Measuring Asymmetry in Capital Markets

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Hedge Fund Growth and Returns are in decline on average

"If the amount of money in US equity-focused hedge funds can so quickly close up the inefficiencies in the $15,000 bn US equities market, perhaps there are not enough inefficiencies in the investing universe to sustain the expansion of the hedge fund universe.

Or, as Bernstein puts it: "Ladies and gentlemen! Welcome to the efficient market!" (Economics and Portfolio Newsletter, July 2005)

Financial Times 12 July 2005, p 28

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Are Capital Markets Getting More Efficient?

perhaps

Year	Hedge Fund Profitability (% points higher than cash)	Number of Hedge Funds	Funds under management
1990		Less than 2000	$60 billion
1995-97	**14 % points**		
1998-2000	**6.4 % points**		
2001-2003	**4.9 % points**	8000 (2003)	$820 bn (2003)
2004 (to end October	**2.5 % points**		
2005 (1st half)	**1.06% points**	9000	

Or are hedge funds running out of new ideas??

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(FT 21/04/05; FT 7/12/04; FT16/05/05; Business Week Aug. 8/8/05)

Hedge Fund Worries

	Hedge Fund Concerns	Percentage Expressing Concern (total 8000)
1	Poor Returns	72
2	Over-capacity	47
3	Mis-selling	30
4	Operational risk	28
5	Downward pressure	27
6	Systematic risk	27

Source: Financial Times 30 Sept 2005 (KPMG and Create)

Or are hedge funds running out of new ideas??

(FT 21/04/05; FT 7/12/04; FT16/05/05)

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Finding Alpha

To find alpha, you have to find and measure inefficiencies in capital markets

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Measuring Asymmetry in Capital Markets

- re-examine assumptions of accepted models
- integrate debt-side and equity side analysis; Rapid Ratings has done this since 1998; *new trend*
- Verify the time-sequencing of early warning signals for upside and downside performance

1. Corporate financial health analysis
2. Credit default swap spreads
3. Bond spreads
4. Share price decline (rise)
5. Options pricing models
6. Multivariate discriminant analysis
7. Traditional Credit Rating Agency (CRA) warning

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Major Inefficiencies in Capital Markets

- Traditional ratings lag the share price by 1 to 3 years
- Structural (Merton) models which are becoming embedded in the banking sector track or lag the share price
- Bond markets use matrix pricing (based on brand name and scale) to determine current pricing
- Institutional investors go overweight or underweight specific industry indices which are based on a scale variable (market cap)

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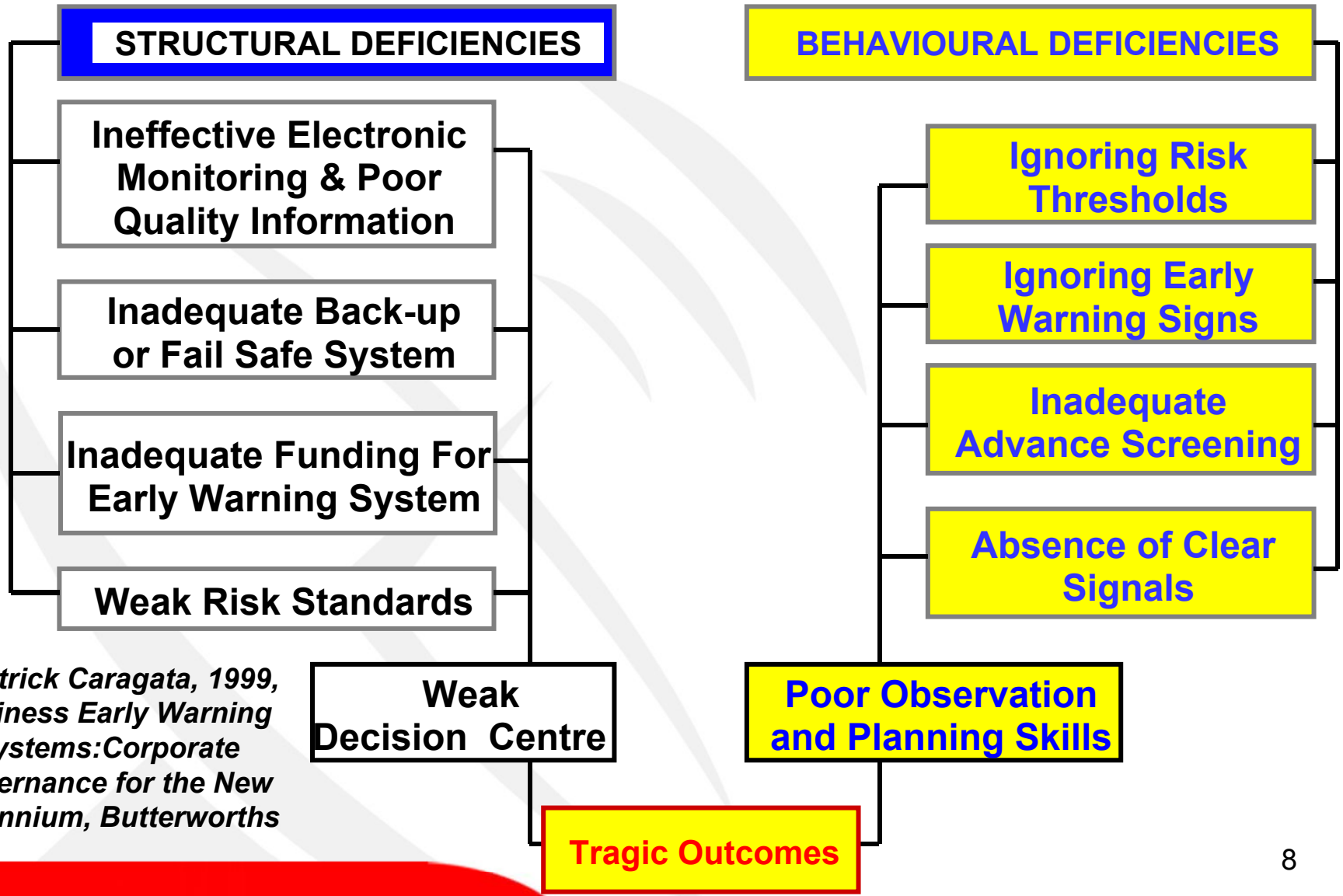
COMMON FOOTSTEPS TO DISASTER



© Patrick Caragata, 1999, Business Early Warning Systems:Corporate Governance for the New Millennium, Butterworths

Improving Measurement of Asymmetry in Capital Markets

- you can't make good decisions unless you have good quality information.
- You can't develop good quality information unless you have the right tools.
- You will create measurement distortions using your tools unless your starting points are well-grounded and you avoid false assumptions
- Let the data speak for itself: Pasteur, using a microscope in 1857, let the data speak for itself and reversed the perception of causation in the link between bacteria and disease (initially for beer, wine, milk, silk and then human disease) and turned medicine into a science. If you retain false assumptions in your analytical model, you will miss the key messages. – His views were radical at the time.

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Importance of Starting Points

- **The importance of starting points: 1989 Nobel prize winner in economics Norwegian economist Trygve Haavelmo (1956), an early inspiration in econometrics and evolutionary economics wrote about the importance of "initial conditions" and "the environment" in shaping the future "path" of economic change. He warned against the use of "rigid models" with "restrictive assumptions"**

- **Model assumptions, which are often inaccurate depictions of reality, become the foundations for measurement error in paradigms and their problem-solving tools.**

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Are Analytical Tools Getting More Efficient?

Models Containing an Assumption of Perfect Information

Model	Key Assumption	Implications of the Assumption: one or more of the following:
Competitive GE Model Capital Asset Pricing Model EDF indicators based on Options Pricing Models Static and Dynamic Game Theory Modigliani-Miller theorem	Perfect Information or Common Knowledge, or perfect transparency of information but not information asymmetry. All agents receive information simultaneously and it is costless	Miscalculation of risks and required compensation· Adverse asset selection· Sub-optimal portfolio construction· Sub-optimal rewards

Akerlof on Information Asymmetry

"the basic method of economics which is to emphasize some aspects of reality (especially transactors' attention to price) while putting blinkers on others, can leave major questions unanswered… [e.g.] how asymmetric information affects markets"

- "The Market for 'Lemons'": A Personal and Interpretive Essay by George A. Akerlof - 2001 Prize Winner in Economics

AKERLOF'S WORK PROVIDES INSIGHTS INTO PARADIGM SHIFTS AND RAISES MAY ISSUES

- Paradigm blindness
- Path dependence
- The importance of starting points in modelling
- Methodology affects perception
- Asymmetry creates inefficiencies

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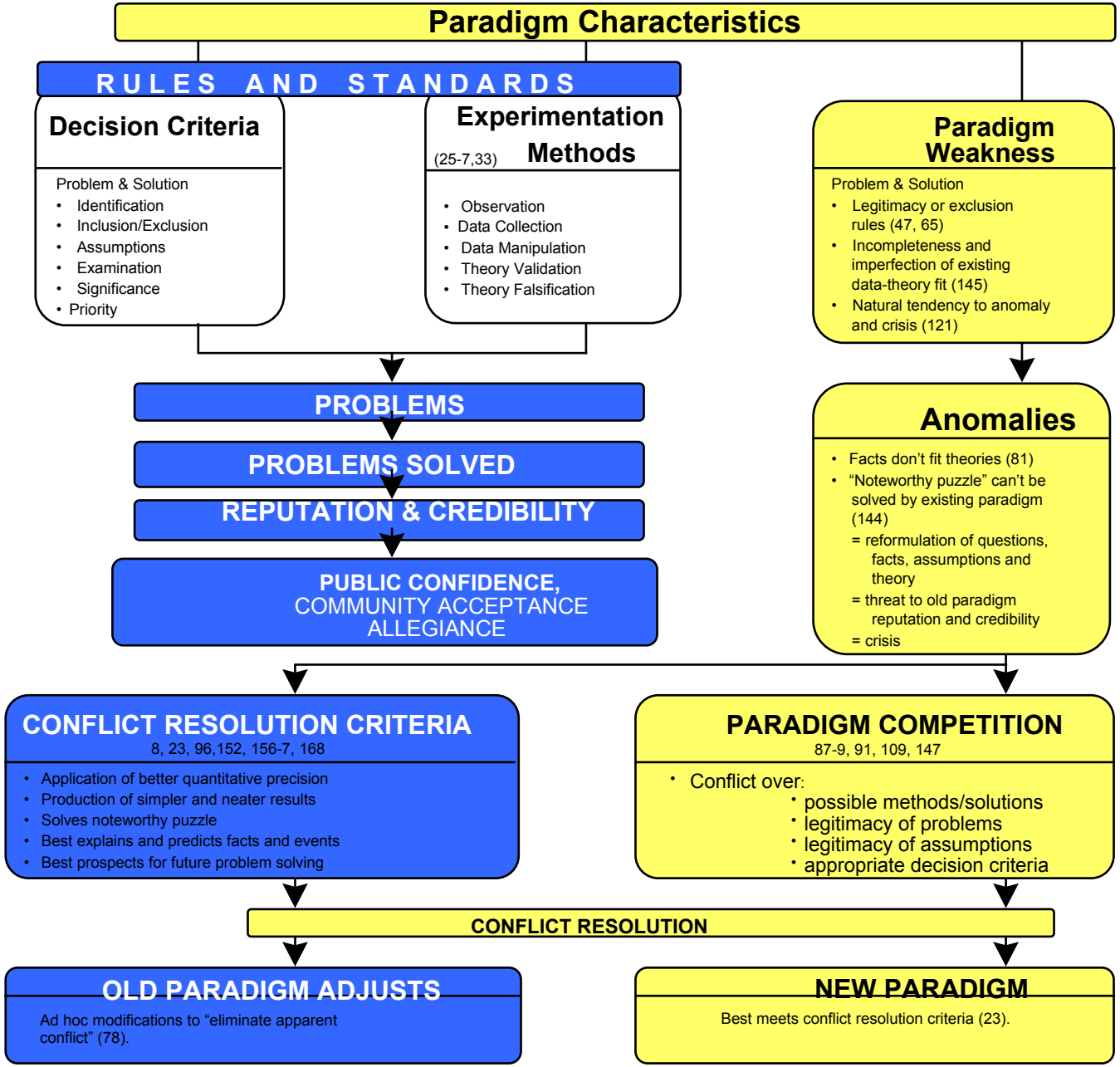
PARADIGM UTILITY, TESTING & SHIFTS



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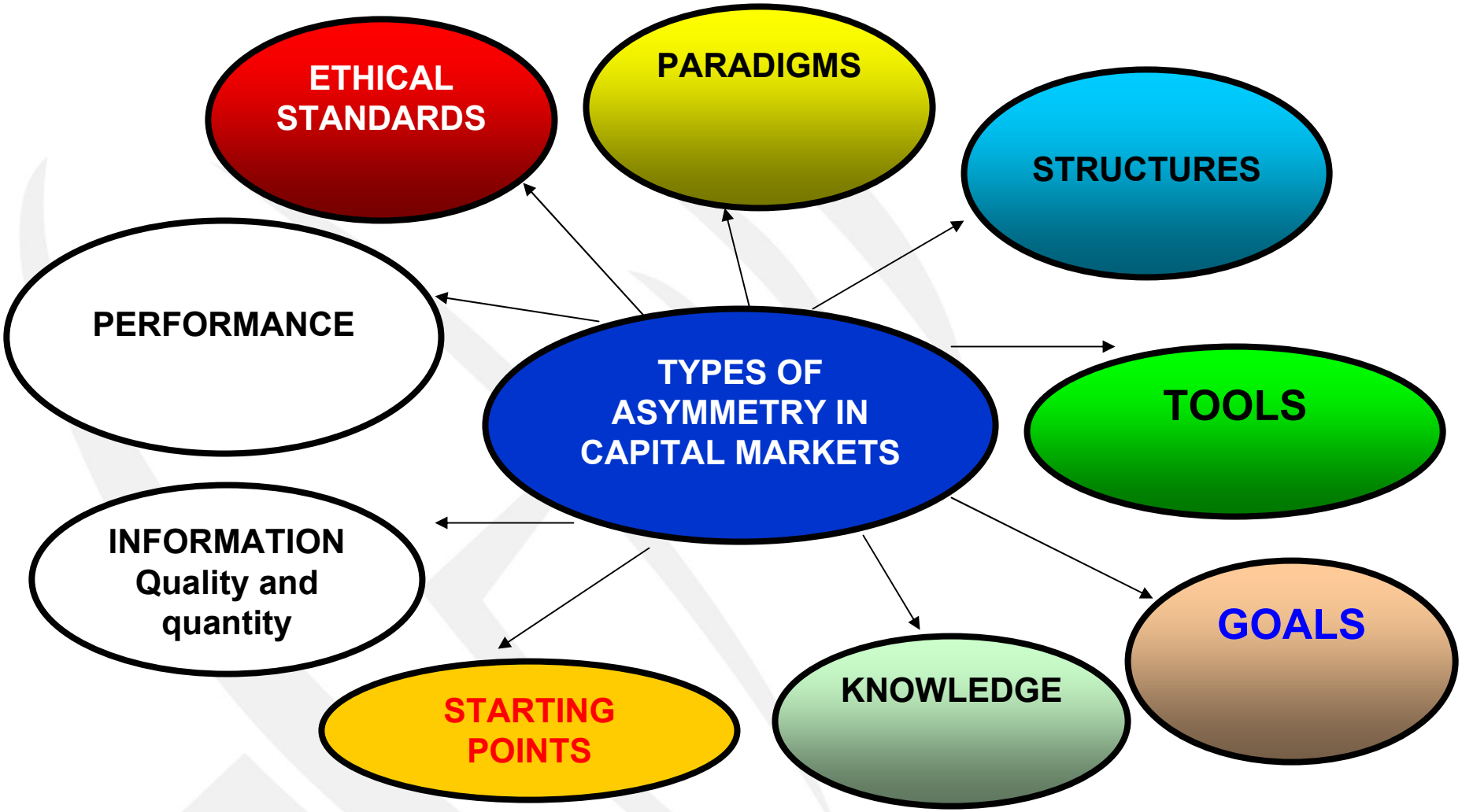
Factors Driving Asymmetry in Capital Markets



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Focus on Performance and Information Asymmetry

Performance Asymmetry

- Deviation from average practice (like an index) - BARRA
- Deviation from best practice (efficiency frontier)
- Deviation from worst practice (inefficiency frontier)
- Speed and acceleration of (+ or –) performance (learning or unlearning)

Information Asymmetry

- True versus false information (binary)
- Perfect (full) versus imperfect (partial) information (continuous/discrete)
- Timing of accurate warnings (early versus late warning signals)- asynchronicity of information (continuous- discrete)

- By improving our measurement of information asymmetry, we can enhance our understanding of performance asymmetry and its future path.

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Which Portfolio Best Represents the Allocative Efficiency of Investment?

Changes to Sector Distribution of World Equity Markets in Market Crash of 2000-2001

		Feb. 2000	Sept 2001
1.	Resources	5%	8%
2.	Basic industries	4%	4%
3.	General Industrials	8%	8%
4.	Cyclical Consumer Goods	3%	3%
5.	Non-Cyclical Consumer Goods	12%	20%
6.	Cyclical Services	11%	11%
7.	Non-Cyclical Services	13%	9%
8.	Utilities	3%	4%
9.	Financials	17%	23%
10.	Information Technology	24%	11%

file:///C:/Documents%20and%20Settings/paca/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/3BXBZ5WS/04lectequityiofii%5B1%5D.ppt#504,27,Changes to Sector Distribution of World Equity Markets in Market Crash of 2000-2001

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Rational Expectations and the Bubble

NO

Real Return on a Diversified NASDAQ Portfolio Q1 2005 since…

- March 1995: 9.3%
- September 1995: 7.3%
- Dec 1996 ("irrational exuberance" speech): 8.1%
- April 1997: below the long run NASDQ average of 6.5 % points
- October 1998: below +3% points (opportunity cost of capital in bonds)
- November 1998: negative real returns

Re: "the huge bath taken by investors from February 2000 to September 2002" ….:" "It is next to impossible to interpret these events within the context of the rational expectations model, in which stock prices provide the best possible forecasts of future values. Only those who want their colleagues to doubt their rationality even try." Brad DeLong FT 19 April 2005

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Are Capital Markets Getting More Efficient?

Market	Dominant characteristics	Source
Foreign Exchange	Overshooting & Undershooting	Rudiger Dornbusch
Commodities	Overshooting & Undershooting	Various Jeffrey Frankel (FT 15/04/05)
Equities	Overshooting & Undershooting	???

Our evidence consistently demonstrates that equity markets are constantly beset by overshooting and undershooting

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Are Capital Markets Getting More Efficient?

So, how timely and accurate are traditional rating approaches and current rating models in measuring the financial health of companies which issue debt and equity?

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Forms of Bias in Traditional Ratings

FORM OF BIAS	EXPLANATION	IMPACT
1. Scale bias	bigger is better/ proxy for risk	Rating error
2. Brand Name Bias	Brand name is wrongly assumed to be a good proxy for risk.	Rating error
3. Lag bias (rating stickiness)	Ratings lag share price and financial performance	Rating error
4. Subjectivity bias	Rating analyst may be captured	Rating error
5. Flatlining	Big 3 ratings may be unchanged for years	Rating error
6. Use of ratings floors	Bunching at Triple B to avoid market disruption and self-fulfilling prophesy	Rating error
7. Absolute risk measurement bias	Get relativities right, but not how high, how low and gap measurement.	Rating error
8. Assumption that the company has perfect information	All directors and senior executives have perfect knowledge of what is going on inside the company.	Rating error

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Forms of Bias in Rating Models

FORM OF BIAS	EXPLANATION	IMPACT
1. Scope bias	Focuses on narrow range of variables (4-12)	Rating error
2. Market subjectivity bias	Uses equity prices as inputs (Options pricing models)	Rating error
3. Pan industry bias	Ignores an industry specific approach: weights must be industry specific	Rating error
4. Spatial small sample bias	Models using less than 100,000 firms have unstable weights	Rating error
5. Temporal small sample bias	Models using less than 20 years have unstable weights	Rating error
6. Short term bias (1 year)	Past trends are lost; slopes of curves not calculated	Rating error
7. Short forecast horizon bias (next 12 months)	Absence of medium and long term outlook trends prevent better analysis of stresses facing the company	Rating error
8. Assumption that the company has perfect information	See Servigny and Renault, 2004, Measuring and Managing Credit Risk, McGraw-Hill p. 4	Rating error

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Forms of Bias in Rating Models

FORM OF BIAS	EXPLANATION	IMPACT
9. Data availability	Inadequate scale and scope of empirical data	Rating error
10. National bias	Avoids cross-country approach and falls prey e.g. to excessive tolerance of high leverage.	Rating error
11. Homogeneity of firms	All firms are not alike.	Rating error
12. Limited firm behaviour	Firms make many moves	Rating error
13. One unique determinant of default	liquidity, equity/assets, or debt/assets or volatility in ROR are treated as the best predictors of default.	Rating error
14. Default risk assumed to be constant over time	Default risk changes with the financial health of firms	Rating error
15. Benchmarking is based on "average" not "best-to-worst" practice.	Ignores measuring distance to the frontier	Rating error

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FORM OF BIAS	EXPLANATION	IMPACT
16. Bondholders can't force firm into default prior to maturity	Simplifying, unrealistic assumption	Rating error
17. Default occurs if the value of the equity drops below the debt level.	Simplifying, unrealistic assumption of gradual decline (geometric Brownian motion)	Rating error
18. Value of firm is perfectly observable	Simplifying unrealistic assumption of perfect information; market value of the debt is not always apparent; same is true for assets such as goodwill and off-balance sheet items	Rating error
19. Riskless interest rates are constant through time and maturity	Simplifying unrealistic assumption	Rating error
20. No room for renegotiation of debt	Simplifying unrealistic assumption	Rating error
21. Only one type of debt	Most firms have multiple types of debt	Rating error

Focus for Measuring Asymmetry

Focus on OUTCOMES: gains and losses in debt and equity markets to provide a benchmark for accuracy

How do you combine an analysis of performance asymmetry and information asymmetry? Compare trends in the financial health of companies with the share price trends

Most likely outcome is an asymmetrical distribution of outcomes not a normal or log normal distribution

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Rapid Ratings		Agency	Agency	EDF
A1	95	AAA	Aaa	0.02
A2	90	AA	aa2	0.04
A3	85	AA-	aa3	0.06
A4	80	A	A2	0.11
B1	75	A-	A3	0.19
B2	70	BBB	Baa2	0.31
B3	**65**	**BBB-**	**Baa3**	**0.5**
B4	60	BB+	Ba1	0.78
C1	55	BB	Ba2	1.2
C2	50	BB-	Ba3	1.7
C3	45	B+	B1	2.6
C4	40	B	B2	3.6
D1	35	B-	B3	5
D2	30	CCC+	Caa1	6.7
D3	25	CCC	Caa2	8.8
D4	20	CCC-	Caa3	11
E1	15	CC	Ca	14
E2	10	C	C	17
E3	5	D	D	20
E4	0			

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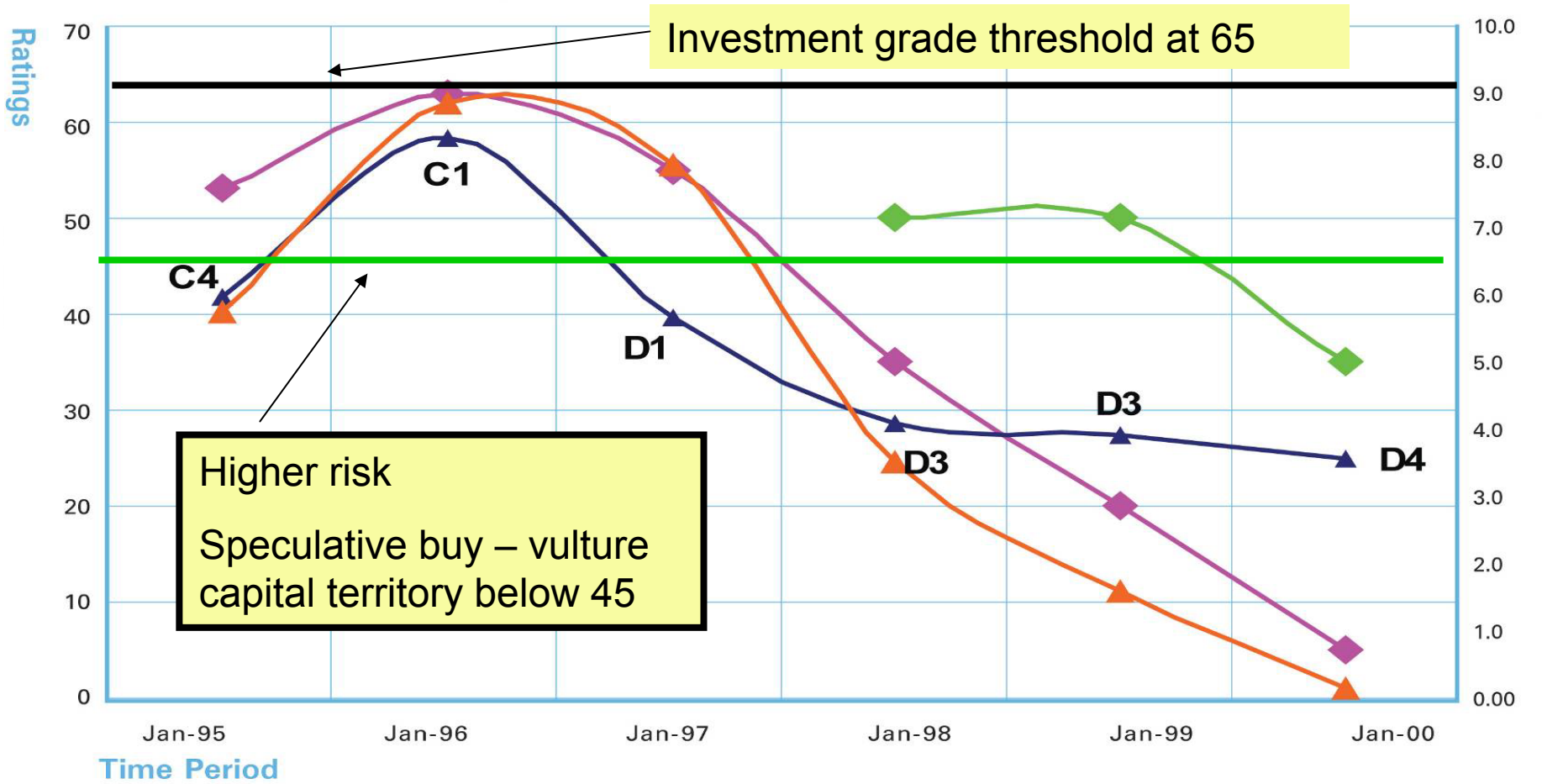
Worldtex Credit Ratings



Worldtex Files Chapter 11, Plan -- March 13, **2001**

MP is the earlier name for Rapid Ratings

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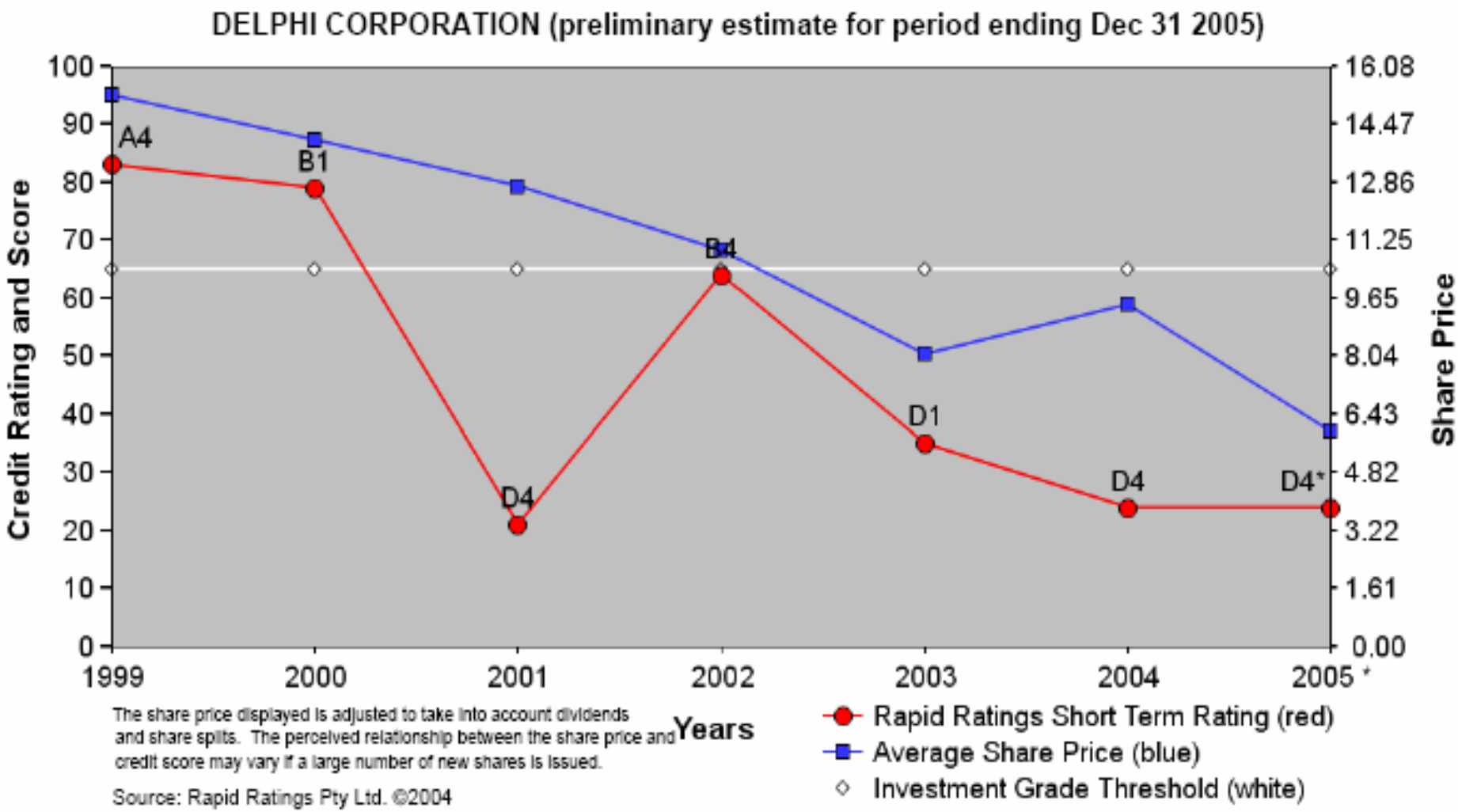
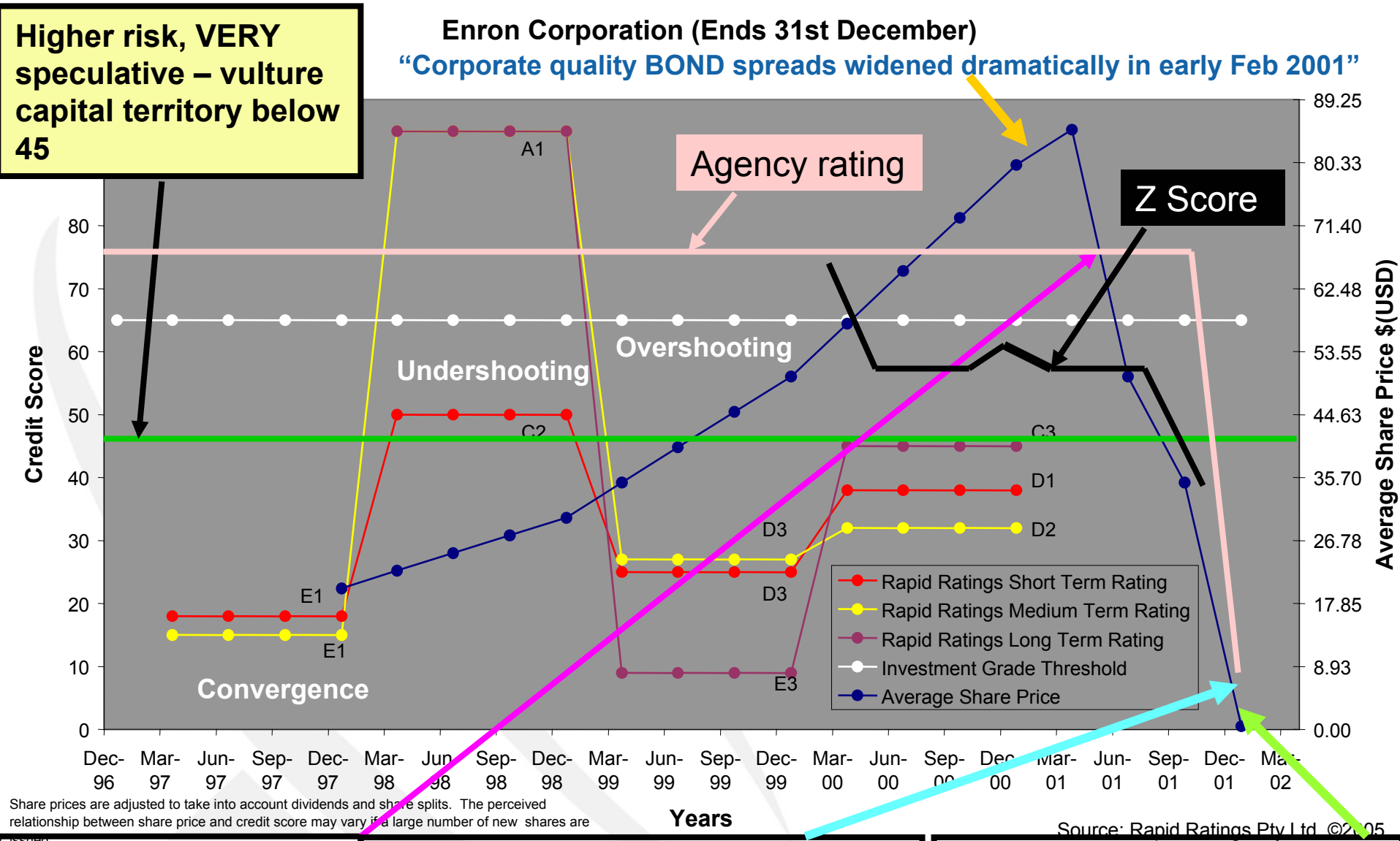
Delphi Bankruptcy October 2005

Figure 1: Equity Risk Analysis: Relative Trends in the Share Price and the Short Term Credit Rating versus the Investment Grade Threshold



Enron Bankruptcy Dec 2001

Higher risk, VERY speculative – vulture capital territory below 45



Share prices are adjusted to take into account dividends and share splits. The perceived relationship between share price and credit score may vary if a large number of new shares are issued.

Source: Rapid Ratings Pty Ltd ©2005

KMV downgrade MAY

Nov 28 Agency Downgrades

"BUY": investment banks

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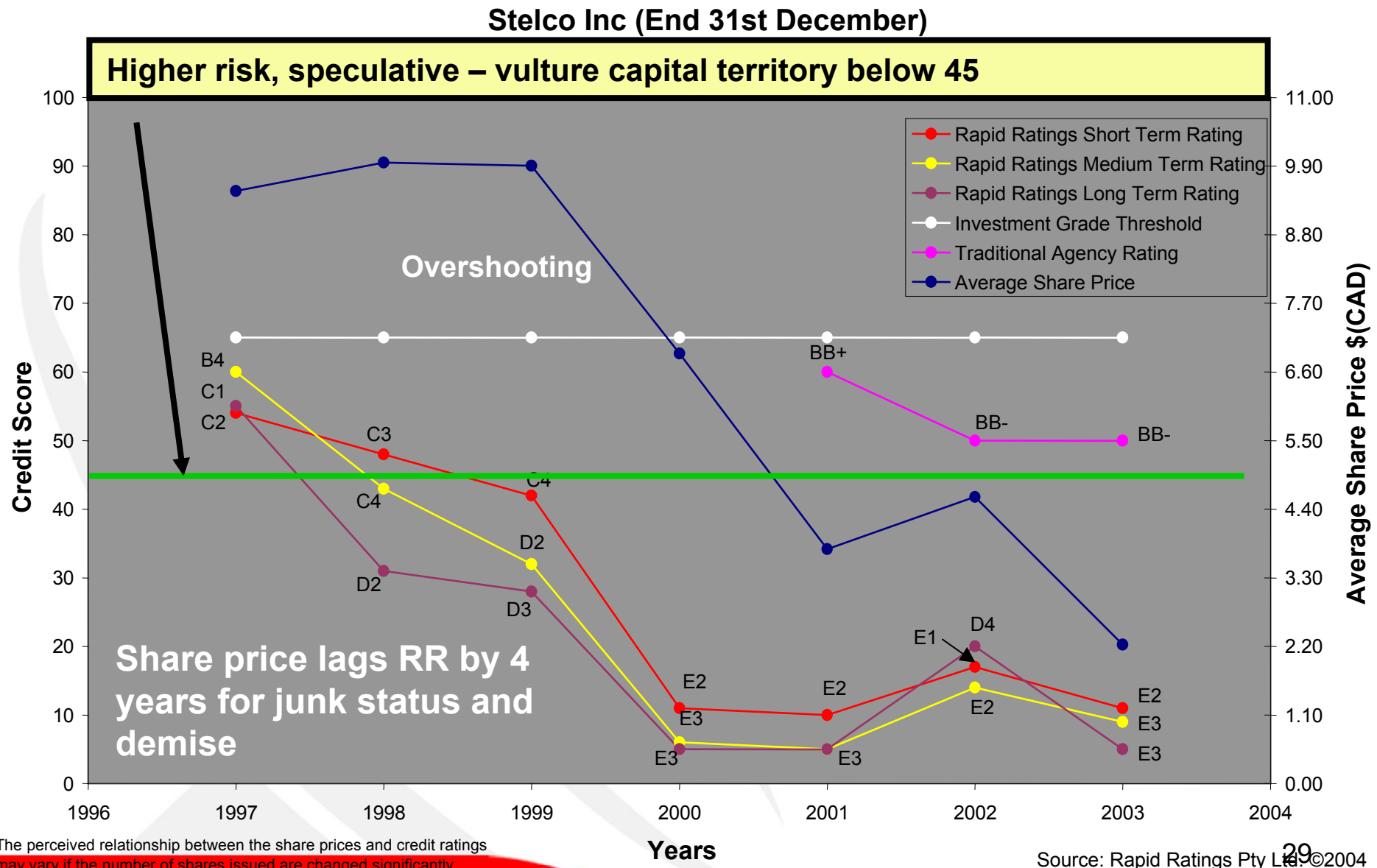
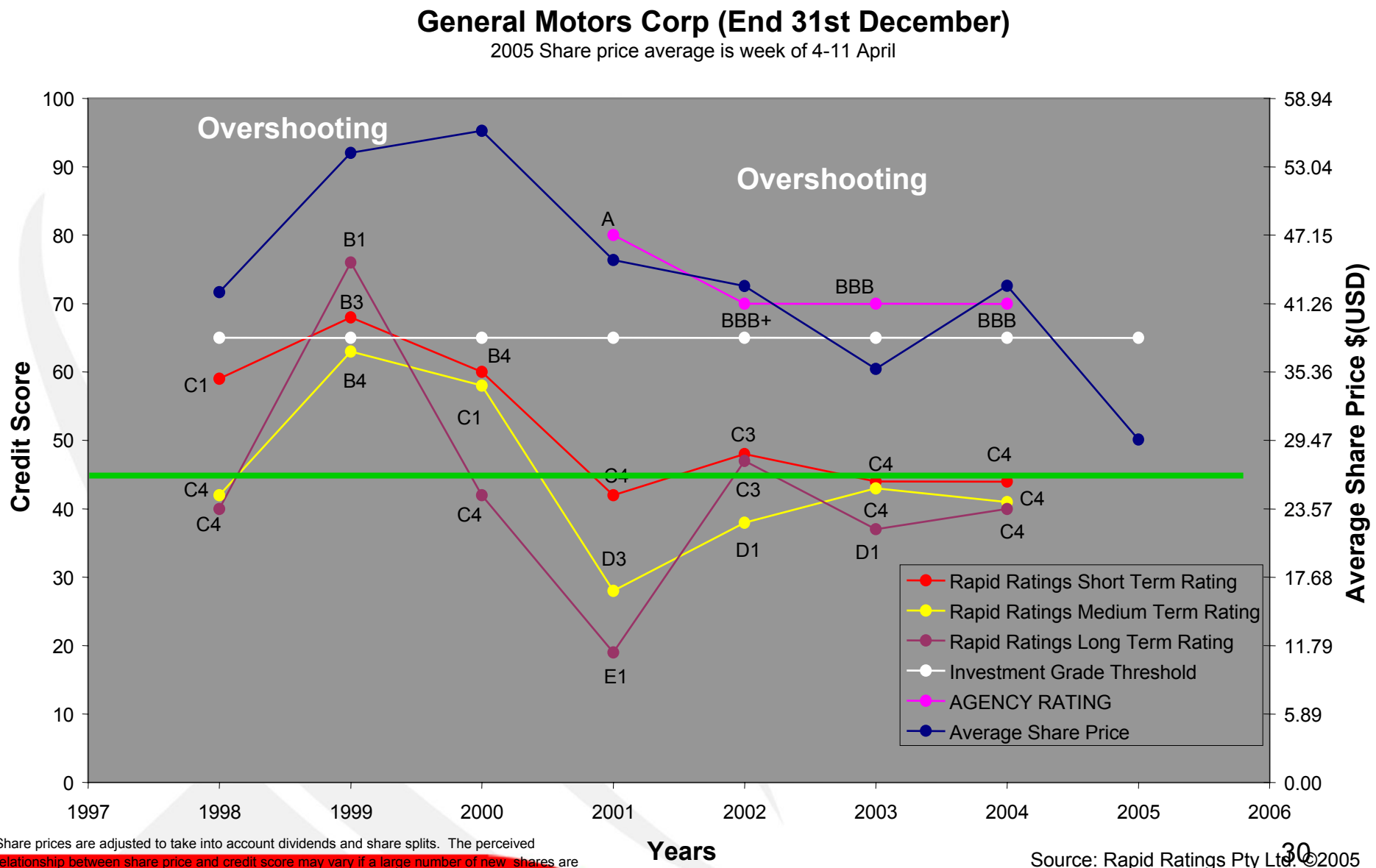
Stelco bankruptcy January 2004



The perceived relationship between the share prices and credit ratings may vary if the number of shares issued are changed significantly.

Source: Rapid Ratings Pty Ltd. ©2004

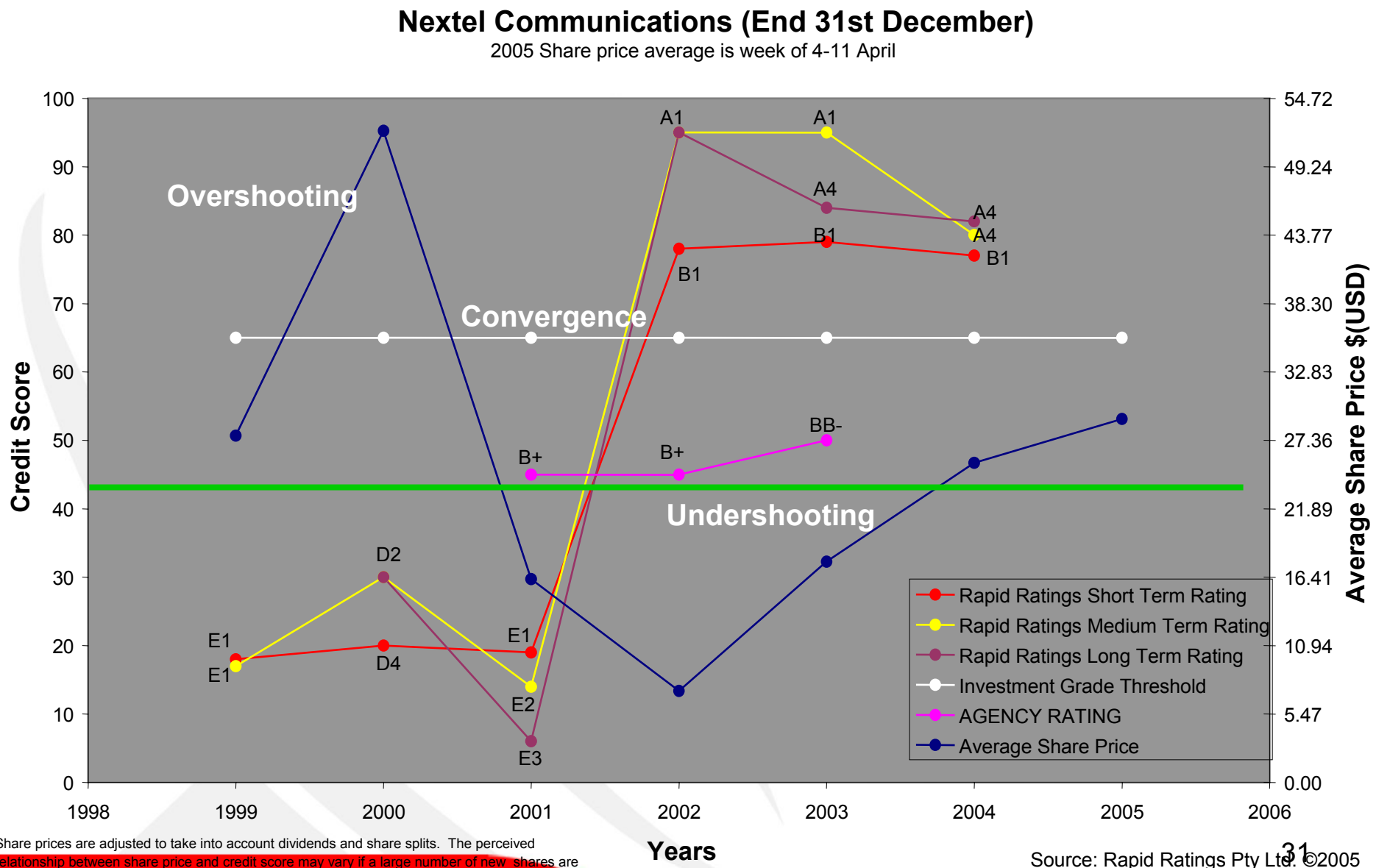
General Motors Downgrade 2005



Share prices are adjusted to take into account dividends and share splits. The perceived relationship between share price and credit score may vary if a large number of new shares are issued.

Source: Rapid Ratings Pty Ltd. ©2005

Anticipation of Share Price Rises



Share prices are adjusted to take into account dividends and share splits. The perceived relationship between share price and credit score may vary if a large number of new shares are issued.

Source: Rapid Ratings Pty Ltd. ©2005

Independent Backtesting Results of Rapid Ratings

Re: % of times fall/rise in share price anticipated by RR credit rating
Period 1998-2004 Over 1500 companies

Falls in Share Prices

•share price drop is at least 10% and RR credit rating is either: (1) always less than investment grade or fell below investment grade during the period or where fall in credit rating was at least 50% of the fall in the share price, but did not fall below investment grade.

Success rate: 80%, of which 89% have a lead of one year or more.

Rises in Share Prices

Similar methodology

Success rate: 80%, of which 85% have a lead of one year or more.

More accurate ratings help to alleviate effects of asymmetry

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Does Independent Research Make a Difference?

Sells in 2004 as Percentage of total recommendations: 9.1%

Brokers……9.1%

Independent Research Providers…… 8.7%

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