management decisions regarding loan loss provision expenses as well as the timing and realization of gains on securities. We favor banks that are not fueling EPS growth via a reduction in loan loss provisions, nor meeting or beating analyst estimates through the realization of gains. Compared to the QBM, we have removed a redundant factor focusing on realized gains.

Additional Factors

As noted previously, we have included two new factors as part of QBM2 which were not applied to the model in a traditional fashion. Most notably, a negative Profitability Ratio will "penalize" raw model ranks on a sliding scale with the most negative profitability ratio assigned a penalty of 20 ranks. Firms with a non-negative Profitability Ratio receive no adjustment.

A small set of additional factors are bundled as sell indicators that identify distressed banks—not affecting model ranks but provided as useful supplementary information. One such indicator of potential bank failure is the Texas Ratio. Firms with Texas Ratios above 50% are "flagged" as deserving further analysis. Historically, banking regulators have felt those with ratios above 100% are strong candidates for bankruptcy. Those whose values are below 50% are given a "neutral" score of zero. For further information see the June 2009 factor introduction: Markit® FI - Banking on Capital Structure: The Texas & Reggie Ratios.

Composite Model Results

After construction of the eight model subcomponents, we calculated their cross-sectional IC correlations to determine the uniqueness of each component. Table 2 displays the average cross-sectional correlation from July 1990 through February 2010. We see that the factors generally display a low correlation, thus indicating the diversifying power of each component.
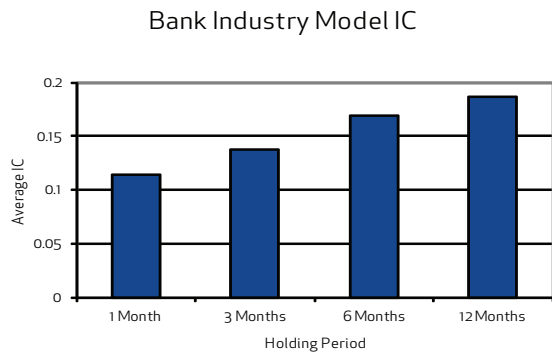
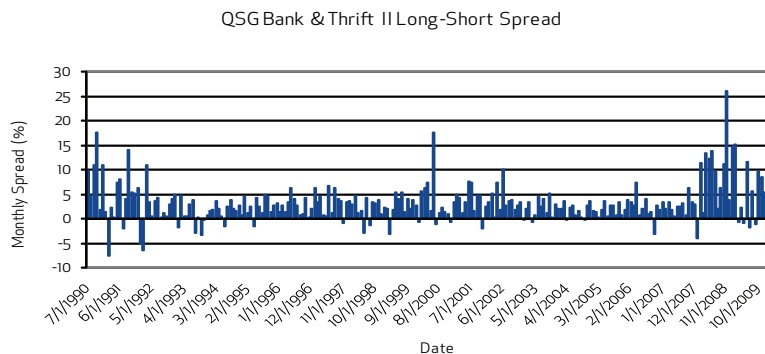|	Balance Sheet Strength	Asset Quality	Valuation	Earnings Momentum	Earnings Quality	Investor Sentiment	Management Quality	Price Momentum
Balance Sheet Strength	1.00							
Asset Quality	0.06	1.00						
Valuation	-0.08	-0.75	1.00					
Earnings Momentum	-0.30	0.22	-0.14	1.00				
Earnings Quality	0.04	0.12	-0.20	0.38	1.00			
Investor Sentiment	-0.32	-0.08	0.17	0.04	-0.03	1.00		
Management Quality	0.10	0.56	-0.54	0.32	0.29	-0.09	1.00	
Price Momentum	-0.10	0.32	-0.33	0.44	0.23	0.01	0.26	1.00

Table 2

We next combined the factors into a composite model. The composite was backtested from July 1990 through February 2010. The fundamental data was taken from SNL Financial and Worldscope, analyst earnings estimates were taken from I/B/E/S®, and pricing information from IDC. Fundamental data items from SEC-filed reports are lagged 45 days if taken from a 10-Q, 90 days if taken from a 10-K. All regulatory (Bank Holding Company) data was lagged 90 days. Graph 2 (see Page 6) displays the average ICs for the model over holding periods ranging from 1 to 12 months

The 1-month IC is 0.114 with a standard deviation of 0.10 and a hit rate of 89.41%.
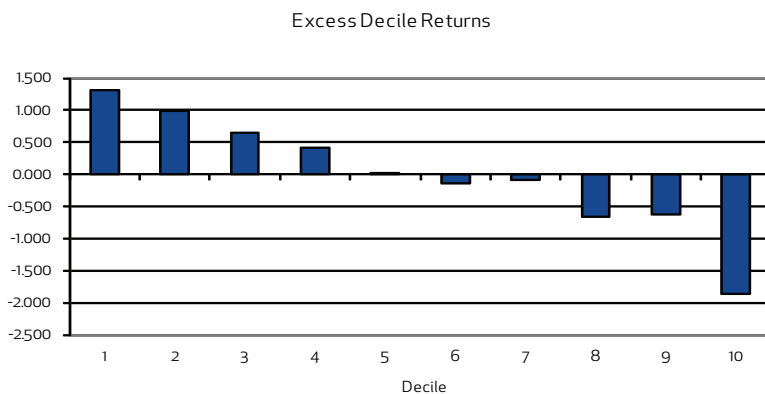
Graphs 3 and 4 display the monthly long short decile spread over time and average excess return by decile (relative to the equally weighted universe average) for the entire period, respectively. The average monthly decile spread is 3.16% with a standard deviation of 4.02% and a hit rate of 87.71%. We find that, in analyzing the top-bottom decile performance, both the long (top) and short (bottom) portfolios contribute equally to the long-short spread. Table 3 displays the average excess returns corresponding to Graph 4. Additionally, we measured the turnover of the model based upon the number of stocks that exit the top decile on a monthly basis. We find the annualized average monthly decile 1 turnover is 52.22% (through September 2009).

We also compared the QBM2 to other multifactor models available from Markit. We calculated the average cross-sectional IC correlation of QBM2 to four composite models maintained by Markit including Markit Value Momentum® (QVM), Markit Value Analyst™ (QVA), Markit Momentum Analyst™ (QMA), and Markit Growth Analyst™ (QGA). The average correlations were 0.13 for QVM, 0.12 for QGA, - 0.02 for QVA, and 0.29 for QMA indicating QBM2 does indeed provide unique insight into the bank and thrift industry.

Bank Industry Model IC

Graph 2

Finally, we note that QBM2 outperformed the original model during the period of June 2006 – February 2010, delivering an average monthly long-short spread of 4.753% over that period. Over the same time frame, the average 1-month IC was 0.095 with a standard deviation of 0.109.

QSG Bank & Thrift II Long-Short Spread

Graph 3

Excess Decile Returns

Graph 4

Decile	Excess Returns
1	1.305
2	0.987
3	0.641
4	0.417
5	0.027
6	-0.144
7	-0.084
8	-0.663
9	-0.626
10	-1.859

Table 3

CONCLUSION

The Bank & Thrift II model has been built to incorporate insights gained since the original model went live in 2006. While this new version retains the structure and philosophical underpinnings of its predecessor, key alterations have been made to incorporate the most up to date ideas for valuing financial securities. Backtested performance further suggests that the Bank & Thrift II model has retained the diverse signal quality expected from a specialty model, while registering superior performance to that of the original model.

About Markit

Markit is a leading, global financial information services company with over 2,200+ employees.

The company provides independent data, valuations and trade processing across all asset classes in order to enhance transparency, reduce risk and improve operational efficiency.

Its client base includes the most significant institutional participants in the financial marketplace.

More Information

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