Textual Analysis and Text Mining for Financial and Non-Information from SEC Filings: An Update on SeekiNF Technology



Rajendra P. Srivastava

PhD (Physics, 1972), PhD (Accounting, 1982)

Professor Emeritus, Ex EY Professor, and
Ex Director of EY CARAT **University of Kansas; and**



rsrivastava@ku.edu

Center for Business Analytics Research (CBAR) School of Business, The University of Kansas

10:30 - 11:45 AM, September 4, 2020

Outline

- Introduction to SeekiNF
- Text Mining and Data Extraction using SeekiNF
 - Non-Financial Data (Executive Bios, Tax ID, Addresses, etc.)
 - Financial Data (e.g., Audit Fees, Unique Line Items, Executive Compensation, et
- Textual Analysis (Word, Sentence, Multiple Phrase, & Proximity Counts)
 - Readability Indices
 - Risk Sentiment (overall risk, financial risk, litigation risk, tax risk, etc.)
 - Competition Metric
 - Cosine similarity measure
 - Word variation over time
 - Sentiment analysis
- Financial Fraud Assessment Models
- Conclusion

2019-2020 Subscribers

- 1. Australian National University
- 2. Arizona State University, USA
- 3. Bentley University, USA
- 4. City University of Hong Kong
- 5. Fordham University, USA
- 6. Georgetown University, USA
- 7. Indian Inst. of Mgt. Ahamedabad
- 8. Macquarie University, Australia
- 9. Massey University, New Zealand
- 10.McMaster University, Toronto
- 11. Nanyang Technological University, Singapore
- 12. National Central University, Taiwan
- 13. National Taiwan University, Taiwan
- 14. New York University
- 15. Rutgers University-Newark, USA
- 16. University of Arkansas, USA

- 16. University of Bocconi, Italy
- 17. University of Chicago, USA
- 18. University of Illinois at Chicago, USA
- 19. University of Kansas, USA
- 20. University of Montreal, Canada
- 21. University of Nebraska Lincoln, USA
- 22. University of New South Wales, Australia
- 23. University of Queensland, Australia
- 24. University of Southern California, USA
- 25. University of Sydney, Australia
- 26. University of Texas San Antonio, USA
- 27. University of Waterloo, Canada
- 28. Washington University in St. Louis, USA
- 29. Xavier University, USA
- 30. Yale University, USA
- 31. BuzzFeed News, USA

Anytime, Anywhere! SEC Filings & PCAOB Reports at Your Finger Tips in Seconds

Access SeekiNF using

- iPad
- Smart Phone
 - *Laptop
 - Desktop

18 million Filings and 33 million Documents (1994-2020)**Daily Updated**

No software

No programming

Don't waste your time Learning programming!

Use that time to be creative!

Search All Filings by

- Paragraphs (All)
- Tables & Footnotes
 - Audit Reports
 - SOX 404 Reports
 - •MD&A

Search All Filings by

- CIK Codes
- SIC Codes
- Ticker Symbols

Search by

- One Company
- Multiple Companies
 - All Companies
 - One Filing
 - All Filings

A Complete System! Second to None!!

With its own Database

&

Incredible Search Engine.

You have to try it to believe it!

Unique Databases Available

Corporate Governance Related databases:

- **1.CEO** is Chairman of the BOD for 1994-2019.
- **2.No Financial Expertise in BOD** for 1994-2019.
- **3. Number of Audit Committee Meetings** for 1994-2018.
- **4.Number of Board of Directors Meetings** for 1994-2018.
- **5.Number of Risk Committee Meetings** for 1994-2018.

Other Databases:

- **6. Accounting and Finance Executives who Signed 10Ks**
- **7. Companies with Going Concern Opinion,** 1994-2019
- 8. Company specific information for the years 1994-2018 from 10Ks such as: CIK, Company Name, Business Address, Mailing Address, Filing Date, Date Accepted, Period of Report, IRS No., State of Incorporation, Fiscal Year End.
- **9. Compensation and Executive Bios** from Form 424Bs for the years 2003-2018.
- **10.Competition Metrics** for all companies based on 10K Filings (1994-2018).
- 11.Conference calls transcripts (who said what?) for the last 25 years (1994-2018) from SEC Filings.
- 12. Database based on Forms 3, and 4.
- 13.Executive Bios from DEF 14A for 2003-2019
- 14.File Analyses for all 10Ks and 10Qs for 25 years (1994-2018): Word Count, Word Count without Numeric, Total Number of Sentences, and six readability indices.
- **15.Subsidiaries database** by year and country (1994-2018).

Additional Databases That One Can Create

In addition to the previously listed databases, one can create, in a matter of seconds, the following databases:

- 1.All Audit Opinion types such as clean opinion and going concern opinion
- **2.Audit Fees** from DEF 14A
- **3.Executives Bios** from DEF 14A
- **4.Compensation Data** from DEF 14A
- 5.Which Institutional Investor invests where through N-Q and N-CSR
- 6.many more such databases. Let me know if you or your colleagues would like to know how to create such databases using SeekiNF.

Unique Features for Textual Analysis and Search for Information

Unique Features for Textual Analysis:

- Word count, Word count without numbers, Sentence count, available or all documents
- Proximity counter with Order and without Order, available for all documents
- Word Distribution, available for all documents
- Six Readability Indices, available for all documents
- Risk Sentiments metrics (Financial Risk, Litigation Risk, Tax Risk, Idiosyncratic Risk, System Risk, and Overall Risk) for 10Ks, and 10Qs, Item 1A, MD&A and Footnotes in 10Ks and 10Qs.
- Cosine Measure of Similarity, within company and for one company versus another, available for all the SEC filings and PCAOB Reports. See the user's guide at https://www.seekedgar.com/UserGuide.pdf for interesting fraud related examples.
- Word Variation, year-to-year, all documents

Unique Features for Textual Analysis and Search for Information

Additional Features

- Use Boolean Logic to search for information with multiple words/phrases with no Stop Words.
- Obtain Unique financial information such as Air Traffic Liability, Fuel Hedge Contracts, etc. in a matter of seconds.
- Display few words before & few words after a phrase.
- Extract any number, financial or non-financial, mentioned in a line in a document in Excel such as number of active patents.
- Download Results of all your searches including tables, and snippets in Excel and HTML documents.
- Get the entire document of a specific type by typing "a | the | of" without the quotes in Step 1.

Unique Search Features

(Not Available from any Data Provider)

1. Boolean Logic (AND, OR, Negation)

- Multiple Exact phrases (with no stop words)
- With all of the phrases/words
- With at least one of the phrases/words
- Without certain phrases/words

Examples

- * Chairman of the Board of Directors, Chief Executive Officer and President | Chairman of the Board of Directors and Chief Executive Officer | Chief Executive Officer and Chairman of the Board of Directors | CEO and Chairman of the Board of Directors | CEO and Chairman of the Board of Directors | Chairman of the Board and Chief Executive Officer | Chairman of the Board and Chief Executive Officer in Table in all 10K types, got 21,940 for 1994-2017, in Table in 10 Ks in 28 seconds.
- * We do not have a qualified financial expert serving on our board of directors | We do not have an audit committee financial expert serving on our Board of Directors | No member of our Board of Directors qualifies as an audit committee financial expert in Exact Phrase, Paragraph, 2 minutes got 309 hits.

More Examples of Phrase Searches Using Boolean Logic

- For Going Concern Opinions: (We have audited | I have audited) + (substantial doubt about | substantial doubts about | substantial doubts regarding | substantial doubt regarding) + going concern (Try 1994 and 2018)
- For Clean Opinion: (We have audited | I have audited) + present fairly + in all material respects - (substantial doubt about | substantial doubts about | substantial doubts regarding | substantial doubt regarding) - going concern
- * Audit Fees: audit fee | audit fees | audit related fees | audit related fee in Exact Phrase, Table, in DEF 14A
- Phrase Counter: Litigation and Litigation Counts, Try for 2019
- futures + options + swaps + hedging, Paragraph, in10K
- (block chain | blockchain | distributed ledger) chain link

----- Original message -----

From: "Kieschnick, Robert" <rkiesch@utdallas.edu>

Date: 07/26/2013 8:28 PM (GMT-06:00)

To: "Srivastava, Rajendra P." <rsrivastava@ku.edu>

Cc: "Radhakrishnan, Suresh" < sradhakr@utdallas.edu>

Subject: RE: trial version of FRAANK and SEEK-INF

Hi Raj,

Thank you for those examples. Actually I did a search with four key words (futures, options, swaps, hedging) for 2001 to 2002 and was very impressed as I read through the extracts of what the search turned up. I have a colleague that spent a year with 2 colleagues at UT@Austin trying to produce this type of information. Further, I plan to show two other colleagues that are trying to search for certain types of contracts. So, I can clearly see this system's potential.

However, I did not see how to save the search list nor the extracts and those are some of the things that I wanted to ask about when we talk. Moreover, I was not clear if it was possible to submit a list of specific firm reports to search. Hopefully we can discuss these questions. I have a meeting with my Dean in the morning, so would you have time around 2pm CST on Monday?

Thank you for your time,

Robert

futures + options + swaps + hedging (block chain | blockchain | distributed ledger) - chain link

Monday, January 13, 2014 8:12:49 AM India Standard Time

Subject: RE: incredibly fast search engines from KU

Date: Tuesday, September 17, 2013 4:43:27 PM India Standard Time

From: William Kinney

To: Srivastava, Rajendra P.

Category: Suggested Contacts

Thanks, Raj. I have no doubt about the service – YOU have credibility with me. And, Jaime was, indeed, quick to respond to my e-mail.

My main reasons in contacting you was to (a) make sure I (we) had the best argument to use with Laura and (b) to give you a little feedback on what MIGHT be a competitor – and if WRDs isn't a serious competitor to save you and those wanting to buy the service a head start on defusing the criticism.

I hope this thing takes off – I've needed it all of my life!

Minnis, Michael < Michael. Minnis@chicagobooth.edu>

Tue, Feb 12, 2019 at 3:33 PM

To: "andrew.leone@kellogg.northwestern.edu" <andrew.leone@kellogg.northwestern.edu>

Cc: "seekedgar@gmail.com" <seekedgar@gmail.com>

Hi Andy,

I hope all is well on the north side. This is a somewhat odd email on my part, but I wanted to make an introduction to Raj Srinastava who started the company "SeekEdgar." Raj was hoping to talk to somebody at Northwestern about this when he comes to Chicago February 21-22, so I thought I'd connect the two of you in case you have any availability. I use SeekEdgar for both research and teaching—it is an excellent textual analysis tool for all sorts of SEC document. Very cool tool and I have known Raj for several years now.

Anyway, I have cc:d Raj on this and if you or anybody on the faculty there has an interest in a tool such as SeekEdgar, I'm sure Raj would be happy to chat.

All the best,

Mike

Michael Minnis

Associate Professor of Accounting

University of Chicago Booth School of Business

Email Exchange with RuzzEara News

Re: A question about SeekEdgar and subscription cost?

1 message

Ellie Hall <ellie.hall@buzzfeed.com>

Mon, Oct 7, 2019 at 12:36 PM

To: "Rajendra P. Srivastava" <seekedgar@gmail.com>

Cc: Alok Srivastava <aloksrivastava@hotmail.com>

Hello Raj and Alok!

As I'm sure you gathered during our conversation, I am astounded by the scope of the tool that you've built and beyond excited to use it in my reporting. I've told my editors about it and we 100% wish to subscribe (to be honest, I was ready to subscribe within the first minute of our call).

I look forward to hearing from you,

Best,

Ellie

Unique Search Features

- 2. Wild Card Search (works only with all of the words feature, Example: Risk*)
- 3. Proximity Search (two or more words within few words)
 - Compensation data (Bonus Salary, within 2 words, table, DEF 14A)
 - Executive bios (Name age within 2 words, table in DEF 14A)
 - Who signed 10Ks, etc. (title signature within 4 words, table, 10Ks)
 - Who invests where (Uber Preferred within 10 words in Table, All)
 - Infosys shares value within 300 words in Table in N-CSR and NQ (Institutional investors)
 - Who all institutional investors have invested in General Motors, Exact Phrase: General Motors, Proximity: shares value within 2 words, Table, N-CSR and N-Q.
 - committee name age director Deloitte within 200 words (just a rough guess), 1994-2020, Table, DEF 14A.

STEP 5: SUBMIT

1 - 2 of 2 < >

Download Results

CINCINNATI FINANCIAL CORP

CIK :20286 SIC :6331

File Type :DEF 14A
File Date :03-22-2017

Filename :0000020286-17-

000023.txt

ENTERGY CORP /DE/

CIK :65984 SIC :4911

File Type :DEF 14A File Date :03-21-2017

Filename :0000065984-17-

000084.txt

CIK: 20286 TYPE: DATE: View File Cosine Similarity/Word Raw Non Dollar Values in CSV Raw Non Dollar Values in CSV

Name	Age	Primary Occupation	Independent	Committee Memberships	Other Public Company Boards	
William F. Bahl*	65	Chairman, Bahl & Gaynor Investment Counsel Inc.	✓	A, C, E, I, N (Chair)	0	
Gregory T. Bier	70	Managing Partner (Retired), Deloitte LLP	✓	A, C, I	0	
Linda W. Clement-Holmes	54	Chief Information Officer, The Procter & Gamble Company	✓	A, N	0	
Dirk J. Debbink	61	Chairman and Chief Executive Officer, MSI General Corporation	✓	A, C	0	
Steven J. Johnston	57	President and Chief Executive Officer, Cincinnati Financial Corporation		E (Chair), I	0	
Kenneth C. Lichtendahl	68	Director of Development and Sales, Heliosphere Designs LLC	✓	A, N	0	
W. Rodney McMullen	56	Chairman and Chief Executive Officer, The Kroger Co.	✓	C (Chair), E, I	2	
David P. Osborn	56	President, Osborn Williams & Donohoe LLC	✓	A, I	0	
Gretchen W. Price	62	Executive Vice President, Chief Financial and Administrative Officer, Arbonne International LLC	√	A (Chair), C, N	0	
		Chairman and Chief Executive Officer, John J. & Thomas R. Schiff				

Word Distribution:

Download Distribution

Download Table in

CSV

FILE ANALYSIS	
Total Word Count	14657
Total Word Count without numerics	12619
Sentence Count	48
Gunning-Fog Index	20.8
Smog Index	18.2
Flesch Reading Ease	23.84
Flesch-Kincaid Grade Level	16.42
Automated Readability Index	16.933
Coleman-Liau Index	14.836



FW: help advise department re: Seek Edgar vs WRDS SEconomy vs vs nothing

Schmidt, Jaime J <Jaime.Schmidt@mccombs.utexas.edu>

Mon, Oct 8, 2018 at 12:45

To: "Rajendra P. Srivastava" <seekedgar@gmail.com>

FYI – The outcome is a switch to from SEC Analytics to SEEK EDGAR next year. I think that's a decent outcome. Congrats!

From: Clement, Michael B

Sent: Friday, October 05, 2018 5:30 PM

To: Mills, Lillian F <Lillian.Mills@mccombs.utexas.edu>; Chan, Eric <Eric.Chan@mccombs.utexas.edu>; Chen, Shuping <Shuping.Chen@mccombs.utexas.edu>; Donelson, Dain <Dain.Donelson@mccombs.utexas.edu>; Hallman, Nicholas J <Nicholas.Hallman@mccombs.utexas.edu>; Jennings, Ross G <Ross.Jennings@mccombs.utexas.edu>; McInnis, John M <John.McInnis@mccombs.utexas.edu>; Schmidt, Jaime J <Jaime.Schmidt@mccombs.utexas.edu>; Toynbee, Sara M <Sara.Toynbee@mccombs.utexas.edu>; Williams, Braden M <Brady.Williams@mccombs.utexas.edu>; Yu, Yong <Yong.Yu@mccombs.utexas.edu>; Zhao, Wuyang <Wuyang.Zhao@mccombs.utexas.edu>; Ballestero, Ryan C <Ryan.Ballestero@mccombs.utexas.edu>; Chan, Jesse <Jesse.Chan@mccombs.utexas.edu>; Deture, Skylar A <Skylar.Deture@mccombs.utexas.edu>; Hess, Ryan <Ryan.Hess@mccombs.utexas.edu>; Kartapanis, Antonis <Antonis.Kartapanis@mccombs.utexas.edu>; utexas.edu>; Kettell, Laura <Laura.Kettell@mccombs.utexas.edu>; Koutney, Colin <Colin.Koutney@mccombs.utexas.edu>; Monsen, Brian <Bri>Brian.Monsen@mccombs.utexas.edu>; Ramchandani, Abhishek S <Abhishek.Ramchandani@mccombs.utexas.edu>; Valentine, Kristen <Kristen.Valentine@mccombs.utexas.edu>; Welsch, Anthony <Anthony.Welsch@mccombs.utexas.edu>

Subject: RE: help advise department re: Seek Edgar vs WRDS SEC Analytics vs nothing

Unique Search Features(Not Available from any Data Provider)

- 4. Display (few words before & after a phrase)
 - Fiscal Year End from 10K (0, 1)
 - **STATE OF INCORPORATION**, 10K (0, 1)
 - **Time Stamp, Use Accession Number**, 10K (1, 0)
 - Business addresses, 10K (0, 22)
 - **audit committee met** in DEF 14A (0, 1, try 0, 5)

Textual Analysis with Built-in Features

(Not Available from any Data Provider)

- **1.** Word Counter
- 2. Sentence Counter
- 3. Counter for Multiple Phrases (with no stop words)
- 4. Proximity Counter with order or no order, two words within few words.

Textual Analysis with Built-in Features

(Not Available from any Data Provider)

- 5. Cosine Similarity measure
- 6. Word Variation year-to-year
- 7. Readability Metrics (Six readability indices)



Anytime, Anywhere...

SEC filings at your fingertips in seconds with SeekiNF

HOME ABOUT US SeekiNF FRAANK FAQs CONTACT US W

Recent Press and Other Releases | 10-K Exhibit 21(Subsidiaries) | Conference Call Transcripts | Search | Request Form | Special Key-

Vith the exact phrase:	Donald Trump
•	for Single Phrase/Word only: (In case of Multiple use the Request Form to submit the request.)
Phrase/Word Counter	
Display words before & aff	ter
Number of words before:	Number of words After:
Proximity Search:	
Please input within how many words:	
With all of the words:	
With at least one of the words:	
Without the words:	
STEP 2: Please select the	options below (Default - ALL):
COMPANY: All,	Name \$
From: 1994 \$	To: 2014 💠
SIC (Optional): All SICs	†
STEP 3: Please select the s	search Resolution here:
	note SOX 404 Mgt Report MD&A

STEP 4: Please select the Document(s) you want to search here:					
a All					
Select (Please CLICK HERE for Filling Description): Un-Check All					
Annual Reports Check All Annual Reports Un-Check All Annual Reports					
□10-K □10-KT □10-K405 □10KT405 □10KSB □10KSB40					
□10-K/A □10-KT/A □10-K405/A □10KT405/A □10KSB/A □10KSB40/A					
Quarterly, Current & Foreign Annual Reports					
□10-Q □10-QT □10QSB □8-K □6-K □20-F □40-F					
□10-Q/A □10-QT/A □10QSB/A □8-K/A □6-K/A □20-F/A □40-F/A					
Proxies & Registrations					
□DEF 14A □DEFM14A □S-1 □S-4 □15-12B □15-12G					
□DEFA14A □DEFM14C □S-1/A □S-4/A □15-12B/A □15-12G/A					
□15-12D □15F-12B □15F-12G □15F-12D □PRE 14A					
□15-12D/A □15F-12B/A □15F-12G/A □15F-12D/A					
Ownership & Prospectuses					
Form 3 Form 4 Form 5 424B1 424B3 424B5					
Form 3/A Form 4/A Form 5/A 424B2 424B4 424B7					
□13F-HR □13F-NT □SC 13D □SC 13G □424B8					
□13F-HR/A □13F-NT/A □SC 13D/A □SC 13G/A					
Other Filings					
□N-CSR □N-CSRS □NSAR-A □NSAR-AT □NSAR-B					
□N-CSR/A □N-CSRS/A □NSAR-A/A □NSAR-AT/A □NSAR-B/A					
NSAR-BT NSAR-U N-Q SD CORRESP (Comment Letters)					
NSAR-BT/A NSAR-U/A N-Q/A SD/A □UPLOAD (Response Letters)					
□AAER** □11-K □11-K/A □CT ORDER					
10-K, 10-Q & 8-K Exhibits & Shareholders Letters					
PRESS RELEASE* SHAREHOLDERS MEETINGS* CONFERENCE CALLS*					
OTHER 8-K EX SHAREHOLDERS LETTER* EXHIBIT 21 (10-K & 10-Q)					
EXHIBIT 95 (10-K & 10-Q) EXHIBIT 10 (10-K) EXHIBIT 10 (10-Q)					
EXHIBIT 99 (10-K) EXHIBIT 99 (10-Q) ITEM 1A (10-K)					
Public Company Accounting Oversight Board INSPECTION REPORTS** SETTLED DISCIPLINARY ORDERS**					
☐INSPECTION REPORTS** ☐ SETTLED DISCIPLINARY ORDERS** ☐ADJUDICATED DISCIPLINARY ACTIONS**					
* These extraction are from various filings, filed by companies to the SEC website and not from company websites.					
** AAER & PCAOB do not have CIK's, they have File number and Firm number respectively					

STEP 5: SUBMIT

1 - 20 of 54 < >

Download Results

COMM 2014-CCRE19 Mortgage Trust

CIK:1612841 SIC:6189 File Type :PressRelease File Date :08-21-2014 Filename :0001539497-14-001002.txt.EX-99.3.txt

DEUTSCHE MORTGAGE & ASSET RECEIVING CORP

CIK:1013454 SIC:6189 File Type :424B5

File Date :08-21-2014 Filename :0001539497-14-001003.txt

COMM 2014-CCRE19 Mortgage Trust

CIK:1612841 SIC:6189 File Type :424B5 File Date :08-21-2014 Filename :0001539497-14-001003.txt

COMM 2014-CCRE19 Mortgage Trust

CIK:1612841 SIC:6189 File Type :8-K File Date :08-21-2014

Filename:0001539497-14-001002.txt

LendingClub Corp

CIK:1409970 SIC:6199 File Type :424B3 File Date :10-17-2012

Filename :0001409970-12-001192.txt

COMM 2014-CCRE19 Mortgage Trust CIK: 1013454 TYPE: 424B5 DATE: 20140821

Cosine Similarity/Word Download Table in View Download Raw Raw Non Dollar Values in Raw Dollar Values in File File Variation CSV CSV CSV

Annex A-1 ID#	Mortgage Loan		Representation	Exception
All LCF Mortgage Loans	All LCF Mortgage Loans	(6)	Permitted Liens; Title Insurance	The lien of real property taxes and assessments shall not be considered due and payable until the earlier of (a) the date on which interest and/or penalties would first be payable thereon and (b) the date on which enforcement is entitled to be taken by the related taxing authority.
28	Trump Plaza Commercial	(13)	Actions Concerning Mortgage Loan	The Sponsor, Donald Trump, is subject to current litigation brought by multiple plaintiffs in New York and California who allege that Mr. Trump operated an unlicensed, illegal educational institution purporting to teach real estate strategies and techniques. The educational institution has ceased conducting business.
28	Trump Plaza Commercial	(16)	Insurance	The lender only holds and disburses proceeds under policies that are maintained by Borrower. Proceeds of insurance policies maintained by the Sublessor are held and applied in accordance with the provisions of the sublease between Borrower and Trump Plaza Owners, Inc. ("Sublessor").
All LCF Mortgage Loans	All LCF Mortgage Loans	(16)	Insurance	The exceptions to Representation and Warranty No. 29, relating to terrorism insurance, are also exceptions to Representation and Warranty No. 16.
Various	Certain LCF Mortgage Loans	(16)	Insurance	Subject to the other exceptions to Representation

Word Distribution:

Download Distribution

FILE ANALYSIS	
Total Word Count	119614
Total Word Count without numerics	98901
Sentence Count	1820
Gunning-Fog Index	3).8
Smog Index	23.
Flesch Reading Ease	0.5
Flesch-Kincaid Grade Level	26
Automated Readability Index	30.
Coleman-Liau Index	14.0

STEP 5: SUBMIT

1 - 20 of 3681 < > Download Results

DS HEALTHCARE GROUP, INC.

CIK:1463959 SIC:2844 File Type :DEF 14A File Date :12-31-2015

BUTLER NATIONAL CORP

CIK:15847 SIC:7990 File Type :DEF 14A File Date :12-30-2015

VARIAN MEDICAL SYSTEMS INC

CIK:203527 SIC:3845 File Type :DEF 14A File Date :12-30-2015

MTS SYSTEMS CORP

CIK:68709 SIC:3829 File Type :DEF 14A

File Date :12-30-2015

MISONIX INC

CIK:880432 SIC:3821

File Type :DEF 14A File Date :12-30-2015

SIMULATIONS PLUS INC

CIK:1023459 SIC:7373 File Type :DEF 14A File Date :12-29-2015

CARDICA INC

CIK:1178104 SIC:3841

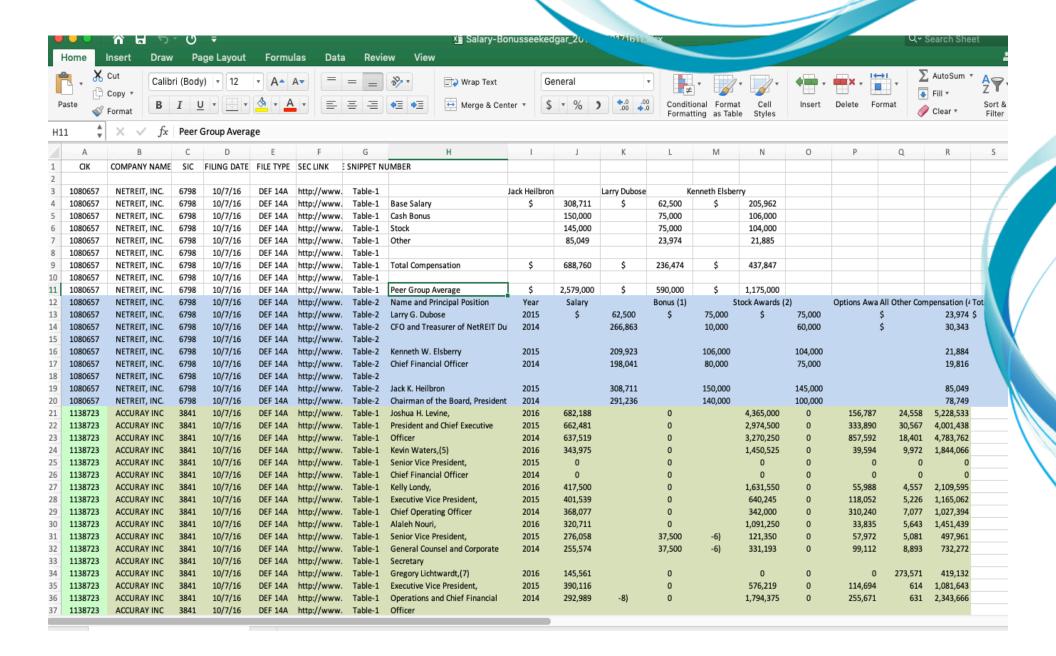
File Type :DEF 14A File Date :12-29-2015

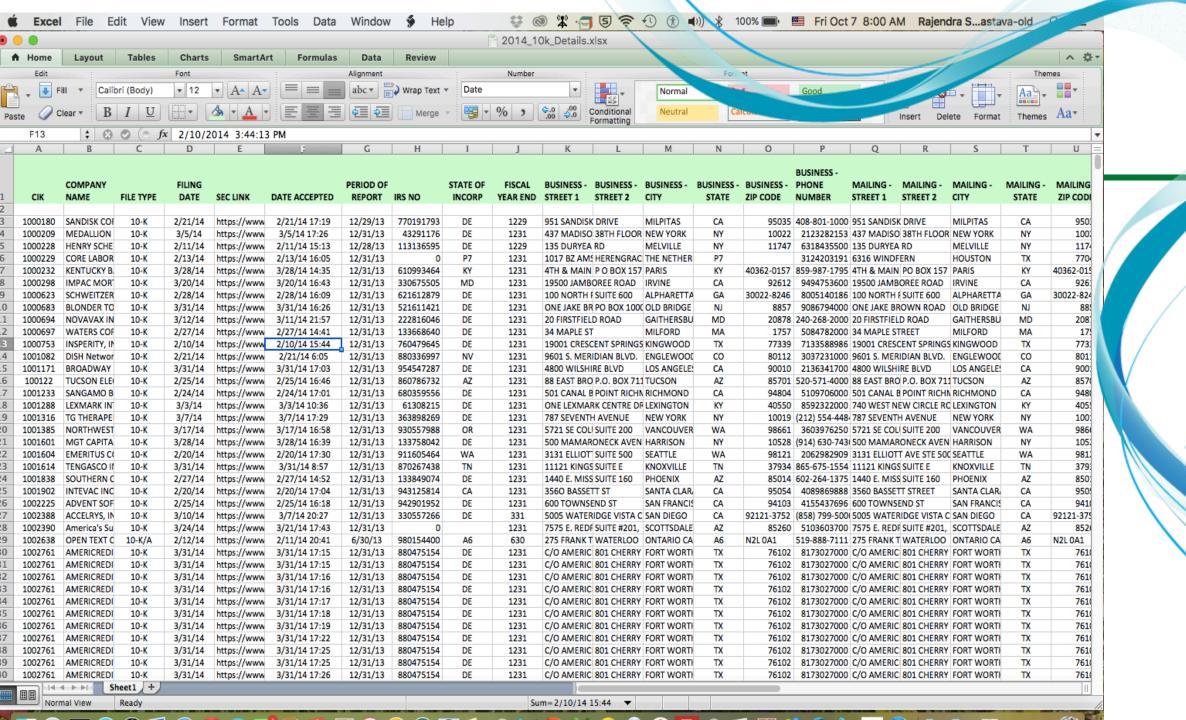
<u>'iew File</u>	<u> </u>	Download Raw File			<u>Compare</u>	Download Table in CSV			
Name and Principal Position	Year	Salary (S)	Bonus (S)	Stock Awards (S)	Option Awards and Stock Appreciation Rights (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Nonqualified Deferred Compensatio	All Other Compensation (\$)(1)	Total (\$)(2)
Clark D. Stewart,						a			
CEO	2015	458				- AV		79	537
President and					C.	·0///			
Director	2014	396						46	442
	2013	477	9		162.			39	525
R. Warren				10	Die				
Wagoner	2015			~ 70					
Director -	2015								
Chairman	2014	75	- 251					10	85
of the Board	2013	269	50 5					15	289
		-061							
Craig D.	~	'h							
Stewart	201	246						40	286
Vice									
Vice President a d Class	2014	210						46	256
Cl. te.									
ancial									
Officer	2013	214	6					44	264
Christopher J.	2015	244	10					22	0.55
Reedy	2015	244	10					23	277
Vice									
President	2014	227						22	0.50
	2014 2013	227 230	23					23 26	250 279
and Secretary								76	

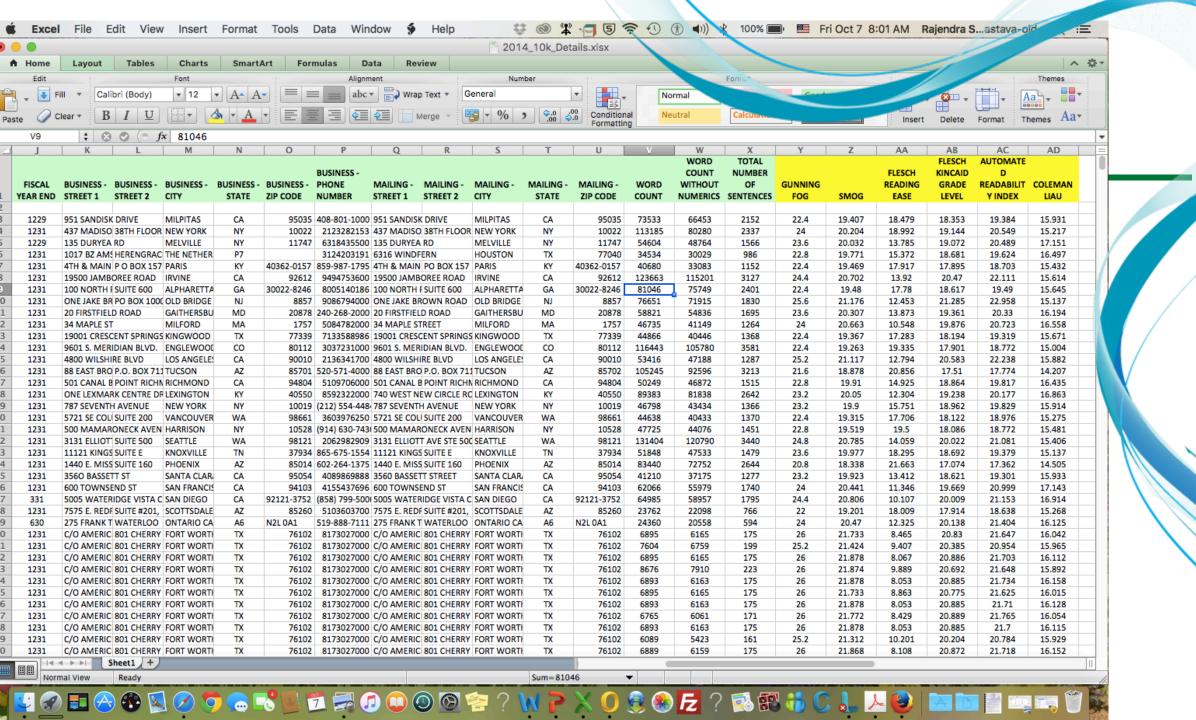
Word Distribution:

Download Distribution

WORD COUNT					
	Word unt	2964			
Total	Word				
	without				
	erics	2486			
T	OP WO	RD LIST			
WORD					
LIST	COUNT	PERCENTAGE			
the	127	4.3			
of	95	3.2			
0	82	2.8			
and	79	2.7			
to	52	1.8			
000	39	1.3			
for	38	1.3			
in	35	1.2			
by	29	1.0			
or	29	1.0			
a	29	1.0			
which	24	0.8			
stock	23	0.8			
1	21	0.7			
stewart	19	0.6			
as	18	0.6			
at	18	0.6			
125	18	0.6			
be	18	0.6			
on	17	0.6			



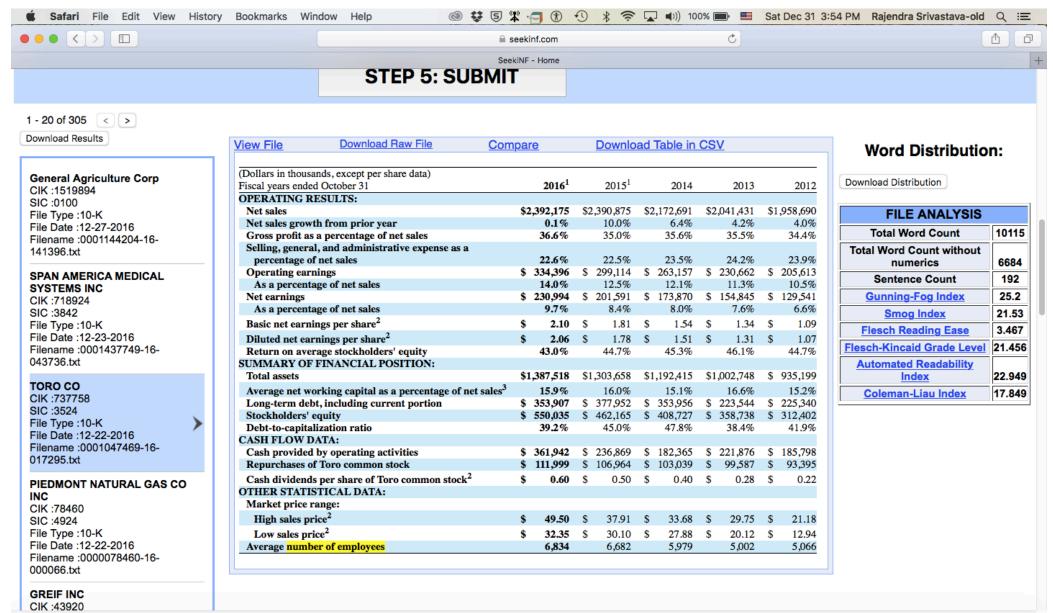




Example 5(a). Executive Compensation Tables in html Format

				<u> </u>			
Сік	O COMPANY NAME	O sic	FILE TYPE	O FILE DATE	O SEC LINK	○ SNIPPET	
1463959	DS HEALTHCARE GROUP, INC.	2844	DEF 14A	12-31-2015	SEC Link	Name/Principal Position Year Salary (\$) Bonus (\$) Stock Awards Options (\$) Non-Equity Incentive Plan Co Daniel Khesin, 2014 \$250,000(2)	
15847	BUTLER NATIONAL CORP	7990	DEF 14A	12-30-2015	SEC Link	Option Awards and Stock Non-Equity Change in Pension Value and Nonqualified Name Stock Appreciation Incentive Deferred All Other and Principal Salary Bonus Awards Rights Plan Compensation Compensation Position Year (\$) (\$) (\$) (\$) (\$) Earnings(\$) (\$)(1) Tota Clark D. Stewart, CEO 2015 458 79	
203527	VARIAN MEDICAL SYSTEMS INC	3845	DEF 14A	12-30-2015	SECLINK	Name Target the following: Name As a % of As a % of As a % of As a % of MIP base salary base salary Bonas Pool Dow R. Wilson 120% 240% 41% Elisha W. Finney 83% 166% 18%	

Number of Employees from 10K



Multiple Phrases/Words Counts in a Document

	Edit	Font		:	Alignme	ent	:	Number		:	Format	:
		ill + Calibri (Body) + 12 +	A- A-		abc ▼		Fort - G	eneral	▼		Normal	
	🖣 😛 F	III + Calibri (Body) + 12 +	A A		abc v	■ W Wiap	ext •	onorai			Normal	
Pa	ste 🥏 C	clear v B I U	A -		=	→ Me	rge 🔻 🏻	9 7 %)	00. 0.¢	Conditional Formatting	Bad	• In
	P7											
_1	A	В	C	D	E	F	G	Н		J	K	L N
								TOTAL WORD				
							TOTAL	COUNT		PATENTS		
							WORD	WITHOUT	CLASS	AND		
1	CIK	COMPANY NAME	SIC	FILING DATE	FILE TYPE	SEC LINK	COUNT	NUMERICS	ACTION	COPYRIGHTS	LITIGATION	INVENTORY
2											_	
3	1490349	Medley Capital Corp	7311	12/4/15	10-K	http://www.	85172	72582	0	0	3	1
4	868857	AECOM	8711	11/25/15	10-K	http://www.	72408	65289	7	1	11	0
5	26076	CUBIC CORP /DE/	3829	11/23/15	10-K	http://www.	104112	98480	3	0	11	26
6	16099	LUBYS INC	5812	11/9/15	10-K	http://www.	54435	48307	2	0	4	2
7	1099728	Sibling Group Holdings, Inc.	8200	10/23/15	10-K	http://www.	69747	65927	1	0	5	0
8	868611	SONIC CORP	5812	10/23/15	10-K	http://www.	34118	30230	1	0	8	3
9	929887	APOLLO EDUCATION GROUP INC	8200	10/22/15	10-K	http://www.	88025	80151	17	0	34	0
10	1223862	INFOBLOX INC	7374	9/25/15	10-K	http://www.	62030	57378	1	0	21	46
11	743758	CLOUDCOMMERCE, INC.	5900	9/24/15	10-K	http://www.	23142	20570	0	0	2	1
12	1472847	HARRISON VICKERS & WATERMAN INC	7389	9/15/15	10-K	http://www.	67249	63889	0	0	9	9
13	1490349	Medley Capital Corp		12/8/14	10-K	http://www.	82026	70718	0	0	2	2
14	26076	CUBIC CORP /DE/	3829	11/26/14	10-K	http://www.	74455	69545	5	0	13	15
15	868857	AECOM TECHNOLOGY CORP		11/17/14	10-K	http://www.	87691	80424	4	1	7	0
16	16099	LUBYS INC	5812	11/12/14	10-K	http://www.	49169	43793	2	0	3	2
17	868611	SONIC CORP	5812		10-K	http://www.	43426	39292	1	0	7	1
18	929887	APOLLO EDUCATION GROUP INC	8200	10/21/14	10-K	http://www.	167010	157545	13	0	49	8
19	1472847	HARRISON VICKERS & WATERMAN INC	7389	10/10/14	10-KAMEND		27541	25980	0	0	4	1
20	1472847	HARRISON VICKERS & WATERMAN INC	7389	10/9/14	10-K	http://www.	27536	25975	0	0	4	1
21	1099728	Sibling Group Holdings, Inc.	8200	10/7/14	10-KT	http://www.	26035	23373	0	0	5	0
22	743758	WARP 9, INC.	5900	9/26/14	10-K	http://www.	21775	19474	0	0	2	1
23	1223862	INFOBLOX INC	7374	9/25/14	10-K	http://www.	65609	60876	3	0	29	41
24	26076	CUBIC CORP /DE/	3829	5/12/14	10-KAMEND		93330	81891	6	0	18	15
25	1099728	Sibling Group Holdings, Inc.	8200	4/17/14	10-K	http://www.	34087	31092	2	0	6	0
26	1490349	Medley Capital Corp	3559	12/10/13	10-K	http://www.	75065	66153	0	0	2	2
27	26076	CUBIC CORP /DE/	3829	12/5/13	10-K	http://www.	64651	60088	7	0	17	13
28	868857	AECOM TECHNOLOGY CORP	8711	11/13/13	10-K	http://www.	53831	47926	2	1	4	0
29	16099	LUBYS INC	5812		10-K	http://www.	57670	51885	2	0	3	1
30	868611	SONIC CORP	5812	10/25/13	10-K	http://www.	44457	40270	1	0	7	2
31	929887	APOLLO GROUP INC	8200	10/22/13	10-K	http://www.	115909	107413	18	0	47	0

(12) United States Patent Srivastava et al.

(54)	FINANCIAL REPORTING AND AUDITING
	AGENT WITH NET KNOWLEDGE FOR
	EXTENSIBLE BUSINESS REPORTING
	LANGUAGE

(75)	Inventors:	Rajendra P. Srivastava, Lawrence, KS
		(US); Miklos Vasarhelyi, New York, NY
		(US); Alex Kogan, East Brunswick, NJ
		(IIC)

(US)

(73) Assignee: University of Kansas, Lawrence, KS

(US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 1024 days.

(10) Patent No.: US 7,856,388 B1

(45) **Date of Patent:** Dec. 21, 2010

7,653,871	B2*	1/2010	LaComb et al	715/227
2003/0041077	A1*	2/2003	Davis et al	707/500
2004/0193520		9/2004	LaComb et al	705/35
2004/0194009		9/2004	LaComb et al	715/500
2008/0229187	A1*	9/2008	Mahoney et al	715/234

OTHER PUBLICATIONS

Nelson, Kay M., Kogan, Alex, Srivastava, Rajendra P., Vasarhelyi, Miklos A., "Virtual Auditing Agents: the EDGAR Agent challenge," Decision Support Systems, May 2000, vol. 28, Issue 3, pp. 241-253.*

Primary Examiner—Charles R Kyle Assistant Examiner—David L Wood (74) Attorney, Agent, or Firm—Suiter Swantz PC LLO

(57) ABSTRACT

^{*} cited by examiner

Seekinf

Textual Analysis: Seven Readabílíty Indices

Readability Indices

- 1. Gunning-Fog Index https://en.wikipedia.org/wiki/Gunning-fog-index
- 2. Smog Index https://en.wikipedia.org/wiki/SMOG
- 3. Flesch Reading Ease https://en.wikipedia.org/wiki/Flesch-Kincaid_read_vi/ity_tests
- 4. Flesch-Kincaid Grade Level https://en.wikipedia.org/wiki/Flesch-Kincaid_readability_tests
- Automated Readability Index
 https://en.wikipedia.org/wiki/Automated_readability_index
- 6. Coleman-Liau Index https://en.wikipedia.org/wiki/Coleman-Liau_index
- 7. Bog Index https://kelley.iu.edu/bpm/activities/bogindex.html

1. Gunning-Fog Index

(Robert Gunning, 1952)

Gunning-Fog Index = 0.4[(Words/Sentences)

```
+ 100(Complex words/Words)]

* 17 College graduate

* 16 College senior

* - - - -

* 12 High school senior

* - - - -

* 10 High school sophomore

* - - - -

* 6 Sixth grade
```

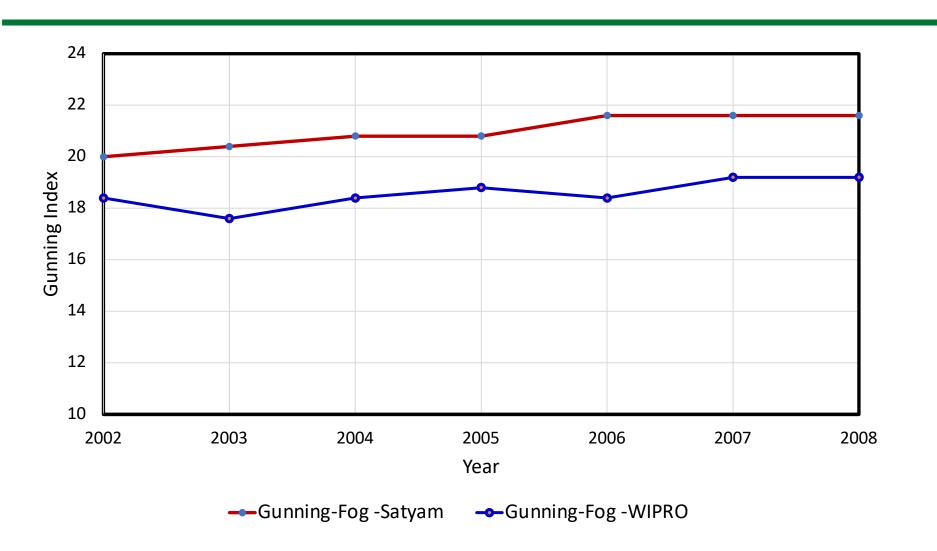
7. Bog Index

A plain English measure of financial reporting readability Bonsall IV, Leone, Rennekamp Journal of Accounting and Economics, 63 (2017) pp. 329–357

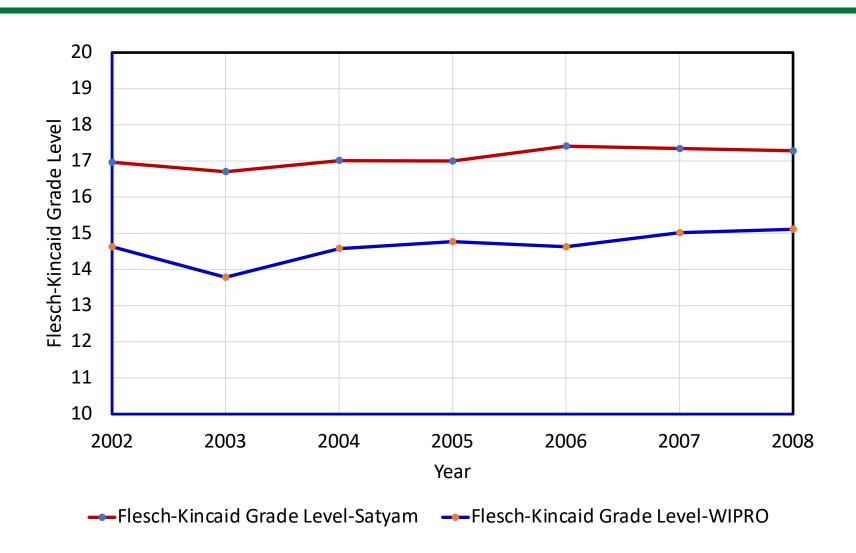
Example: Readability Indices for Satyam and WIPRO

Satyam Textual Analysisç							
Year	2008	2007	2006	2005	2004	2003	2002
Total Word Count	81258	85673	80785	58473	67858	70837	259828
Total Word Count without numerics	74833	79145	74881	54641	60675	63526	227833
Sentence Count	2642	2770	2575	1966	2175	2368	5770
Gunning-Fog Index	21.6	21.6	21.6	20.8	20.8	20.4	20
Smog Index	18.666	18.762	18.73	18.459	18.394	18.18	13.618
Flesch Reading Ease	21.777	21.777	22.212	22.893	22.92	23.236	51.699
Flesch-Kincaid Grade Level	17.281	17.344	17.411	17.001	17.014	16.704	16.962
Automated Readability Index	17.759	17.819	17.908	17.316	17.383	16.964	13.404
Coleman-Liau Index	14.439	14.357	14.145	14.2	14.239	14.386	0.293
WIDDO ITO							
WIPRO LTD							
Year	2008	2007	2006	2005	2004	2003	2002
Total Word Count	93966	99464	96763	101922	87781	75005	120396
Total Word Count without numerics	85584	90570	88177	93798	78915	66793	104844
Sentence Count	3624	3894	3865	4080	3511	3290	4656
Gunning-Fog Index	19.2	19.2	18.4	18.8	18.4	17.6	18.4
Smog Index	17.059	16.935	16.644	16.797	16.625	16.004	16.688
Flesch Reading Ease	28.928	28.956	30.938	30.24	30.684	32.505	30.451
Flesch-Kincaid Grade Level	15.113	15.017	14.628	14.771	14.579	13.785	14.629
Automated Readability Index	15.082	15.012	14.573	14.709	14.397	13.423	14.471
Coleman-Liau Index	14.04	14.182	13.916	13.97	13.9	14.05	13.959

Example: Graph of Readability Indices for Satyam and WIPRO



Example: Graph of Readability Indices for Satyam and WIPRO



Liu and Moffitt

(Journal of Emerging Technology in Accounting, 2016)

- Textual analysis of SEC Comments Letters and developed a measure of intensity based on the modality of comment letters.
- Observed that the intensity of comment letters is positively associated with the probability of a restatement of the reviewed 10-K filings.
- Moreover, textual analysis and text mining techniques provide information about companies' performance that is not available otherwise.

Risk Sentiment measure by Feng Li

Do Stock Market Investors Understand the Risk Sentiment of Corporate Annual Reports?

Definition of Risk Sentiment:

 $RS_t = ln(1+NR_t)$

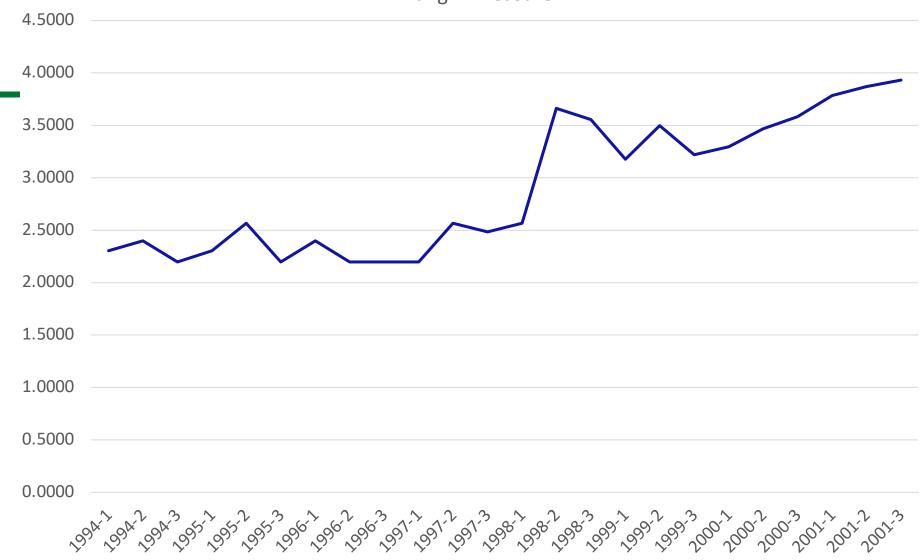
Change of risk sentiment as

 $\Delta RS_t = \ln(1+NR_t) - \ln(1+NR_{t-1})$

where NR_t and NR_{t-1} are the numbers of occurance of risk-related words in year t and year t - 1 respectively.

risk", "risks", "risky", "uncertain", "uncertainty", and "uncertainties

Enron Risk Sentiments = RSt = Ln(1+NRt) Fang Li Measure



The information content of mandatory risk factor disclosures in corporate filings

(Item 1A)

by

John L. Campbell • Hsinchun Chen •

Dan S. Dhaliwal • Hsin-min Lu • Logan B. Steele

In

Rev Account Stud (2014) 19:396-455

Word List for Financial Risk

Table 9 Key	words list by risk category		
Risk category	Keyword	Risk category	Keyword
Financial	Anti-takeover (provisionslprovision)	Financial	Reserves
Financial	Bank debt	Financial	Revolver
Financial	Capital (expenditurelexpenditures)	Financial	Sale of productive assets
Financial	Capital (leaselleases)	Financial	Stock market listing
Financial	Chapter 11	Financial	Stock price drop
Financial	Chapter 7	Financial	Stock price volatility
Financial	Chapter 9	Financial	Underfunded pensions
Financial	Collateral	Financial	Underwriting
Financial	Concentrated ownership	Financial	Volatility of operating results
Financial	(Covenantlcovenants)	Financial	Volatility of revenues
Financial	Credit (facilitylfacilities)	Financial	Volatility of sales
Financial	Credit rating	Financial	Working capital
Financial	Credit risk	Other- Idiosyncratic	Acquisition
Financial	Debt burden	Other- Idiosyncratic	Adequate staffing
Financial	Decline in stock price	Other- Idiosyncratic	Advertising

Word List for Litigation Risk

Risk category	Keyword	Risk category	Keyword
Legal and Regulatory	Pending (lawsuitlawsuits)	Other- Systematic	Foreign exchange
Legal and Regulatory	Plaintiff	Other- Systematic	(Forwardsforwards)
Legal and Regulatory	Possibility of (restatement/restatements)	Other- Systematic	Fuel
Legal and Regulatory	Potential (lawsuitllawsuits)	Other- Systematic	Future
Legal and Regulatory	Product liability	Other- Systematic	Gas
Legal and Regulatory	(Regulationlregulations)	Other- Systematic	Gasoline
Legal and Regulatory	Regulatory	Other- Systematic	GDP
Legal and Regulatory	Regulatory approval	Other- Systematic	G.D.P.
Legal and Regulatory	Regulatory change	Other- Systematic	GNP
Legal and Regulatory	Regulatory compliance	Other- Systematic	G.N.P.
Legal and Regulatory	Regulatory environment	Other- Systematic	General business risks
Legal and Regulatory	Related (partylparties)	Other- Systematic	General conditions

Word List for Litigation Risk

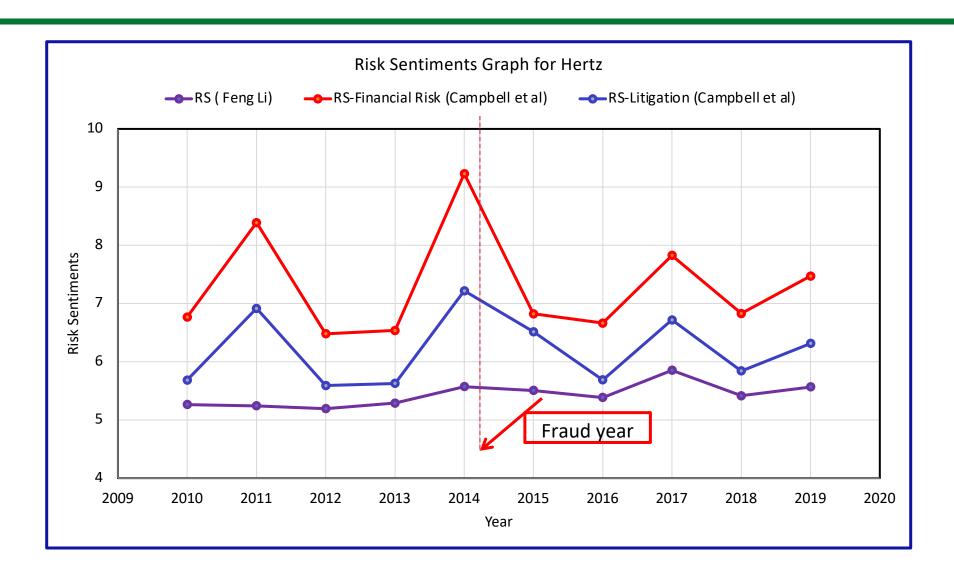
Tax	Aggressive tax
	(positionlpositions)
Tax	Back taxes
Tax	Deferred tax (assetlassets)
Tax	Deferred tax (liabilitylliabilities)
Tax	Excise (taxltaxes)
Tax	FIN 48
Tax	Internal Revenue Service
Tax	IRS
Tax	I.R.S.
Tax	IRS audit
Tax	IRS judgment
Tax	Loss (carrybacklcarrybacks)
Tax	Loss (carryforwardscarryforwards)
Tax	Property (taxltaxes)
Tax	Provision for income (taxltaxes)
Tax	State (taxltaxes)
Tax	(Tax Taxes)
Tax	Tax audit
Tax	Tax (authoritylauthorities)
Tax	Tax (liabilitylliabilities)
Tax	Tax (penaltylpenalties)
Tax	Taxable

Textual Analysis with More Built-in Features

8. Risk Sentiment Metrics

- Risk Sentiment (Feng Li Model)
 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=898181
- Risk Sentiments (Campbell et al. Model)
 https://link.springer.com/article/10.1007/s11142-013-9258-3
 - a. Risk Sentiment (Financial)
 - **b.** Risk Sentiment (Legal and Regulatory, i.e., Litigation)
 - **c.** Risk Sentiment (Tax)
 - d. Risk Sentiment (Systematic, economy)
 - e. Risk Sentiment (Idiosyncratic, specific to firm)
 - f. Risk Sentiment (Overall)

Risk Sentiments for Hertz Based on 10K



Cosine Measure of Similarity

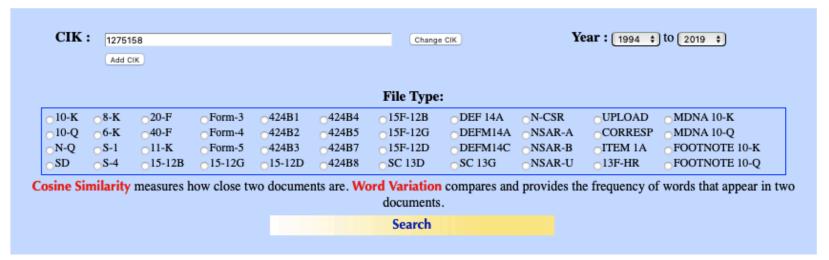


Anytime, Anywhere...

SEC filings at your fingertips in seconds with See

| HOME | ABOUT US | SeekiNF | FRAANK | FAQs | CONTACT US | Welcome Srivastava ▼ |

Recent Press and Other Releases | 10-K Exhibit 21(Subsidiaries) | Conference Call Transcripts | Search | Request Form | Special Request | Guidelines and Examples |



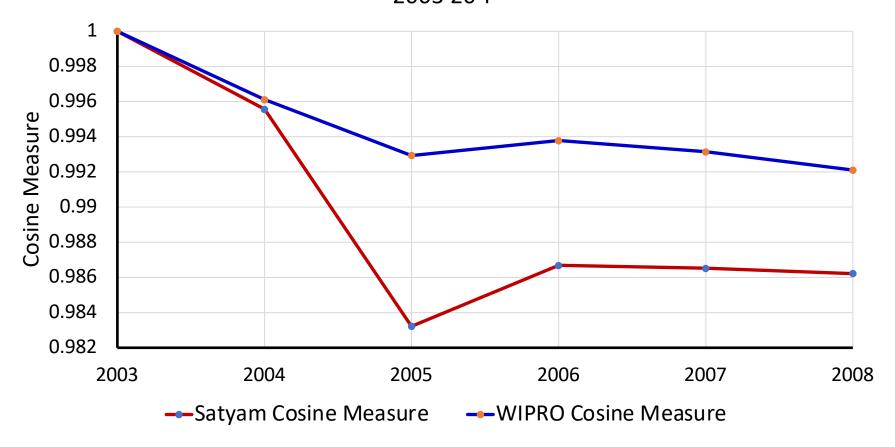
Trail Version: Please email Tech Team at techteam@seekedgar.com if any error or suggestions.

The list of 10-K 's filed between 1994 - 2019 years for CIK: 1275158

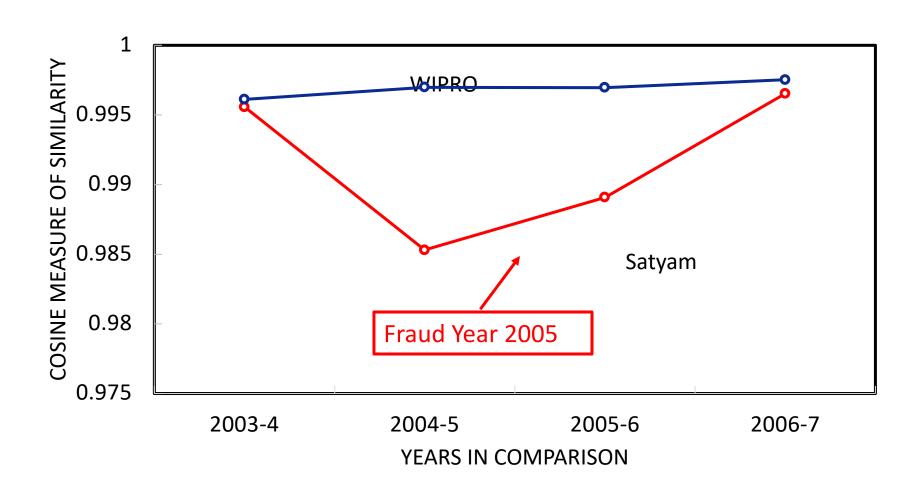
	Cosine Similarity		Word '	Variation
Filing	SEC File Link	Filir	ng Date	Word Distribution
☑ 10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-19-00	0010-index.htm 03	3-15-2019	Download Distribution
☑ 10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-18-00	0017-index.htm 0	3-15-2018	Download Distribution
☑ 10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-17-00	0018-index.htm 0	3-02-2017	Download Distribution
 10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-16-00	0096-index.htm 0	3-01-2016	Download Distribution
□10-K/A	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-15-00	0026-index.htm 0	05-07-2015	Download Distribution
□10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158-15-00	0005-index.htm 0	02-24-2015	Download Distribution
-10-K	https://www.sec.gov/Archives/edgar/data/1275158/0001275158.14.00	0011-index htm 0	13_07_2014	Download Distribution

Graph of Cosine Similarity for Satyam and WIPRO

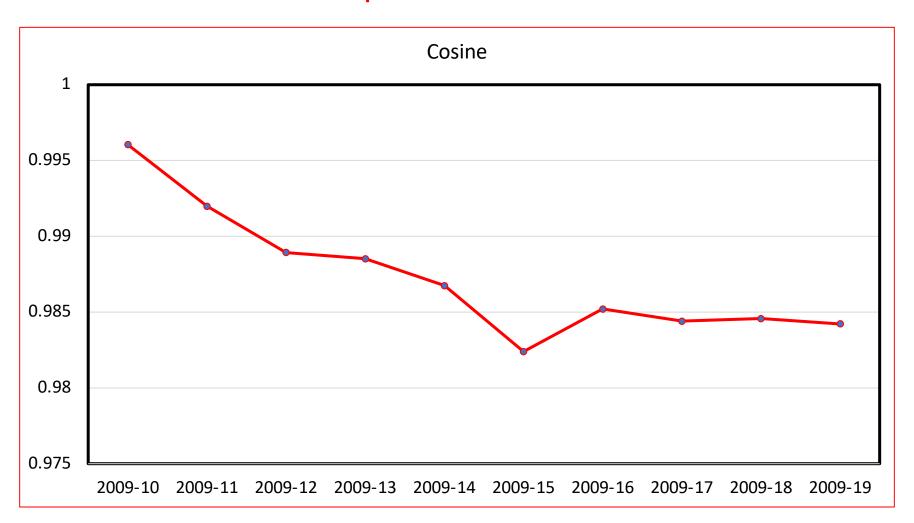
Cosine Measure of Similarity for Satyam and WIPRO in relation to 2003 20-F



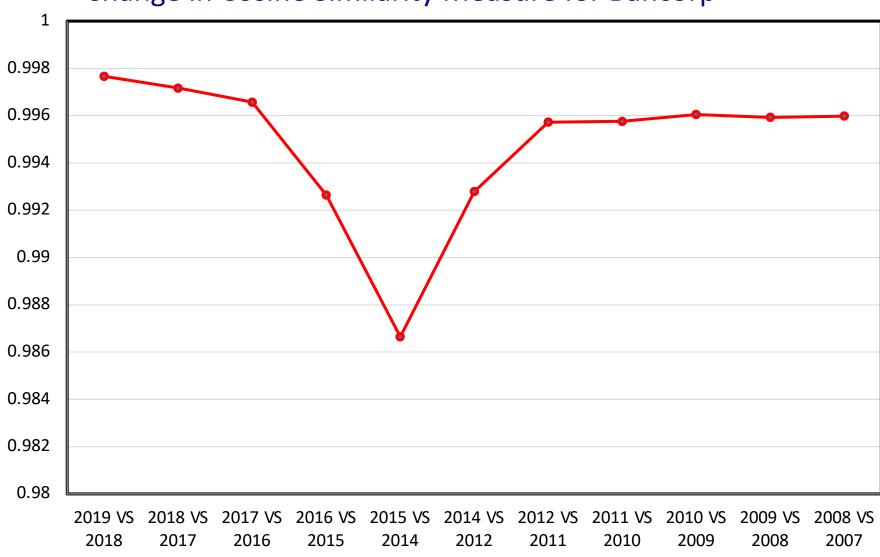
Change in Cosine Measure of Similarity for Satyam and WIPRO by Year (20-F)



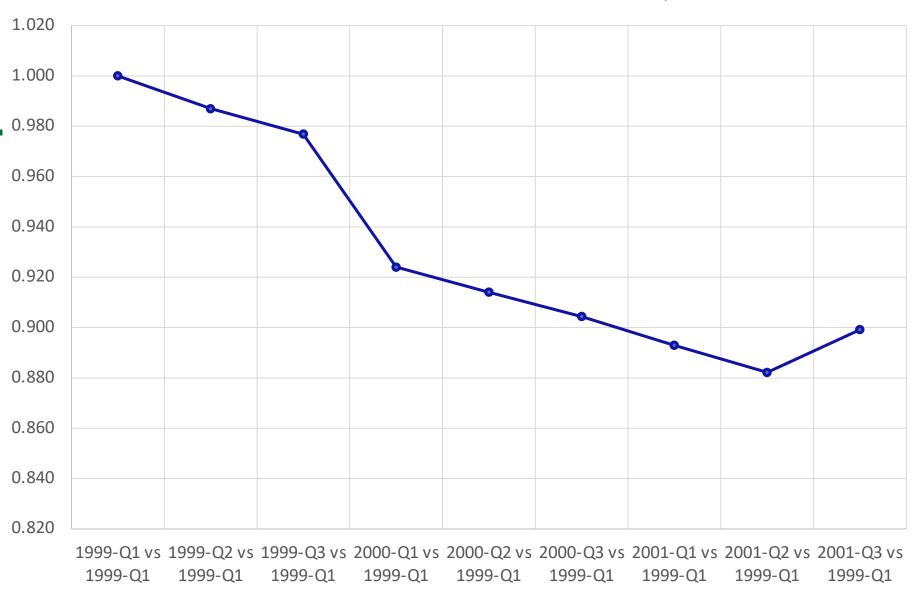
Graph of Cosine Similarity for Bancorp Inc. with respect to 2009 10K



Change in Cosine Similarity Measure for Bancorp



Enron -Cosine Measure w.r.t. 1999 10Q1



Measure of Competition

Measure of Competition

Li, Lundholm, and Minnis JAR, 2013, p. 399

Li, Lundholm, and Minnis (2013) develop a model to compute management's perception of the intensity of competition using textual analysis of firms' 10-K filings.

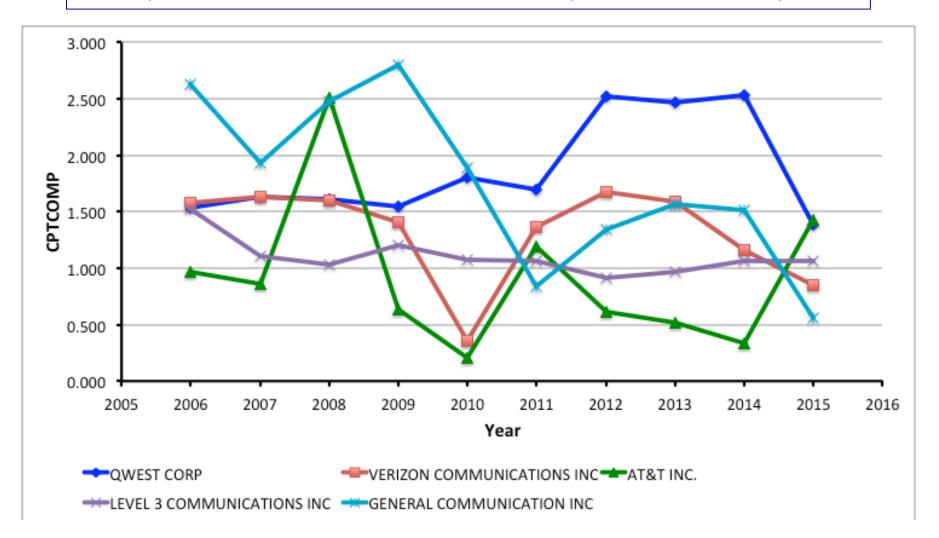
- Measure of competition varies across-industry and within-industry
- It is related to the firm's future rates of diminishing marginal returns.
- This measure is based on the count of the number of words like "competition, competitor, competitive, compete, competing," including those words with an "s" appended, less any case where "not," "less," "few," or "limited" precedes the word by three or fewer words.

PCTCOMP = 1000*NCOMP/NWORDS

where NCOMP = number of words in 10-K as described above and NWORDS = Total number of words without numbers.



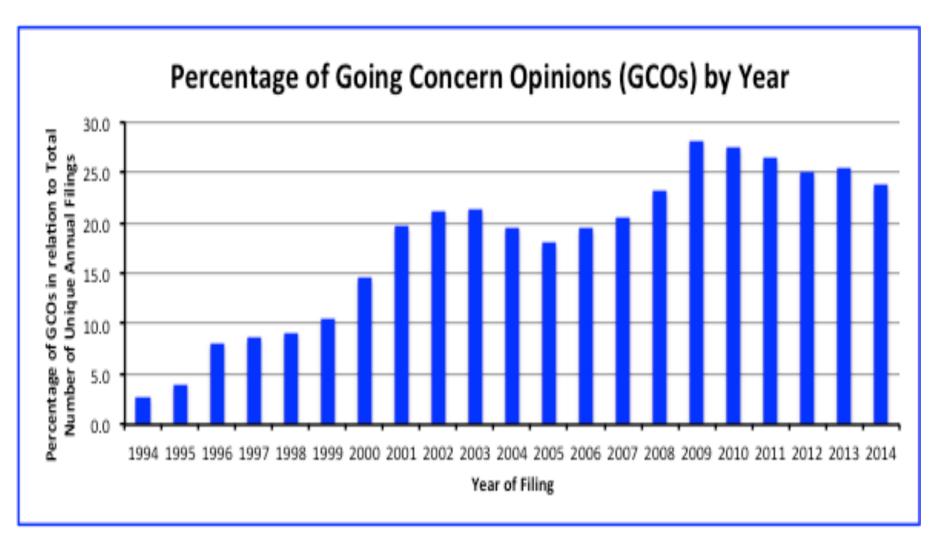
Competition Metric for Five companies for 10 years



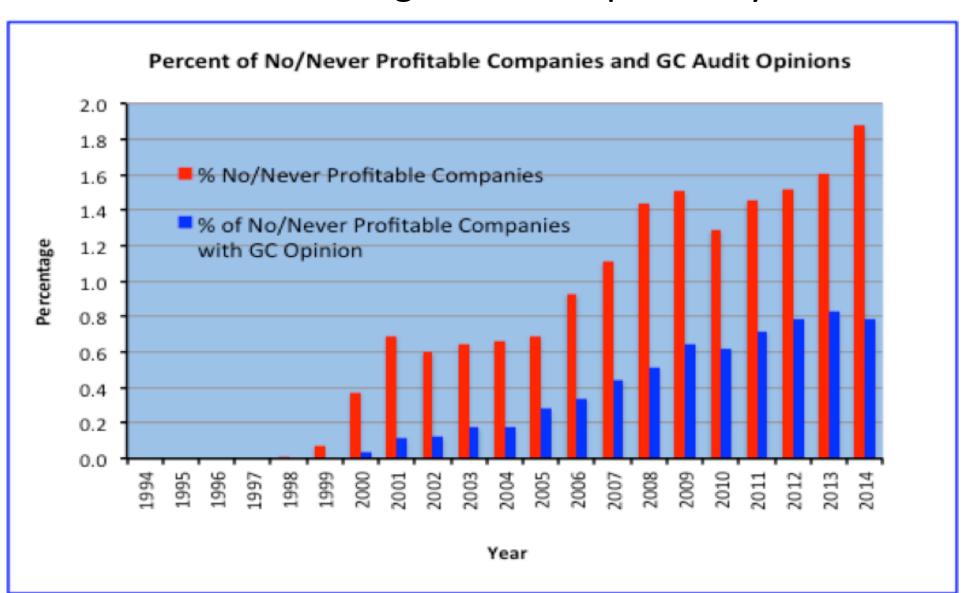
10 Years Word Variations in 10K

6	A	× ×	fx														
4	А	В	С	D	E	F	G	н	1	J	К	L	М	N	0	Р	
1	WORD VAR	Super Micro	Computer, In	с.													
	FILE TYPE :	10K															
		https://www	https://www	https://www	https://ww	https://www											
					w.sec.gov/A												
					rchives/edg												
					ar/data/137												
					5365/00016												
		75365-19-	75365-19-	28280-16-	,	,	45305-14-	45305-13-	45305-12-	93125-11-	93125-10-	93125-09-	93125-08-	93125-07-	93125-07-	93125-07-	
		000079-	000039-	019274-	008827-	007025-	003958-	002262-	002860-	240215-	205667-	184698-	188476-	266502-	207110-	190775-	
		index.html	index.html	index.html	index.html	index.html		index.html									
	WORDS	2019	2019	2016	2015	2015	2014	2013	2012	2011	2010	2009	2008	2007	2007	2007	
2	company	798	639	726	297	373	363	346	349	316	360	346	457	77	267	422	
3	with	763	1147	1061	100	401	370	396	427	387	435	378	420	59	326	413	
4	that	717	1007	1009	107	355	343	344	375	369	405	408	397	79	262	308	
5	sales	531	362	314	49	310	312	310	313	317	329	307	303	12	296	296	
6	is	528	859	817	152	346	315	313	318	318	445	324	310	65	232	274	
7	are	521	584	487	97	316	294	312	325	318	354	329	334	67	243	271	
8	S	516	594	495	181	275	254	252	244	226	345	221	263	91	160	221	
9	by	515	1121	1157	99	302	291	307	327	315	488	350	416	93	259	279	
0	financial	477	589	350	184	260	267	263	264	266	298	336	284	59	210	229	
1	fiscal	477	405	298	34	252	271	268	269	265	283	228	190	40	152	152	
2	year	475	401	288	49	268	269	270	275	257	268	201	156	32	119	121	
3	stock	458	359	331	130	267	254	263	274	285	307	301	312	87	188	194	
4	an	455	626	464	72	224	213	209	240	232	253	255	256	36	190	217	
5	be	453	836	1066	57	241	231	226	251	243	366	275	301	22	207	252	
6	from	440	593	468	51	229	245	246	273	271	308	258	272	52	244	258	
7	million	424	395	227	0	236	288	278	302	278	268	249	209	1	180	180	
8	at	408	467	515	84	243	230	222	251	227	275	225	217	57	137	141	
9	not	408	602	587	64	192	190	196	208	207	291	247	238	37	177	202	
0	june	396	381	298	183	275	261	262	272	261	261	245	242	26	176	178	
1	other	385	844	912	52	176	175	179	188	172	228	175	197	43	120	145	
2	which	366	432	450	54	195	185	214	220	208	264	222	255	22	185	199	

Example: Graph of Going Concern Opinions by Year



"We may never become profitable" in 10K with Going Concern Opinion by Year



Assessment of Financial Risk and Fraud Risk using Textual Analysis

- *"Detect Fraud Before Catastrophe" by Lee, Churyk, and Clinton, Strategic Finance, March 2013, p. 33.
 - Proactive content analysis techniques can help management accountants prevent catastrophic financial fallout.
- * "Using Nonfinancial Measures to Assess Fraud Risk" by Brazel, Jones, and Zimbelman, JAR 2009, p. 1135.
- ❖ SEC: Corporate Filers Beware: New "RoboCop" is On Patrol
 - Based on AQM and Text Analytics (not used yet, some companies are working on it)

Fraud Risk Assessment Model using Textual Analysis

Lee, Churyk and Clinton (Strategic Finance, 2013, p. 33)

Fraud detection model based on the textual, i.e., content, analysis of MD&A in 10-K:

```
Fraud<sub>i</sub> = 2.89757 - 0.83408 (Positive Emmotion<sub>i</sub>) - 0.48315 (Present Tense<sub>i</sub>)
```

- + .0001 (Total Words_i)
- $-2.80753(Colons_i)$

"Conventional fraud detection measures using ratio analysis and other financial data were either unable to detect the fraud or unable to detect it soon enough to avoid catastrophic outcomes".

Text Mining: Fraud Risk Assessment Model using Nonfinancial Measures

Brazel, Jones, and Zimbelman (JAR, December 2009)

Del Global Technologies (1997, Fraud)

Income: Overstated \$3.7 million.

Revenue: 25% from PY.

Employees: 6% (440 to 412)

Distribution Dealers: 38% (400 to 250)



Revenue: 27%

Employees: 20%

Distribution Dealers: 7%

Financial and Non-Financial Information from a Line

	A	В	С	D	E	F	G	Н	-	J
	COMPANY N	CIK	SIC	FILE TYPE	FILING DATE	VALUES				
	DEL GLOBAL	2774	36	79 10-K405	11/13/96					
	DEL GLOBAL	2774	36	79 10-K405	11/13/96	The Company is a key supplier of noise suppression products for use in	400			
	DEL GLOBAL	2774	36	79 10-K405	11/13/96	Medical imaging systems dealers are supported by the Company's reg	gional manage	ers, product l	ine managers a	and tech
	DEL GLOBAL	2774	36	79 10-K405	11/13/96	Technical support in the selection, use and maintenance of the Comp	any's product	s is provided	to dealers and	d profess
3	DEL GLOBAL	2774	36	79 10-K405	11/13/96	The Company also maintains telephone hotlines to provide technical	assistance to	dealers and p	professionals	
9										
0	COMPANY N	CIK	SIC	FILE TYPE	FILING DATE	VALUES				
1	DEL GLOBAL	2774	8 36	79 10-K	11/14/97					
				5 25	11/14/5/					
2					11/14/5/					
					11/14/37					
3	DEL GLOBAL	2774	8 36	79 10-K	11/14/97	Marketing, Sales and Distribution The Company's medical imaging sys				
3	DEL GLOBAL DEL GLOBAL	2774	8 36 8 36		11/14/97 11/14/97	Medical imaging systems dealers are supported by the Company's reg	gional manage	ers, product l	_	
3 4 5		2774 2774	8 36 8 36 8 36	79 10-K	11/14/97 11/14/97 11/14/97	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7	DEL GLOBAL	2774	8 36 8 36 8 36	79 10-K 79 10-K	11/14/97 11/14/97 11/14/97	Medical imaging systems dealers are supported by the Company's reg	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7 8	DEL GLOBAL DEL GLOBAL DEL GLOBAL	2774 2774 2774	8 36 8 36 8 36	79 10-K 79 10-K 79 10-K 79 10-K	11/14/97 11/14/97 11/14/97 11/14/97	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp The Company also maintains telephone hotlines to provide technical	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7 8 9	DEL GLOBAL DEL GLOBAL DEL GLOBAL COMPANY N	2774 2774 2774	8 36 8 36 8 36 8 36	79 10-K 79 10-K 79 10-K 79 10-K FILE TYPE	11/14/97 11/14/97 11/14/97 11/14/97 FILING DATE	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp The Company also maintains telephone hotlines to provide technical	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7 8 9	DEL GLOBAL DEL GLOBAL DEL GLOBAL	2774 2774 2774	8 36 8 36 8 36 8 36	79 10-K 79 10-K 79 10-K 79 10-K	11/14/97 11/14/97 11/14/97 11/14/97	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp The Company also maintains telephone hotlines to provide technical	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7 8 9 0	DEL GLOBAL DEL GLOBAL DEL GLOBAL COMPANY N	2774 2774 2774	8 36 8 36 8 36 8 36	79 10-K 79 10-K 79 10-K 79 10-K FILE TYPE	11/14/97 11/14/97 11/14/97 11/14/97 FILING DATE	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp The Company also maintains telephone hotlines to provide technical	gional manage pany's product	ers, product li s is provided	to dealers and	
3 4 5 6 7 8 9 0 1 2	DEL GLOBAL DEL GLOBAL DEL GLOBAL COMPANY N	2774 2774 2774	8 36 8 36 8 36 SIC	79 10-K 79 10-K 79 10-K 79 10-K FILE TYPE	11/14/97 11/14/97 11/14/97 11/14/97 FILING DATE 11/12/98	Medical imaging systems dealers are supported by the Company's reg Technical support in the selection, use and maintenance of the Comp The Company also maintains telephone hotlines to provide technical	gional manage pany's product assistance to	ers, product li s is provided dealers and l	to dealers and	

Seekinf

"Knowledge, Imagination, and Creativity will drive the future research, not the canned data"

Dr. Rajendra P. Srivastava rsrivastava@seekedgar.com rsrivastava@ku.edu

Seekinf

Questions?

Thanks!

rsrivastava@ku.edu