

Spring 2023

The people who carry the torch in accounting are in a noble profession, yet these people also gave us Enron.—Charlie Munger

Avoiding a stock market catastrophe is beneficial for your financial and mental health. Examples of high-risk businesses that attracted highly acclaimed value investing teams include Valeant and, most recently, Carvana. They didn't see it coming and were in for a catastrophic stock price decline.

Identifying such high-risk companies up front is extremely hard, and I don't know of any organization with a stellar track record of accurately predicting bankruptcies.

There is quite a difference, though, between predicting bankruptcy and avoiding it. There are professional investment teams out there that could have prevented billion-dollar losses by just doing this. Welcome to the bankruptcy edition. Enjoy!

Bankrupt

The origin of the word "bankrupt" comes from the Italian "banca rotta." When a Northern Italian moneylender went bankrupt, they would literally break the bench they worked on to show that they were no longer in business.



A few years ago, I began developing a "digital risk rating agency," or a "risk rating robot," if you will, in which risk ratings were provided only by an algorithm rather than by humans. To ensure that possible stock market catastrophes were spotted earlier and better, one of the new concepts was to incorporate "bankruptcy data patterns." The idea

was that the software would become better over time by continuously adding more of them.

What is "a bankruptcy data pattern?" If a company filed for bankruptcy, I would check for every possible risk warning signal in the financial data and add this combination of "company-specific risk profile data," or "risk data footprint," if you will, as a tighter benchmark for risk. And by doing that, for example, many of the ideas from the classic book "Financial Shenanigans" by Howard Schilit were also incorporated into this approach.

The result was a risk rating methodology with a 1 rating as the equivalent of very low risk and a 10 rating as the equivalent of very high risk. What I hoped for was that the 10 ratings, over time, would become synonymous with corporate bankruptcy. Unfortunately, that goal was not achieved. As I said before, I don't know of any financial institution with a stellar track record of predicting bankruptcies. If you do, please let me know.

As time went on, I discovered that it was challenging to explain, for example, the distinction between a 6 and a 7, in terms of practical business sense. Some respected rating agencies even provide intermediate ratings of (+) or (-) to, say, their 6 rating, which, as an investor, I find excessively secure and hard to grasp. Here is a more simple version of The Value Firm® Risk Rating methodology:

Score	Meaning	
5	Very high risk	Too many identifiable signs of possible financial distress.
4	High risk	Many identifiable signs of possible financial distress.
3	Medium risk	Companies already more susceptible to the unexpected.
2	Low risk	Good company with a low risk of financial distress.
1	Very low risk	High quality company with almost zero risk of financial distress.

Scores of The Value Firm® Risk Rating Algorithm.

The purpose of these risk ratings is to provide investors, auditors, fund managers, short sellers, and other external users with a simple system of graduation by which "the probability of financial distress of a company within 2 to 3 years" may be gauged.

In the attachment, you'll find 600+ publicly traded companies that experienced a steep stock price



decline and their risk rating the year before. They were all rated three or above. If you simply stayed within the circle of the low risk ratings of 1 and 2, you would have avoided all 600+ of these catastrophes.

The only company able to score a 2 rating and still heading for disaster was Wirecard. The Wirecard scandal was a series of corrupt business practices and fraudulent financial reporting that led to the insolvency of Wirecard, a payment processor and financial services provider headquartered in Munich, Germany.

This risk rating methodology is designed for non-financial companies only, and although the algorithm is able to assign a rating to financial companies as well, it is advised to ignore those ratings. Assigning meaningful risk ratings to financial companies is outside my circle of competence. Also, the algorithm needs 5 years of data to assign a meaningful rating. Let's have some fun over here and relive three classic catastrophes.

Enron

Enron, once a highly successful American energy trading firm with headquarters in Houston, Texas, went bankrupt in 2001 due to a combination of fraudulent accounting practices and a lack of financial transparency.

Enron was using complex financial instruments and off-balance sheet transactions to hide its true financial position from investors, regulators, and the public. This allowed the company to overstate its profits and hide its debts, making it seem like a much more profitable company than it actually was.

However, as the company's debts continued to pile up and its accounting practices became more and more fraudulent, investors eventually caught on and began to lose confidence in the company. This loss of confidence caused Enron's stock price to plummet, leading to a liquidity crisis that ultimately forced the company to declare bankruptcy.

Enron was noted as the worst audit failure and the biggest bankruptcy reorganization in American history at the time. The scandal surrounding Enron's collapse led to a number of changes in corporate governance and accounting practices,

including the passage of the Sarbanes-Oxley Act in 2002, which aimed to improve transparency and accountability in corporate financial reporting.

What about the credit-rating agencies? Several credit-rating agencies lowered Enron's long-term debt below investment grade, but only after the announcement concerning the restatement of its financial statements.

The Value Firm® Risk Rating before 2001 was 4, which is the equivalent of "high risk," and with that, "unsafe." Enron, while cooking its books, still failed to qualify for the low-risk 1 or 2 ratings.

The fact that Enron and other energy trading companies used the "gain-on-sale" accounting approach for their long and complex energy deals was one of the factors that was notified by renowned short seller Jim Chanos of Kynikos Associates. According to Chanos' experience with businesses that had adopted this accounting method, management was too tempted to be overly aggressive when making assumptions about the future, and earnings could essentially be produced "out of thin air."

Additionally, Enron's cost of capital was higher than the widely accepted 7% return on capital that it claimed to have, meaning that despite declaring profits to its shareholders, the company was not actually adding real-world value. This is why Chanos grew skeptical before the shit hit the fan.

Worldcom

WorldCom, a telecommunications company, went bankrupt in 2002 due to a massive accounting scandal. The company had engaged in accounting fraud, which involved inflating its revenues and hiding its expenses in order to make the company's financial performance appear better than it actually was.

At its height, WorldCom was one of the largest long-distance providers in the United States. The company was founded in 1983 as Long Distance Discount Service. It was established after the breakup of AT&T by Murray Waldron, William Rector, early investor Bernard Ebbers, and their business partners.



The fraud was discovered when a WorldCom internal auditor discovered accounting irregularities and brought them to the attention of the company's executives. After an investigation, it was found that the company had inflated its revenues by more than \$11 billion, making it one of the largest accounting scandals in history.

The scandal led to the resignation of the company's CEO, Bernard Ebbers, and several other top executives. In addition to bankruptcy, the company also faced a number of legal and regulatory actions, including fines and penalties. In the end, the business emerged from bankruptcy, changed its name, and sold Verizon its network assets.

The WorldCom scandal highlighted the need for greater accountability and transparency in corporate financial reporting, leading to changes in regulations and corporate governance practices aimed at preventing similar scandals from occurring in the future.

In the Worldcom 2001 annual report, the company reports the senior debt ratings by the top 3 rating agencies:

Rating Agency	Rating
Moody's Investors Service	A3
Standard & Poor's	BBB+
Fitch Ratings	BBB+

All three rating agencies classified Worldcom within their "safe" investment grade ratings in 2001. The Value Firm® Risk Rating was a 4, meaning high risk and, with that, "unsafe."

It wasn't that hard to find out that in 2001 the 2, 3, 4, 5, and 6-year cumulative free cash flows, simply defined as operational cash flow minus capex, were negative. Actually, this warning signal was already flashing in the year 2000.

	1996	1997	1998	1999	2000	2001
CFFO	781	1295	2534	11005	7666	7994
Capex	-875	-3153	-4523	-8761	-11484	-7886
FCF	-94	-1858	-1989	2244	-3818	108

CFFO: Cash Flow from Operations

Capex: Capital Expenditures

FCF: Free Cash Flow, simply defined by CFFO minus Capex.

And although a few consecutive years of negative cumulative free cash flow are not synonymous with

potential bankruptcy, they don't inspire a high degree of confidence either.

What boggles my mind is the number of financial professionals employed by these rating agencies who were unable to identify Worldcom as a risky company by then. Amazing!

It seems as if **The Value Firm® Risk Ratings** are much stricter in their criteria for identifying potential catastrophes, but that comes with a price. I'm quite convinced that, after thorough due diligence, you will find many companies in the "uninvestable pool" that might turn out to be quite compelling ideas. If your goal is to avoid catastrophe at all costs, I wouldn't bother too much about that since there are so many companies left in the "investable pool."

Valeant

Valeant Pharmaceuticals International, Inc. (now Bausch Health Companies, Inc.) faced financial difficulties and ultimately filed for bankruptcy protection in 2019. The CEO of the pharmaceutical company Valeant, Michael Pearson, a former McKinsey consultant, had created a strategy focused on acquisitions, cost-cutting, and price increases for sometimes life-saving medications. One of Valeant's top owners and well-known hedge fund managers, Bill Ackman, compared Pearson to Warren Buffett, which, in hindsight, is actually quite funny.

Buffett, by then, had declined to invest in Valeant due to its unsustainable growth model and the management's lack of integrity. Charlie Munger later said that Valeant's pricing strategy was "deeply immoral" and that Valeant was "a sewer," adding that the directors deserve "all the opprobrium they are getting."

Valeant had evolved into an overly aggressively acquisitive company and operated more like a barbaric hedge fund that just happened to specialize in pharmaceuticals. The company did not invest money in the development and research of new medications. Instead, it acquired entire firms and existing products from other pharmaceutical manufacturers, continuously raising the cost of the drugs it had purchased and funding the acquisitions by borrowing heavily.



The company pulled every trick out of the financial engineering handbook. Investors and analysts found it hard to assess how effectively purchased companies were performing because of the opaque accounting practices Valeant adopted. The shady relationship with Philidor did not make the suspicion any better.

Valeant had to restate its financial results for 2014 and 2015 after identifying some sales to Philidor that should have been recognized when products were dispensed to patients. Finally, the Canadian drugmaker's fortunes improved amid fraud allegations and criminal investigations. The company has since restructured and changed its name to Bausch Health Companies Inc. in an attempt to move past its troubled history.

In its 2015 annual report, Valeant reported a Standard & Poor's credit rating of BB- on October 30, 2015. And in its 2014 report, published on February 22, 2015, the company reports a Ba3 credit rating for Moody's Investors Service. The Moody's rating is slightly above "speculative grade", and the Standard & Poor's rating is "speculative grade", or way too risky. The Value Firm® Risk Rating was a 3, and although Valeant was convincingly creative in their attempt to hide their misconduct, they most certainly did not score a "safe" 1 or 2 rating.

One of the Valeant "believers" was the Sequoia Fund. By then, the Sequoia Fund had been one of the few funds to continuously outperform the market for more than 40 years, making it the envy of Wall Street. At its height, the fund, which was well-known for its close ties to Warren Buffett, oversaw \$9 billion. It was in such high demand that it stopped accepting new investors in 2013.

Then the fund made an investment in Valeant Pharmaceuticals, a then-unknown pharmaceutical company, which would ultimately prove to be a hidden time bomb. The price of Valeant increased dramatically, from \$32 to a high of \$263. Sequoia did not sell even one share, allowing Valeant to grow to almost 30% of the fund's assets.

And then, the Valeant shares lost nearly 92% of their value. The investment firm that runs the Sequoia Fund was sued by shareholders who claim it recklessly took a huge stake in an embattled drug company, causing more than \$2 billion in losses. Bill

Ackman lost even more than \$4 billion on his Valeant investment.

So here we are

Many, many billions of dollars of investor money were lost as the result of fraud, bankruptcy, and other catastrophes. This research shows that you can avoid an enormous amount of catastrophe by staying in the circle of low-risk 1 and 2 ratings.

To put these ratings into perspective, please find below the S&P 500 large cap ratings, the S&P 400 midcap ratings, and the S&P 600 small cap ratings, both in numbers and in percentages.

In numbers:

Rating (#)	S&P 500	S&P 400	S&P 600	Total
1	53	23	28	104
2	120	59	57	236
3	258	243	328	829
4	66	71	172	309
5	6	5	14	25

In percentages:

Rating (%)	S&P 500	S&P 400	S&P 600	Total (%)
1	10,5	5,7	4,7	7,0
2	23,9	14,7	9,5	16,0
3	51,3	60,6	54,8	55,5
4	13,1	17,7	28,7	19,8
5	1,2	1,2	2,3	1,6

The Value Firm® Risk Ratings methodology identified 23% of low-risk stocks in these three indices, which is, in my opinion, a very large fishing pond. Over time, these ratings, which can be assigned globally, will become available as a service.

Thank you for reading my letter.

Peter

Peter Coenen
Founder & CEO
The Value Firm®
28 March 2023

Post scriptum.

As an investment writer and researcher, ChatGPT comes in handy. For instance, by asking ChatGPT a few simple questions, you get quite a detailed first glimps of a company, in terms of its competitive advantages and its competitive landscape instantly. Here is what ChatGPT tells you about Micron.

Micron Technology is a leading provider of memory and storage solutions and has several competitive advantages in the market. Here are a few of them:

- **Technological expertise:** Micron is known for its strong technological expertise in memory and storage solutions, which allows the company to produce high-quality products that meet the needs of its customers. The company has invested heavily in research and development, which has led to innovations such as the development of 3D NAND technology, and has a vast portfolio of patents to protect its intellectual property.
- **Manufacturing Capabilities:** Micron has a robust manufacturing infrastructure with a significant capacity for production. The company has invested in state-of-the-art manufacturing facilities and equipment, which enable it to produce high-quality memory and storage solutions at scale.
- **Diversified Product Portfolio:** Micron has a diversified product portfolio, which includes DRAM, NAND, NOR flash, and 3D XPoint memory technologies. This allows the company to cater to a broad range of customers, from consumers to enterprise clients.
- **Strong brand:** Micron is a well-known brand in the memory and storage industries. The company has a reputation for producing high-quality products that deliver reliable performance.
- **Focus on Sustainability:** Micron is committed to sustainability and has implemented various initiatives to reduce its environmental impact. This commitment to sustainability resonates with customers, who are increasingly concerned about the environmental impact of the products they use.

- **Strong customer relationships:** Micron has established strong relationships with its customers, which has allowed the company to understand their needs and develop products that meet their specific requirements. This has helped Micron to maintain a loyal customer base and gain new customers through positive word-of-mouth referrals.
- **Micron Technology's vertical integration strategy** is unique in the semiconductor industry because it allows the company to have control over the entire manufacturing process of its products. This means that Micron designs, manufactures, and markets its own semiconductor products, including memory chips and storage devices. By having control over every aspect of the manufacturing process, Micron can ensure the highest quality and reliability of its products. The company also has greater flexibility in responding to changing market demands and can more easily make adjustments to its manufacturing process as needed. Additionally, Micron's vertical integration strategy enables the company to capture more value from each product it produces. By controlling every stage of the manufacturing process, Micron can reduce costs and increase efficiency, resulting in higher profit margins.
- **Financial strength:** Micron has a strong financial position, which allows the company to invest in research and development and expand its manufacturing capabilities. This financial strength also provides a cushion against market fluctuations and economic downturns.

The competitive landscape for Micron is dynamic and constantly evolving due to the nature of the semiconductor industry.

- In the DRAM market, Micron competes with other major players such as Samsung and SK Hynix, which are also major manufacturers of DRAM memory chips. These companies have a strong global



presence and a large market share, which creates intense competition for Micron.

- In the NAND flash memory market, Micron competes with Samsung, Toshiba, and Western Digital, which are also major manufacturers of NAND flash memory chips. These companies have a strong foothold in the market and compete aggressively with Micron.
- Micron also faces competition in the emerging non-volatile memory market from companies such as Intel and Western Digital, which are developing new types of memory solutions such as 3D XPoint and MRAM.

Overall, the competitive landscape for Micron is intense, and the company must continue to invest in research, development, and innovation to stay ahead of the competition.

I find it astonishing what ChatGPT can do in no time. It's a fabulous timesaver for those who study huge amounts of companies.

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Everybody makes mistakes now and then. If you find any, let me know: peter@thevaluefirm.com. Always do your own research!



The Value Firm® Risk Ratings

Bankruptcies & Catastrophes

1-800 Attorney Inc	5	Aradigm Corp	5
5barz International Inc	5	Aralez Pharmaceuticals Inc	5
6d Global Technologies Inc	4	Armco Metals Holdings Inc	4
AAC Holdings	4	Armstrong Flooring Inc	5
Abengoa	5	Aryx Therapeutics Inc	5
Abtech Holdings Inc	5	Ascena Retail	4
Accentia Biopharmaceuticals Inc	5	Atlas Energy Group LLC	4
Aceto	3	Atlas Financial Holdings Inc	5
Achaogen Inc	5	Atlas Resource Partners Lp	4
Acme Communications Inc	4	Avantair Inc	3
Acre Realty Investors Inc	5	Avaya Holdings	4
Actua Corp	3	Avianca Holdings	4
Acura Pharmaceuticals Inc	5	Axesstel Inc	4
Acusphere Inc	5	Axion International Holdings Inc	4
Adhera Therapeutics Inc	5	Azure Midstream Partners Lp	4
Advanced Battery Technologies Inc	3	Bakken Resources Inc	4
Advanced Environmental Recycling Technologies Inc	3	Baltia Air Lines Inc	5
Advanzeon Solutions Inc	4	Banro Corp	4
Adynxx Inc	5	Basic Energy Services Inc	4
Aegean Marine Petroleum Network Inc	4	Bbhc Inc	5
Aeon Global Health Corp	5	Beacon Power Corp	5
Aeropostale Inc	5	Beverly Hills Bancorp Inc	4
Affirmative Insurance Holdings Inc	5	Bg Medicine Inc	5
Affymax Inc	5	Big Buck Brewery & Steakhouse Inc	5
Ag&e Holdings Inc	5	Bioamber Inc	5
Ahold	4	Bioject Medical Technologies Inc	4
Akorn	4	Bionovo Inc	5
Alabama Aircraft Industries Inc	4	BioRestorative Therapies	5
Alanco Technologies Inc	5	Bioshaft Water Technology Inc	4
Allena Pharmaceuticals Inc	5	Black Stallion Oil & Gas Inc	5
Allied Nevada Gold Corp	4	BlackRidge Technology International	5
Alon Blue Square Israel Ltd.	3	Blockbuster Inc	4
Alpha Natural Resources Inc	4	Blonder Tongue Laboratories Inc	5
Alpine Group Inc	4	Blue Earth Inc	5
Alumifuel Power Corp	5	Bluefire Renewables Inc	5
Alvarion Ltd.	5	Bodisen Biotech Inc	5
Amacore Group Inc	4	Bonanza Creek Energy	4
Ambassadors Group Inc	4	Boomerang Systems Inc	4
Ambassadors International Inc	5	Bpz Resources Inc	5
Ambient Corp	4	Breitbart Energy Partners Lp	4
AMC Entertainment	4	Brekford Traffic Safety Inc	4
American Apparel Inc	4	Briggs & Stratton	4
American Bio Medica Corp	5	Bright Mountain Media Inc	4
American Caresource Holdings Inc	5	Bristow Group Inc	5
American Defense Systems Inc	4	Broadvision Inc	5
American Eagle Energy Corp	4	C&j Energy Services Inc	4
American Locker Group Inc	4	Cache Inc	5
American Spectrum Realty Inc	4	Cal Dive International Inc	4
Ameritrans Capital Corp	4	California Resources Corp	4
Ampal-american Israel Corp	4	Callwave Inc	5
Andrea Electronics Corp	5	Calmare Therapeutics Inc	4
Applied Energetics Inc	5	Can Cal Resources Ltd.	5
Approach Resources Inc	4	Carbo Ceramics	5



Carillion	4	Delias Inc	5
Carvana	4	Denbury Resources Inc	4
Castle A M & Co.	4	Destination Maternity Corp	4
Catalina Lighting Inc	4	Dextera Surgical Inc	5
Cba Florida Inc	4	Diamond Offshore Drilling Inc	4
Cbl & Associates Properties Inc	3	Ditech Holding Corp	4
Cd International Enterprises Inc	5	Dolan Co.	3
Celadon Group Inc	4	Doral Financial Corp	3
Centennial Resources	4	Dragonwave Inc	5
Centric Brands	4	Ds Healthcare Group Inc	5
Cenveo Inc	4	Dts8 Coffee Company Ltd.	4
Champion Industries Inc	3	Dynavox Inc	3
Chaparral Energy Inc	4	Dynegy Inc	3
Chc Group Ltd.	5	E Digital Corp	5
Chemtura Corp	4	Echo Therapeutics Inc	5
Chesapeake	3	Ecmoho Ltd.	4
China Auto Logistics Inc	5	Ecosphere Technologies	5
China Cgame Inc	5	Eco-Stim Energy Solutions	4
China Digital Tv Holding Co Ltd.	4	Egalet	5
China Evergrande Group	4	Ekimas Corp	5
China Gengsheng Minerals Inc	4	Elegant Illusions Inc	4
China New Borun Corp	4	Emerald Oil Inc	3
China Techfaith Wireless Communication Technology	4	Emerge Energy Services Lp	4
China Xd Plastics Co Ltd.	4	Emergent Capital Inc	5
Christopher & Banks Corp	5	Endologix Inc	5
Ciber Inc	4	Energy Xxi Ltd.	4
Cicero Inc	5	Enherent Corp	3
Circle Entertainment Inc	5	Enova Systems Inc	5
Clearpoint Business Resources Inc	5	Enron	4
Cloud Peak Energy	4	Ensync Inc	5
Clovis Oncology Inc	4	EP Energy	4
Cn Resources Inc	4	Epirus Biopharmaceuticals Inc	5
Cobalt International Energy	5	Erba Diagnostics Inc	4
Comarco Inc	3	Erickson Inc	4
Competitive Companies Inc	5	Erin Energy	4
Comtex News Network Inc	3	Escalera Resources Co.	4
Conolog Corp	5	Essex Rental Corp	4
Conversion Services International Inc	5	Evergreen Energy Inc	5
Cootek(cayman)inc	4	Exco Resources	4
Copsync	4	Exco Resources	4
Corporate Resource Services Inc	4	Extraction Oil & Gas Inc	4
Cosi Inc	5	Fab Universal Corp	3
Covia Holdings Corp	4	Fairway Group Holdings Corp	4
Covista Communications Inc	5	Fang Holdings Ltd.	4
Cpi Corp	3	Far East Energy Corp	5
Crossroads Capital Inc	4	Ferrellgas Partners L P	3
Crossroads Impact	4	Fieldpoint Petroleum Corp	4
Crumbs Bake Shop Inc	5	Fifth Street Asset Management Inc	3
Ctc Media Inc	3	First High-school Education Group Co Ltd.	3
Cubic Energy Inc	4	First Nbc Bank Holding Co.	3
Cumulus Media Inc	4	Florida Group Inc	3
Cypress Environmental Partners Lp	3	Forbes Energy Services	4
Dakota Plains Holdings Inc	4	Foresight Energy LP	4
Data Translation Inc	5	Fortune Industries Inc	4
Datatrak International Inc	4	Forward Pharma A	5
Daystar Technologies Inc	5	Foundation Healthcare	3
Dean Foods Co	4	Fred's	5
Dearborn Bancorp Inc	3	Frontier Communications	4
Debenhams	4	FTD Companies	4



Fullnet Communications Inc	3	Imageware Systems Inc	5
Function(x) Inc	5	Immune Pharmaceuticals Inc	5
Fusion Connect Inc	4	Immunocellular Therapeutics Ltd.	5
Futurebiotics Inc	4	Imtech	5
Galenfeha Inc	5	Indiepub Entertainment Inc	5
Gasco Energy Inc	4	Infonow Corp	4
Gastar Exploration	4	Innovative Card Technologies Inc	5
Genco Shipping & Trading Ltd.	4	Insys Therapeutics	5
General Moly Inc	5	Integrated Environmental Technologies Ltd.	4
Generation Zero	5	Intelligent Highway Solutions Inc	5
Genoceia Biosciences Inc	5	Intercloud Systems Inc	5
Geoglobal Resources Inc	5	Interleukin Genetics Inc	5
Geopetro Resources Co.	5	Internap	4
Gex Management Inc	4	International Shipholding Corp	4
Gilla Inc	4	Interpharm Holdings Inc	5
Glen Rose Petroleum Corp	4	Interphase Corp	5
Global Arena Holding Inc	4	Inventergy Global Inc	5
Global Brokerage	4	Ion Geophysical Corp	4
Global Cord Blood Corp	3	Ireland Inc	5
Global Eagle Entertainment Inc	4	Iris Biotechnologies Inc	5
Globe Photos	4	Isonics Corp	5
Glori Energy Inc	5	J.C. Penny	3
GNC Holdings	4	Jaco Electronics Inc	4
Goodrich Petroleum Corp	4	James River Co..al Co	3
Gordmans Stores Inc	4	Jason Industries	4
Great Lakes Aviation Ltd.	3	Jg Wentworth Co.	5
Green Energy Management Services Holdings Inc	4	John D Oil & Gas Co.	3
Green St Energy Inc	5	Jones Energy	4
Greenhunter Resources Inc	5	Jrjr33 Inc	4
Grow Solutions Holdings Inc	5	Jupai Holdings Ltd.	5
Grupo Aeromexico	4	Just Energy Group Inc	4
Grupo Radio CentroB de CV	5	Kaleido Biosciences Inc	5
Guanwei Recycling Corp	4	Katy Industries Inc	4
Gulfmark Offshore Inc	4	Keyuan Petrochemicals Inc	4
Gulfport Energy Corp	4	Kid Brands Inc	4
Gwg Holdings Inc	4	Kips Bay Medical Inc	5
Halcon Resources Corp	4	Kona Grill	4
Hampshire Group Ltd.	5	L & L Energy Inc	4
Hancock Fabrics Inc	5	Laix Inc	4
Harrington West Financial Group Inc	3	Laura Ashley	4
Harvest Natural Resources Inc	4	Ldk Solar Co Ltd.	5
H-cyte Inc	4	Learning Tree International Inc	5
Healthwarehousecom Inc	4	Legacy Reserves Inc	4
Helios & Matheson Analytics Inc	5	Lentuo International Inc	4
Helios and Matheson Analytics	5	Lescarden Inc	5
Hercules Offshore Inc	4	Libbey	3
Hermitage Offshore Services Ltd.	5	Liberty Energy Corp	5
Hertz Global Holdings	4	Liberty Homes Inc	4
hhgregg	4	Life Partners Holdings Inc	5
Hi-crush Inc	4	Lilis Energy Inc	4
Hoku Corp	5	Link Motion Inc	5
Hooper Holmes	5	Linktone Ltd.	5
Hornbeck Offshore	5	Linnco LLC	4
Horne International Inc	4	Lonestar Resources	3
Horsehead Holding	5	Lonestar Resources Us Inc	4
Hyperdynamics	5	Longwei Petroleum Investment Holding Ltd.	4
Ignite Restaurant Group	4	Loud Technologies Inc	3
Iheartmedia	4	LSC Communication	3
Imagenetix Inc	5	Luby's	5



Mabvax Therapeutics Holdings Inc	5	Ore Pharmaceutical Holdings Inc	4
Mallinckrodt	3	Orexigen Therapeutics	4
Mallinckrodt PLC	3	Orphazyme A	5
Mast Therapeutics Inc	4	Oryx Technology Corp	5
Max Sound Corp	5	Otonomy Inc	5
McClatchy	5	P10 Industries Inc	3
McDermott International	4	Pab Bankshares Inc	4
Mecklermedia Corp	5	Pacific Drilling SA	5
Medical Imaging Corp	4	Pacific Sunwear Of California Inc	4
Medizone International Inc	5	Panacos Pharmaceuticals Inc	5
Medley Management Inc	4	Paradise Inc	4
Melinta Therapeutics Inc	5	Paragon Offshore PLC	3
Memorial Production Partners LP	3	Parker Drilling Co	5
Mendocino Brewing Co Inc	4	Parmalat SpA	4
Merriman Holdings Inc	5	Party City Holdings	4
Metal Storm Ltd.	4	Passport Brands Inc	3
Methes Energies International Ltd.	5	Patriot Gold Corp	4
Metro One Telecommunications Inc	5	Patriot National Inc	3
Microwave Filter Co Inc	5	Paybox Corp	3
Midway Gold Corp	5	Pdl Biopharma Inc	4
Miller Energy Resources Inc	4	Peabody Energy Corp	4
Mol Global Inc	3	Performance Sports Group Ltd.	3
Molecular Data Inc	4	Perfumania Holdings Inc	3
Mothercare	4	Pernix Therapeutics Holdings Inc	4
Motif Bio PLC	5	Perrigo Co	4
Msgi Technology Solutions Inc	5	Petroquest Energy	4
Mydx Inc	5	Petroshare Corp	4
Mygo Games Holding Co.	5	PG&E	4
Myrexix Inc	5	Phasebio Pharmaceuticals Inc	5
Nano Magic Holdings Inc	5	Phi Inc	5
National American University Holdings Inc	4	Pier 1 Imports	4
National Bank Of Greece SA	3	Pillarstone Capital Reit	3
National Lampoon Inc	4	Pioneer Energy Services	4
Neenah Enterprises Inc	4	Point Blank Solutions Inc	5
Neomedia Technologies Inc	4	Point360	5
Nephrogenex Inc	5	Poniard Pharmaceuticals Inc	5
Neurogesx Inc	4	Positiveid Corp	5
New Energy Systems Group	3	Positron Corp	5
New Oriental Energy & Chemical Corp	4	Postrock Energy Corp	3
New York Reit Inc	4	Powerwave Technologies Inc	4
Newage Inc	4	Premier Exhibitions Inc	4
Noble Corp	4	Primus Guaranty Ltd.	4
Noble Energy	4	Prism Technologies Group Inc	5
Noranda Aluminum Holding Corp	4	Progressive Gaming International Corp	5
Nord Resources Corp	4	Prospect Global Resources Inc	5
Nortel Networks Corp	4	Protalex Inc	5
North Atlantic Drilling Ltd.	3	Protea Biosciences Group Inc	4
Nostrum Oil & Gas	3	Proxim Wireless Corp	5
Novadel Pharma Inc	4	Puda Coal Inc	4
Novation Companies Inc	5	Pulse Beverage Corp	5
Nuvector	5	Pura Naturals Inc	5
Nuverra Environmental Solutions	4	Puradyn Filter Technologies Inc	4
Oasis Petroleum Inc	4	Puxin Ltd.	4
Oi SA	4	Pyxus International Inc	5
Omage	5	Qc Holdings Inc	3
Ominto Inc	4	Qkl Stores Inc	5
One Bio Corp	3	Quantum Fuel Systems Technologies Worldwide Inc	5
Onstream Media Corp	4	Quicksilver Resources Inc	4
Orchids Paper Products Co.	4	Quicksilver Inc	5



Quorum Health	4	Spy Inc	4
Radioshack Corp	4	Stage Stores	4
Rainier Pacific Financial Group Inc	3	Standard Register Co.	4
Rainmaker Systems Inc	5	Star Mountain Resources	5
Rand Logistics	4	Stealth Technologies	4
Rcs Capital Corp	4	Stein Mart Inc	3
Real Goods Solar Inc	5	Stratex Oil & Gas Holdings Inc	4
Rediff Com India Ltd.	5	Subaye Inc	4
Rennova Health Inc	5	Sundance Energy Inc	4
Renovare Environmental Inc	4	SunEdison	5
Rentech	4	Superior Energy Services Inc	4
Republic Airways Holdings Inc	4	Sutor Technology Group Ltd.	4
Respirerx Pharmaceuticals Inc	5	Swisher Hygiene Inc	5
Response Genetics Inc	5	Sycamore Networks Inc	5
Revlon Inc	5	Synergy Pharmaceuticals	5
Rex Energy	4	Synthesis Energy Systems Inc	5
Rhino Resource Partners Lp	4	T3m Inc	5
Rino International Corp	3	Tailored Brands	3
Rit Technologies Ltd.	5	Tandy Brands Accessories Inc	4
Rock Creek Pharmaceuticals Inc	5	Technical Communications Corp	5
Rooster Energy	4	Telestone Technologies Corp	4
Rosehill Resources Inc	4	Teletouch Communications Inc	3
Rosetta Genomics Ltd.	5	Teligent Inc	5
Rtw Retailwinds Inc	4	Tengion Inc	5
Rubicon Technology Inc	5	Terravia Holdings	5
Sabine Oil & Gas Corp	4	Tetralogic Pharmaceuticals Corp	5
Saexploration Holdings Inc	5	The Bon-Ton Stores	4
Salon Media Group Inc	5	Thomas Cook Group	3
Samson Oil & Gas Ltd.	5	Thomas Group Inc	5
Sanchez Energy	4	Tht Heat Transfer Technology Inc	4
Satcon Technology Corp	4	Tianyin Pharmaceutical Co Inc	4
Scopus Biopharma Inc	5	Tix Corp	5
Scripsamerica Inc	4	Toshiba	4
Seadrill Ltd	3	Touchpoint Group Holdings Inc	5
Seadrill Partners LLC	4	Towerstream Corp	5
Sears Canada Inc	5	Town Sports International	3
Sears Holdings	5	Toys R Us	3
Secure Point Technologies Inc	4	Track Data Corp	4
Sed International Holdings Inc	3	Transbotics Corp	4
Sg Blocks Inc	5	Transwitch Corp	5
Sharing Economy International Inc	5	Triangle Petroleum Corp	4
Shengkai Innovations Inc	3	Tuesday Morning	3
Shiloh Industries Inc	4	U S Precious Metals Inc	5
Sigma Designs Inc	5	Ultra Petroleum	4
Simon Worldwide Inc	5	Uluru Inc	5
Simplicity Esports & Gaming Co.	5	Unigene Laboratories Inc	5
Simply Inc	4	Unilife	5
Simtrol Inc	4	Uni-pixel	5
Skystar Bio-pharmaceutical Co.	4	Unit Corp	4
Softech Inc	5	United American Healthcare Corp	5
Sophiris Bio Inc	5	United Cannabis	5
Sorrento Tech Inc	5	Urologix Inc	5
Source Energy	3	Us Dataworks Inc	3
Southcross Energy Partners Lp	4	Valaris Plc	5
Southern Concepts Restaurant Group Inc	5	Valeant	3
Spanish Broadcasting System Inc	4	Valeritas Holdings	5
Speed Commerce Inc	5	Vanguard Natural Resources	3
SpeedCast International	3	Vanguard Natural Resources Inc	3
Sport Haley Inc	5	Veriteq	5



Vernalis PLC	5
Vicon Industries Inc	5
Viewcast Com Inc	5
Violin Memory Inc	5
Virgin Australia	4
Virtus Oil & Gas Corp	4
Viscount Systems Inc	4
Vitro Diagnostics Inc	4
Vivus Inc	5
Waccamaw Bankshares Inc	3
Walker Innovation Inc	4
Walking Co Holdings Inc	4
Walter Energy Inc	4
Warren Resources Inc	4
Washington Prime Group Inc	4
Wave Sync Corp	5
Wave Systems Corp	5
Weatherford International PLC	4
Weidai Ltd.	4
West End Indiana Bancshares Inc	3
Westell Technologies Inc	5
Westmoreland Coal Co	3
Westmoreland Resource Partners Lp	4
Whiting Petroleum	4
Willbros Group Inc	5
Windstream Holdings	4
Wirecard	2
Wolverine Tube Inc	4
Womens Golf Unlimited Inc	3
Wonhe High-tech International Inc	3
World Surveillance Group Inc	5
Worldcom	4
Wsp Holdings Ltd.	4
Xcorporeal Inc	5
Xenonics Holdings Inc	5
Yanglin Soybean Inc	4
Yangtze River Port & Logistics Ltd.	5
Yingli Green Energy Holding Co Ltd.	5
Yuma Energy	4
Zap	5
Zaza Energy Corp	5
Zoom Technologies Inc	4
Zosano Pharma Corp	5
Zovio Inc	5
Zst Digital Networks Inc	4
Zuoan Fashion Ltd.	3

Hopefully, you will agree with me that making mistakes in such a large data-driven project is nearly impossible. If you find any errors, please let me know.

If you want more information on The Value Firm® Risk Rating methodology, please contact me at peter@thevaluefirm.com.