

A New Paradigm in Commercial Credit Underwriting

An overview of the A.Q.U.A.® methodology for bank risk management applications

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Developers of:



Introduction

AQUA Capital Technologies is a technology company that designs applications to analyze complex financial issues and is the sister company of [WHM Capital Advisors](#), a boutique investment banking and wealth management firm. A.Q.U.A. Capital Technologies' flagship offering, A.Q.U.A.® was created in 2003 to evaluate the risk and return of the private business asset within a portfolio of holdings. In 2008, it was converted to an on-line application. A.Q.U.A. Capital Technologies was made independent in 2008 in order to make its existing technologies and design capabilities available to a broader set of financial services professionals.

The primary function within the A.Q.U.A.® system is its proprietary algorithm that determines Company Specific Risk Premium (CSRP). CSRP is traditionally used in valuing a company's stock in that it forms the discount rate for a company's cash flow. CSRP is a number that can have predictive value in determining the consistency of future cash flow from the subject company. The A.Q.U.A.® methodology solves the problem associated with the subjective nature of most CSRP calculations.

In our work as analysts, this methodology has successfully and accurately predicted future cash flow, specific risks to capital providers, and the value of assets in both public and private markets. This calculation is relevant to bankers determining the risk of a specific commercial borrower and shows promise in helping bank management better measure and manage risks and changes in risks within their portfolios.

Recent comments from bank regulators

Lending to Creditworthy Small Businesses: Interagency Statement OCC 2/5/2010

- "An institution should understand the long-term viability of the borrower's business"
- "An institution should have robust risk management practices to identify, monitor, and control credit risk in its lending activities"
- "Models that rely primarily on *general* inputs, such as geographic location and industry, should not be used as a substitute for the evaluation of an *individual customer's* repayment capacity."
- "Examiners will expect institutions to employ sound underwriting and risk management practices, maintain adequate loan loss reserves and capital, and take appropriate charge-offs when warranted."

"We are working with banks to ensure they improve their *risk-measurement* and *risk management*."

Federal Reserve Chairman Ben Bernanke

Wall Street Journal, May 6, 2010

Current situation in commercial credit underwriting

The subjective nature of credit underwriting

Like any analysis of future economic situations, the analysis of a company's ability to return capital to lenders is fraught with the perils of individual judgment. Any two analysts, given the same set of data, can come to very different conclusions on the risk of an investment. In commercial banking, the current tools for commercial credit underwriting are limited in scope and cause bankers to rely on subjective, "gut level" criteria for assessing the risks of small company commercial credit facilities.

As one banker recently told us, "D&B tools are fine in terms of telling me how the prospective borrower has paid their bills in the past, but in this environment I'm not sure their past ability to pay means much." Ratio analysis using databases with peer data also have limitations in their predictive capability. A company may be "in-line" with peers on a ratio examination but still have significant risks that they will be unable to sustain future cash flow for debt repayment. In fact, being in line with peers may be problematic if all peers are unhealthy.

We have talked with bankers who have described their risk rating methodology for commercial credit as a subjective 1 to 5 scale with qualitative determinants as the criteria for the rating. The comment is generally that this is the system with which they have to operate since there are no tools with predictive capabilities and bankers are relied upon for their knowledge and experience in determining risk.

The A.Q.U.A.® Methodology in Credit Risk Measurement

A.Q.U.A.®, from the outset was designed to provide analysts with data-driven measures of the risk of an asset. By providing quantitative risk measurement, the asset being examined was less likely to be assigned a risk premium that was inconsistent because of analyst bias.

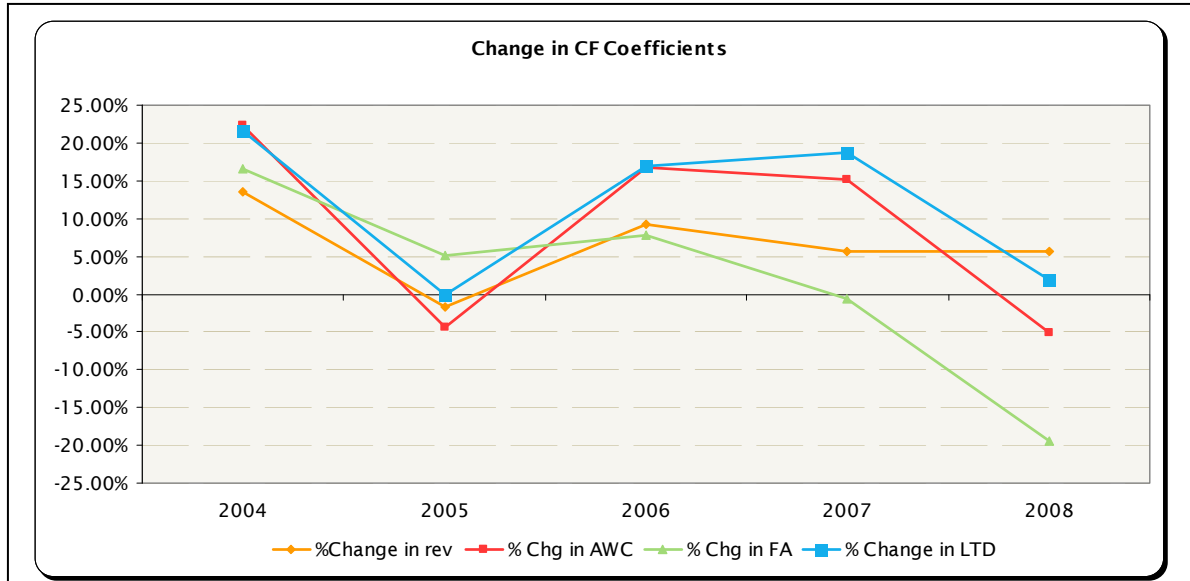
The algorithm for examining risk looks at the factors in a company's financial statements that were predictive of its ability to produce consistent cash flow in the future. The objective in this is that all company risk measures are calculated using the same, proven methodology and thus allow for selection of investments and valuation of assets with a quantitative rationale for risk determination.

In valuing an asset, an analyst will discount the Cash Flow from the asset by a rate that represents the risk of the asset's ability to produce that cash flow in the future. Analysts in valuation have struggled with the same concern as bankers over the lack of objective measures of this risk.

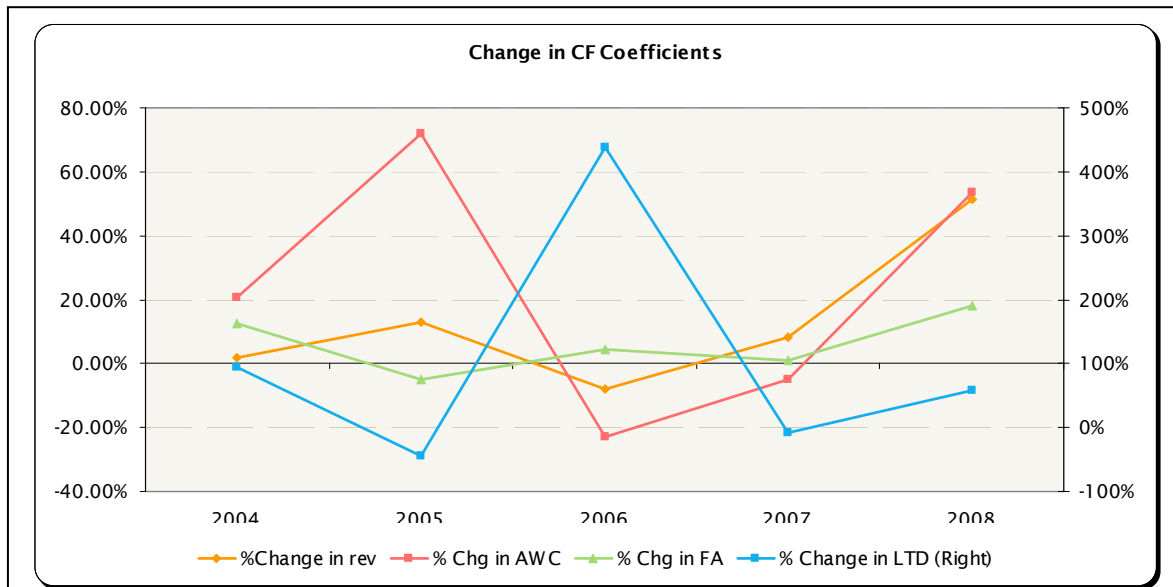
$$\text{Value} = \frac{\text{Cash Flow}}{\text{"X"%}}$$

A.Q.U.A.® calculates the specific risk rate (CSRP) for that individual company using up to 30 data points from company financial statements and measures the change in those factors over periods. Thus an analyst can determine not only what the risk is at a given point of decision, but can also measure the change in risk over time.

The A.Q.U.A.® score is a function of the consistency of relevant cash flow factors in a borrower's business model over time. For example, a company that has a high level of predictable future cash flow will have a lower A.Q.U.A.® score meaning it has less risk (as displayed in the first chart below). A company with a higher A.Q.U.A.® score would mean that it has higher risks (as displayed by the second chart below). By continuing to monitor the companies in A.Q.U.A.® as financial statements are updated, a lender can determine if the risks are increasing over time and by how much on a very objective basis. We have seen this application used in numerous settings and industries as a successful predictor of future cash flow and risks to providers of capital.



A.O.U.A. ® Value Drivers™ Chart showing a company with very low risk – A.O.U.A. ® Score of 1.88



A.O.U.A. ® Value Drivers™ Chart showing a relatively higher risk – A.O.U.A. ® Score of 14.66

In addition to determining risk levels, A.Q.U.A. ® also points lenders to the most likely issues driving risks and the factors that will increase risks and reduce cash flow over the coming periods. Thus deteriorating credits can be identified more readily with specific insight into what area of the borrower's financial picture should be examined most closely.

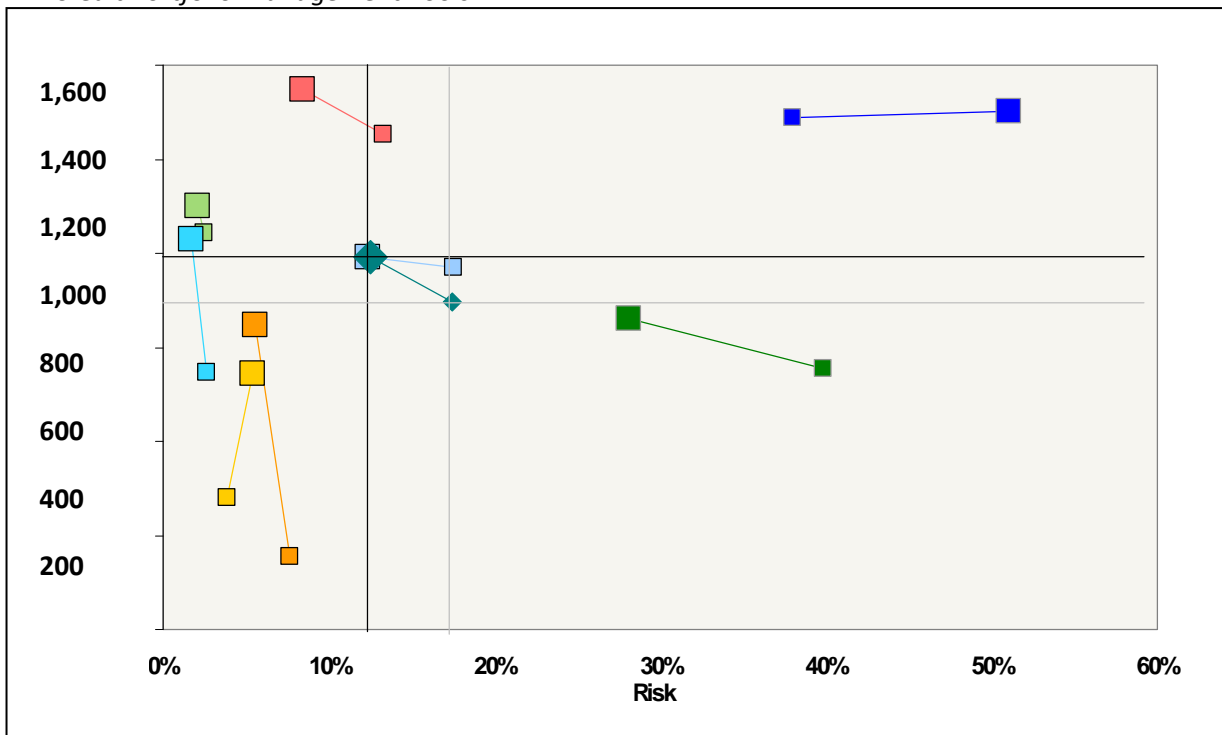
Bank portfolio management using A.Q.U.A. ®

One of the most important functions in banking is that of management’s ability to understand risks within the portfolio and manage the reserve levels to compensate for those risks. By taking the A.Q.U.A. ® Score data from the individual credits and aggregating it at the regional and bank-wide levels, bank executive teams can have a better understanding of the risks of the portfolio from the ground-up. Executives can then answer questions such as:

1. “How much risk are we taking as a bank in our loan portfolio?”
2. “Which companies are the riskiest credits?”
3. “What scored risk should be our maximum risk we are willing to take on?”
4. “Which lenders within the bank have the highest contribution to the risk of the portfolio?”
5. “How much should we be reserving to offset risks?”
6. “How can we show regulators that we are adequately managing our risk and reserves?”
7. “How are our portfolio risks changing over time?”

In the graph below, the executive can determine, how much outstanding credit is extended to the borrower (the vertical axis) and what the risk is using the A.Q.U.A. ® Score (the horizontal axis). The line connecting the smaller point to the larger point for each borrower shows the movement from period-to-period for both loan relationship size and risk. On the portfolio level, this allows management to see the weighted average risk and loan size for the bank, or segments of the bank, and the changes over time. Regulators too can easily see that management is measuring and managing risk functions over time.

Credit Portfolio Management Tools



In addition, bankers can use the calculated risk rate as an up-front scoring methodology to determine whether or not the prospective commercial credit customer is worthy of continued analysis and discussion on terms and pricing.

Research Background Overview

We have conducted extensive research in the efficacy of our algorithm. In testing using public company data, we have found a positive correlation between our A.Q.U.A. ® Scores and the determination of risk in debt of publicly-traded companies. Our methodology has been documented in articles in professional journals as well as other white papers produced by our firm. All these are available at our website, www.whmca.com.

Capabilities

- Ability to determine what is creating company risk at the individual level
- Ability to determine effect of individual company risk on portfolio
- Updated score with financial statement updates
- Ability to build "what-if" projections
- Ability to accurately determine reserve levels required
- Allows regulators to see a quantitative system at work for credit risk underwriting and management
- Allows Risk Officers to give an objective look at the bank's underwriting strength at the individual borrower and overall portfolio levels

WHM Capital Advisors is a financial advisory firm providing research, analysis and advice to a diversified global client base that includes institutions, corporations and high-net-worth individuals. Founded in 2002, the firm's areas of expertise are valuation consulting, succession planning, mergers and acquisitions advice and investment management. In addition, the firm has a related technology company that designs applications to analyze complex financial issues for clients.

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