



An Overview of Audit Integrity
Methodology
The Impact of Corporate Integrity
Risk on Investment Returns

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Overview

A New Approach to Earnings Quality: Measuring Corporate Integrity

- The Importance of Measuring Corporate Integrity via Accounting & Governance Risk Metrics
 - Comparison to Accruals-based and other EQ Models
- Integrity Metrics That Best Measure Fraud Risk
 - The Accounting & Governance Risk rating – AGR[®]
- Building a Taxonomy to Predict Fraudulent Behavior
- The Link Between Fraud Risk and Equity Returns
 - The AGR-based Equity Factor



Corporate Integrity and Investment Returns

- Capital markets hit by financial gamesmanship and poor corporate integrity
 - ❖ Subprime Meltdown, Options Backdating – what’s next?
 - ❖ Rating agencies and others fail to anticipate problems
- Investors seek qualitative/quantitative approaches to measure “integrity risks” and achieve:
 - ❖ Improved Returns (finding Alpha)
 - Active
 - Passive
 - ❖ Reduced Volatility (avoiding risk)
 - Torpedo Stocks
 - Bomb Detectors



The Impact of Integrity Risk

Audit Integrity identifies, measures and monitors risk related to corporate **accounting** and **governance practices**, and its impact on corporate risk

Audit Integrity has established a direct correlation between integrity risk ratings and the likelihood of adverse events:

High Risk Rated Companies

- ⇒ **10x** more likely to face [SEC Enforcement Actions](#)
- ⇒ **6x** more likely to [delay financial reporting](#)
- ⇒ **5x** more likely to face [securities class action litigation](#)
- ⇒ **4x** more likely to go [bankrupt](#)

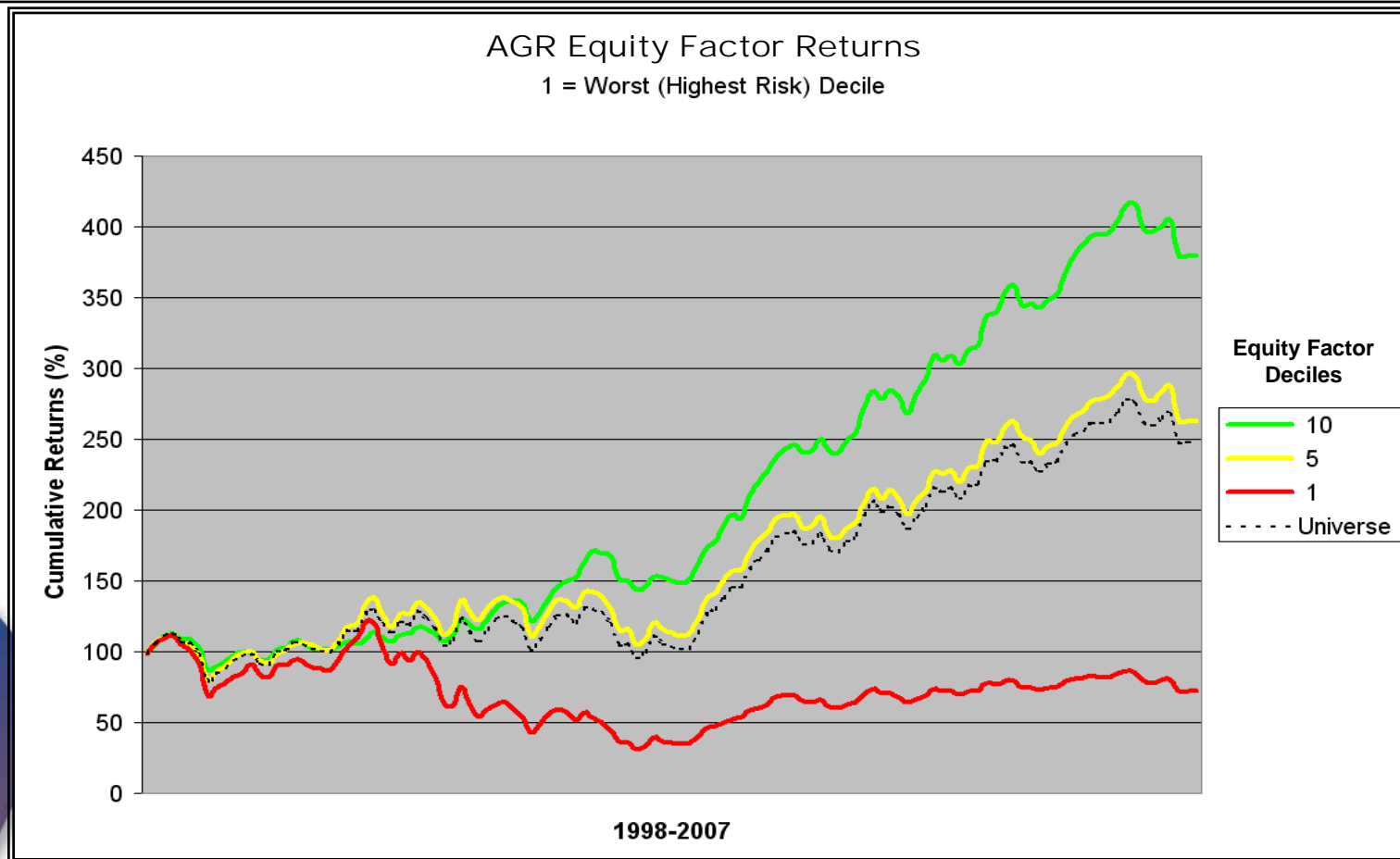
... and other high risk events



Integrity Risk and Investment Returns

NET IMPACT TO INVESTORS:

High “integrity” risk companies consistently AND significantly underperform the market



Proxies for Integrity Risk

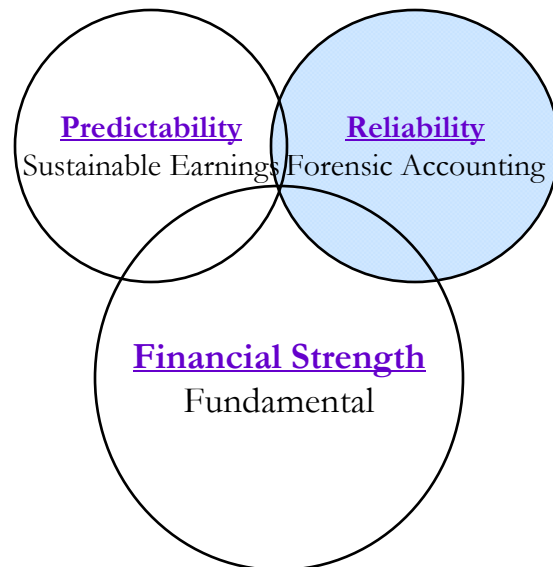
- Popular Earnings Quality factors yield mixed results
 - The “Accruals Anomaly” widely adopted, but ineffective in recent years
 - Other derivative approaches also ineffectual
- Pure Corporate Governance factors showing poor results
 - Sporadic correlation between governance and investment returns
- Environmental, Social and Governance (ESG) factors unreliable
 - Being green does not equate to making green

Investors still voice a strong need for “forensic” research
Ranked as the #1 need in a recent report by Integrity Research



Beyond Earnings Quality

- Earnings Quality means different things to investors
 - ***Sustainable earnings, focused on Predictability***
 - Example: S&P Core Earnings
 - ***Forensic accounting, focused on Reliability***
 - Example: Accruals Models
 - ***Both overlap with fundamental research, focused on Financial Strength***



Audit Integrity has expanded the Forensic Accounting approach to develop a more comprehensive and effective measure of Earnings Quality



Measuring Integrity Risk

- **The question:** how to measure Integrity?
 - Critical to corporate stakeholders (Investors, employees, auditors, insurers, others)
- **Our approach:** a comprehensive measure of risk, based on quantitative analysis
 - Goal: fraud prediction model, identifying specific risk metrics
 - Metric set: financial *and* non-financial data
- **What we found:** *both* Accounting and Governance data needed to obtain the best results

With apologies to Albert Einstein:

$$I = AG^2$$



Measuring Integrity By Looking At Fraud

- Governance risks focus on management **motivation** and **behavior**, while accounting risks identify issues with **transparency**

Non-financial Concerns

Corporate Governance – compensation, management changes, financial reporting, insider trading and other governance issues are key fraud indicators

High-risk Events – M&A, divestitures, restructurings, share repurchases, equity financing and other events associated with fraud

Accounting-related Concerns

Revenue Recognition – accelerating top-line growth through premature, non-recurring or fictitious revenue activity

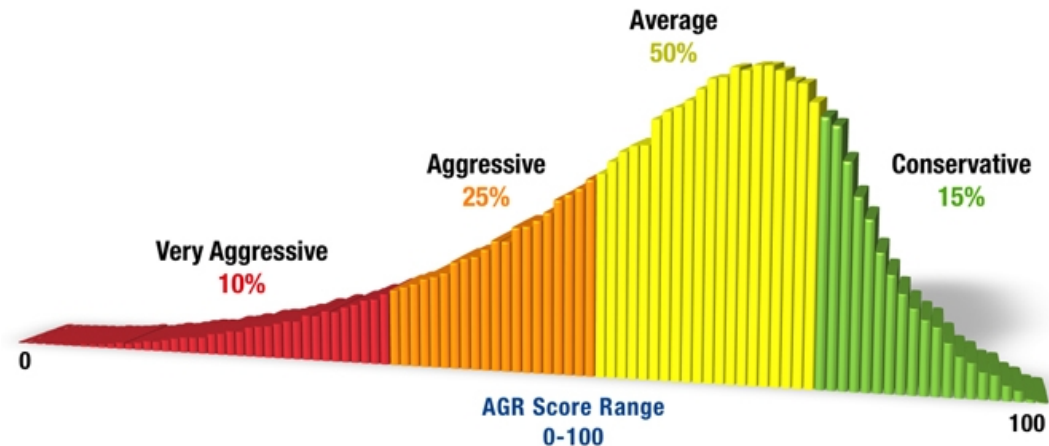
Expense Recognition – deferring/delaying expenses to improve margins by capitalizing or amortizing expenses

Asset-Liability Valuation – over-valuing assets (receivables), under-stating liabilities (payables), manipulating reserves (pensions)



The AGR[®] – Measuring Integrity Risk

The **Accounting & Governance Risk (AGR)** rating is the overall assessment of the quality and transparency of corporate behavior



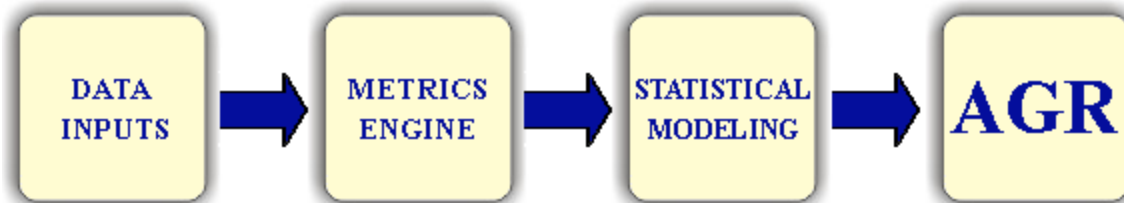
- ◆ Released in 2003, the AGR rating system was developed over 3 years through the extensive application of academic & business research
- ◆ AGR ratings are produced for over 8,000 public companies and updated quarterly via web and data feed releases
- ◆ Key data sources include Reuters, S&P, Lexis-Nexis, several others



Audit Integrity Methodology

- **Extensive accounting and governance testing identifies high-risk companies:**
 - ❖ **Accounting Risks** – a forensic assessment of the risk that financial results are misrepresented in public disclosures
 - ❖ **Governance Risks** – quantifiable metrics measuring key aspects of corporate governance and behavior

The basic steps for computing company AGR rankings are:



AGR Methodology –

DATA
INPUTS

- The AGR Model is based on a comprehensive set of data:
 - All publicly traded North American companies
 - Financial statement history and governance data as far back as 1993
- Data sourced from the highest quality data providers
 - Continuous data validation drives quality assurance
- Proprietary data collection efforts provide critical information on SEC Enforcement Actions, Class Action Litigation and Material Financial Restatements



AGR Methodology –

METRICS
ENGINE

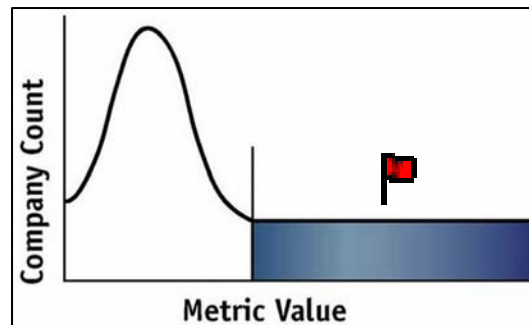
- Metrics organized within Audit Integrity Taxonomy
 - Four broad industry meta-sectors capture industry-specific data
 - Industrials, Banking, Insurance, Utilities
- Metrics calculated from accounting and governance data
 - From company and industry level
 - Updated quarterly based on the most recent SEC filings and other data
- Each metric is evaluated for unusual values (“outliers”) along three well-established and tested analytic dimensions:
 - **1-year Change** – percentage change from prior year
 - **Time Volatility** – volatility over 8-quarters
 - **Industry Comparison** – variance from industry average



AGR Methodology –

STATISTICAL
MODELING

- Audit Integrity calculates a large number Metrics without any preconceived bias or applied theories
 - Out of 150+ Metrics tested, about 70 have been found to be significant in identifying aggressive accounting and governance behavior
- Company Metrics are flagged as risk issues if:
 - The Metric is statistically associated with fraud, as determined through an analysis of our SEC Enforcement Actions database, and,
 - The company Metric has an outlier value (the worst 20%)



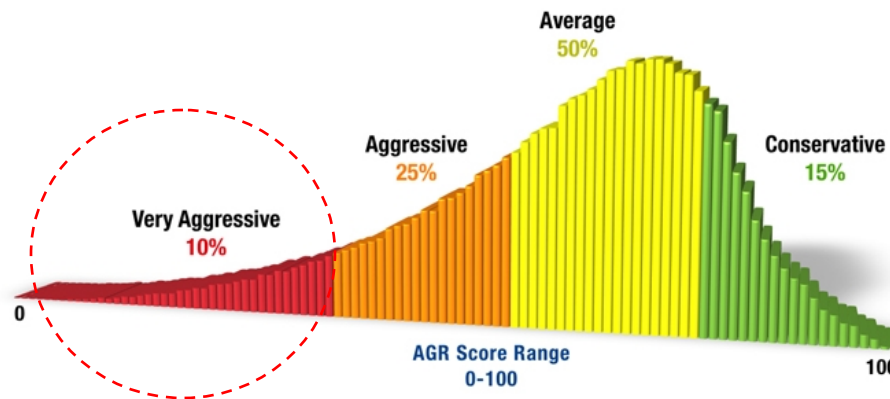
Outlier metric values
which have been
associated with fraud
are flagged



AGR Methodology –



- AGR model assigns a weight, or coefficient, to flagged company metrics
 - Coefficients indicate the relative predictive power of the metric in identifying fraudulent accounting conditions in a company
 - The sum of all flagged metric coefficients creates the AGR score
- The lowest 10% of companies are categorized as Very Aggressive



Building a Taxonomy to Predict Fraudulent Behavior

- No simple measure of fraud risk exists – an *extract* of the comprehensive *Audit Integrity Taxonomy* is below

Risk	Issue	Metric
Accounting Risk Measures		
REVENUE RECOGNITION	OPERATING INCOME	OPERATING REVENUES OVER OPERATING EXPENSES UNREALIZED OPERATING GAINS OVER REVENUES
	RECEIVABLES ACCOUNTING	ACCOUNTS RECEIVABLE OVER SALES DOUBTFUL ACCOUNTS ALLOWANCE OVER GROSS RECEIVABLES
	INVENTORY ACCOUNTING	INVENTORY OVER OPERATING REVENUES INVENTORY WRITEDOWNS OVER OPERATING EXPENSES
EXPENSE RECOGNITION	CURRENT EXPENSES	COMPENSATION AND BENEFIT EXPENSE OVER OPERATING REVENUES COST OF GOODS SOLD OVER OPERATING REVENUES
	PAYABLE POLICIES	ACCOUNTS PAYABLE OVER CURRENT LIABILITIES ACCRUED EXPENSES PAYABLE OVER OPERATING EXPENSES
	DEPRECIATION POLICIES	ACCUMULATED DEPRECIATION CAPITAL LEASES OVER GROSS CAPITAL LEASES DEPRECIATION EXPENSE OVER PROPERTY PLANT AND EQUIPMENT
	DEFERRAL POLICIES	DEFERRED COMPENSATION OVER OPERATING EXPENSES PREPAID EXPENSES OVER OPERATING EXPENSES
ASSET-LIABILITY VALUATION	ASSET IMPAIRMENT	ASSET WRITEDOWNS OVER OPERATING EXPENSES IN PROCESS R AND D OVER OPERATING EXPENSES
	ASSET VALUATION	GOODWILL OVER ASSETS PROPERTY PLANT AND EQUIPMENT OVER ASSETS
	PENSION ACCOUNTING	PENSION ASSETS EXPECTED RETURN DOMESTIC PENSION PROJECTED BENEFIT OBLIGATION PENSION OVER LIABILITIES
Non-accounting Risk Measures		
GOVERNANCE	MANAGEMENT ISSUES	OFFICERS AVERAGE NUMBER YEARS IN POSITIONS COMPENSATION AVERAGE SHORT TERM COMPENSATION OVER TOTAL COMPENSATION
	FINANCIAL DISCLOSURE	REPORTING NUMBER TIMES AMENDED FILING TTM REPORTING NUMBER TIMES RESTATED FILING TTM
	OVERSIGHT LITIGATION	AUDIT FLAG QUALIFIED OPINION LAST YEAR DELISTING FLAG OCCURRED TTM
HIGH RISK EVENTS	ORGANIZATIONAL STRUCTURE	MERGERS NUMBER TTM RESTRUCTURING COSTS OVER OPERATING EXPENSES
	CAPITAL STRUCTURE	BANKRUPTCY FLAG OCCURRED TTM REPURCHASES NUMBER TTM
	ACCOUNTING CHANGES	ACCOUNTING CHANGE EXPENSE CUMULATIVE OVER OPERATING EXPENSES ACCOUNTING CHANGE INCOME CUMULATIVE OVER REVENUES

The Link Between Fraud Risk and Equity Returns

- AGR found to produce excess returns in numerous back tests
- The **AGR Equity Factor** utilizes four AGR-based variables to produce higher equity returns
 - 1) Current Quarter AGR
 - 2) Variance in AGR (8 quarters)
 - 3) Bottom 5% Flag
 - 4) Persistently Poor AGR (excluding current quarter)
- Additional non-AGR factors may further improve returns



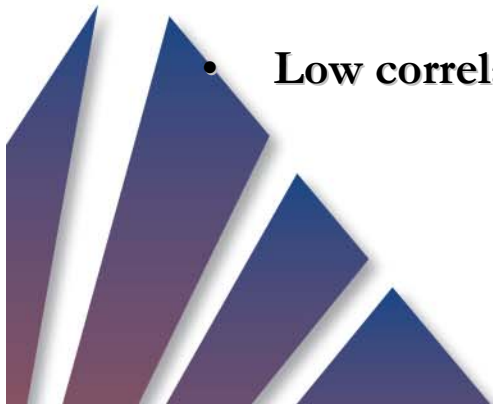
Back Testing the AGR Equity Factor

- Back Test Research Methodology
 - **Time Period:** 1998-2007
 - **Company Coverage:** U.S. traded public companies with > \$50m market capitalization
 - **Pricing Data:** IDC, via FactSet
 - **Rebalancing:** All groupings were rebalanced monthly
 - **Holding Period:** 3-months
 - **Returns:** Equal-weighted returns; split and dividend adjusted
 - **Growth/Value Groups:** based on Price-to-Book ratio
 - **Accruals Factor:** to compare the EQF vs. an accruals-based approach, a standard definition of an accruals model was taken from academic literature –
(Net Income before Extraordinary Items less Operating Cash Flow) / Average Total Assets



Key Findings – 10-year Back Test

- **Large and persistent returns spread** between highest and lowest-rated companies
 - **17.5% spread** between the best/worst decile
- Consistent yearly performance: **positive return spreads 8 out of 10 years**
- Returns disparity seen across **all market capitalization groups**
- Positive return spreads seen across **10 of 12 major industry sectors**
- AGR Equity Factor **equally effective across Growth and Value stocks**, indicating corporate integrity is important for all companies
- From a quantitative modeling standpoint, **the Equity Factor provides risk-adjusted, well behaved returns**
- **Low correlation** with broadly-used factors such as Price-to-Book and Accruals

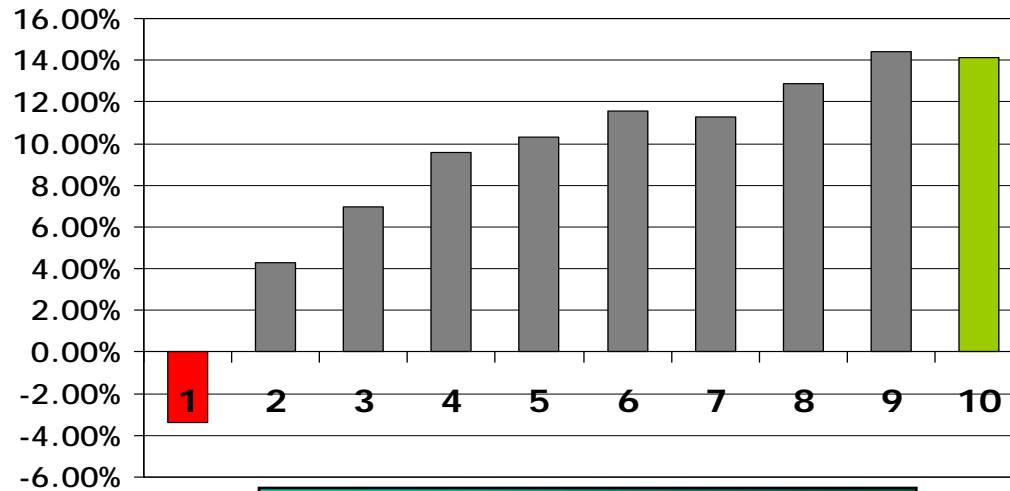


AGR Equity Factor – Returns Analysis

Average Annual **Universe Returns**

By AGR Equity Factor Decile

1998-2007



Annual 10-1 Spread = 17.46%

EQF Decile	Average Annual Return	Number of Securities
1	-3.36%	46,215
2	4.29%	46,221
3	6.94%	46,545
4	9.60%	45,748
5	10.34%	46,971
6	11.56%	46,165
7	11.28%	46,462
8	12.85%	46,424
9	14.39%	46,353
10	14.10%	46,120

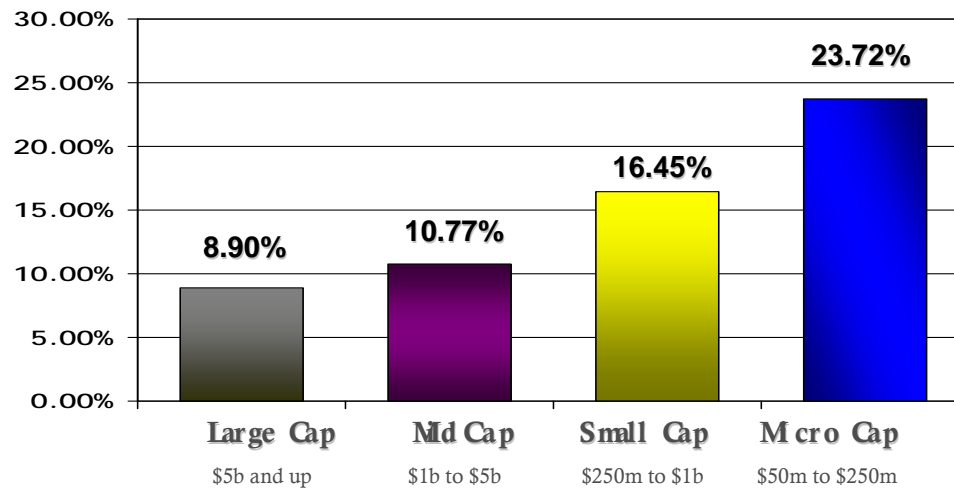
- ✓ Alpha high at tails (both positive and negative), diminishing near median.
- ✓ Decile 10 outperforms 92% of the time vs. Benchmark in Down markets; Decile 1: 4%

AGR Equity Factor – Returns Analysis

Summary Results By Market Capitalization

Average Annual 10-1 Decile Return Spreads

1998-2007



Market Cap	Number of Securities
Large Cap	55,550
Mid Cap	100,929
Small Cap	138,587
Micro Cap	174,517

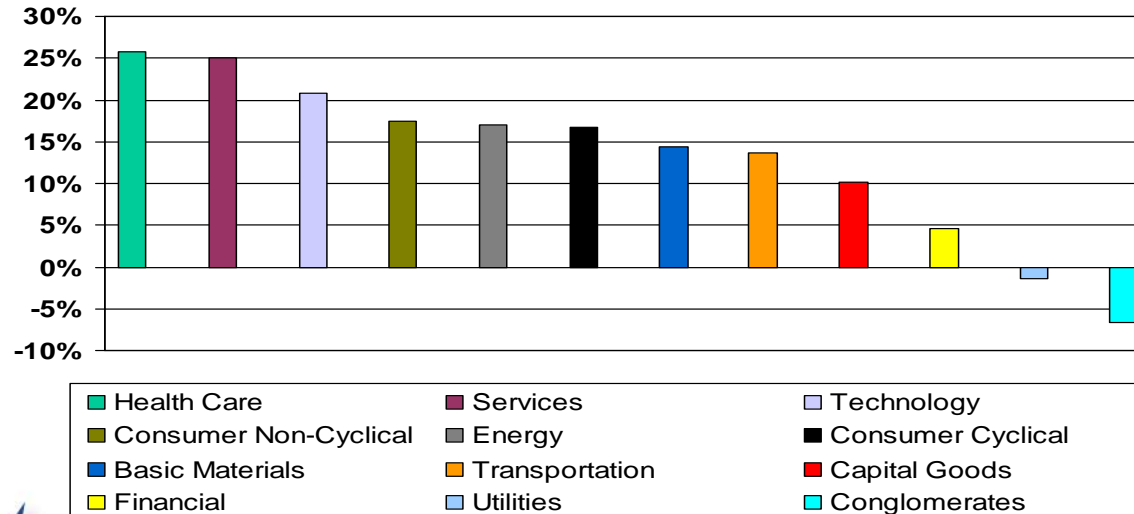
- ✓ Information Ratio high for both Best (10) and Worst (1) groups, .33 and -.87, respectively
- ✓ Information Coefficient is strong for the entire population; significant at 95% confidence interval

AGR Equity Factor – Returns Analysis

Summary Results By Industry Sector

Average Annual 10-1 Decile Return Spreads

1998-2007



- ✓ Return spreads are high and positive for 10 of the 12 sectors
- ✓ Spreads notably high for Healthcare, Services, Technology

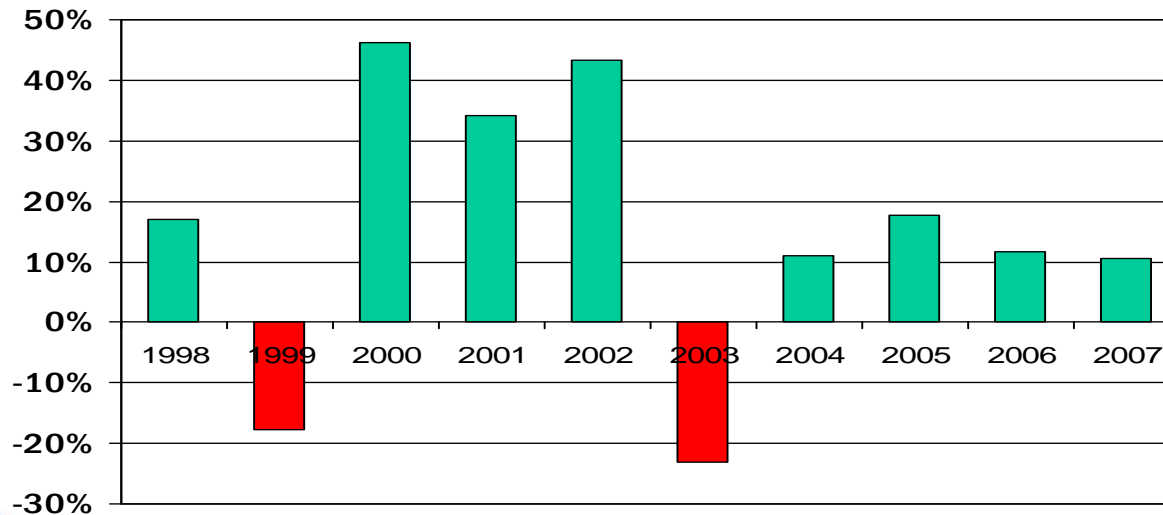
Industry Sector	Decile Return Spread	Number of Securities
Health Care	25.74%	51,087
Services	25.02%	100,279
Technology	20.73%	94,593
Consumer Non-Cyclical	17.44%	15,436
Energy	17.03%	20,203
Consumer Cyclical	16.70%	23,205
Basic Materials	14.45%	24,417
Transportation	13.68%	9,826
Capital Goods	10.18%	24,339
Financial	4.53%	83,773
Utilities	-1.42%	13,383
Conglomerates	-6.60%	2,683

AGR Equity Factor – Returns Analysis

Summary Results By Calendar Year*

Average Annual 10-1 Decile Return Spreads

1998-2007



Calendar Year	Decile Return Spread
1998	17.11%
1999	-17.79%
2000	46.21%
2001	34.20%
2002	43.30%
2003	-23.13%
2004	10.90%
2005	17.61%
2006	11.70%
2007	10.50%

- ✓ Positive return spreads 8 out of 10 periods
- ✓ Negative return spreads in years when returns were very high and positive
- ✓ Highest and most volatile return spreads in Small and Micro-cap groups

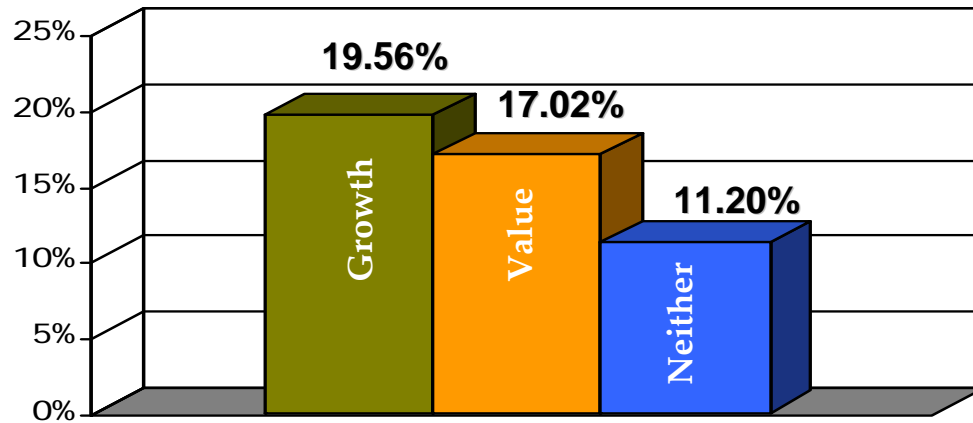
*All market capitalizations

AGR Equity Factor – Returns Analysis

Summary Results By Investment Style*

Average Annual 10-1 Decile Return Spreads

1998-2007



*All market capitalizations

Investment Style	Number of Securities
Growth	43,681
Value	43,544
Neither	44,798

- ✓ High return spreads for both Growth and Value, based on Price-to-Book ratio
- ✓ Within Large Caps, Value stocks showed a significantly higher spread than Growth

Correlation to Existing Factors

- The AGR Score and AGR Equity Factor have low correlation to an Accruals Model, and to Price-to-Book
 - Correlation particularly low with Large Cap companies

Factor Return Correlation Table			
Ten Year Period, 1998 - 2007			
All Companies	Equity Factor Decile	Accruals Decile	Price-to-Book
Equity Factor Decile	1.00	0.45	-0.40
Accruals Decile	0.45	1.00	-0.30
Price-to-Book	-0.40	-0.30	1.00



Implementing the AGR Equity Factor

- As an Enhanced Index Strategy:
 - Eliminate the bottom 1 or 2 deciles from the full universe of companies, equally weighted

Compound Annual Return Benefit of Avoiding Worst Equity Factor Deciles							
Full Universe >\$50 million	Universe Return	Excluding worst decile			Excluding worst 2 deciles		
		Universe Return	Absolute Pickup	% Pickup	Universe Return	Absolute Pickup	% Pickup
Last 10 Years	9.31	11.06	1.75	19%	11.78	2.47	27%
Last 3 Years	7.97	9.37	1.40	18%	9.88	1.90	24%



How Integrity Risk is Used by Investors

Through the evaluation of financial reporting and corporate governance, Audit Integrity provides a proactive tool for:

- ✓ Quantitative Models – incorporate AGR Equity Factor into modeling
- ✓ Screening – Filter current investment ideas for additional (and overlooked) risks as you construct your portfolio
- ✓ Surveillance - Reveal potentially destructive holdings in your portfolio(s)
- ✓ Analysis – Apply forensic disciplines to uncover unique risks

Audit Integrity provides a reliable measure of corporate integrity to help lower portfolio risk and generate excess returns



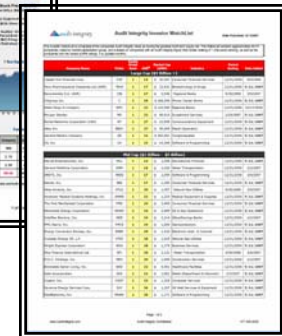
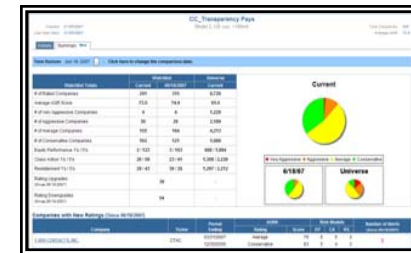
Accessing Audit Integrity Research

Accessing Audit Integrity

- Web Portal
 - Company ratings updated quarterly
 - Peer reports
- Data Feeds
- Distribution via *FactSet and Bloomberg*

Email Alerts and Proprietary News

- Ratings Changes and High Risk Events Notifications
- Industry Reports and Topical Research



Market Feedback

- *“Beyond avoiding negative surprises, the use of Audit Integrity risk scoring helps us improve alpha and reduce volatility in our Defensive Equity Index. In further testing, we have found that Audit Integrity can improve every trading strategy.”*

David Brown, Chief Market Strategist, Sabrient Systems

- *“We use our own rankings on any given stock, but we never had a way to quantify the qualitative governance aspect. When we tested with the Audit Integrity score, the results were very powerful, and we would have significantly outperformed the market by buying the best-rated companies and shorting the worst.”*

Michael Garaventa, Portfolio Manager, Navellier & Associates

It may be that the race is not always to the swift, nor the battle to the strong - but that is the way to bet.

— Damon Runyon



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