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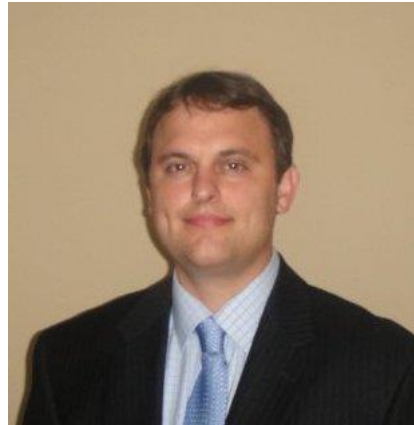
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Presenter:



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Practice Specializations

Business Valuations
Financial Forensics
Attestation Services (Audits & Reviews)
Mergers & Acquisitions
Employee Benefit Plan Services & Audits

Litigation Support Services
Management Consulting
Wealth Management
Personal Financial Planning

Experience

Jeremy joined CDPA in 2010 and manages the firm's litigation support, financial forensics, valuation, audit and review practice. He is the firm's Certified Valuation Analyst and Master Analyst in Financial Forensics. He is also a licensed Certified Public Accountant in both Alabama and Tennessee. Jeremy has over thirteen years of experience working in the finance and accounting industries, including auditing multi-national companies, income and estate tax issues along with general business consulting, individual financial planning, fraud examinations, litigation support and business valuation. Prior to joining CDPA, Jeremy was a manager with a large multi-national accounting firm (PricewaterhouseCoopers) auditing benefit plans, large multi-national corporations, investment firms, hedge funds, and private equity firms. Prior to that, he worked in the audit and tax department in the Nashville-based firm Davidson, Golden & Lundy.

Professional Affiliations & Civic Memberships

National Association of Certified Valuators and Analysts, Member
American Institute of Certified Public Accountants, Member
Alabama Society of Certified Public Accountants, Member
Learn to Read Council – Athens, AL, Treasurer
University of North Alabama School of Accounting Business Council, Board Member
Greater Limestone County Chamber of Commerce, Board Member
Alabama Society of Certified Public Accountants, Nomination Committee

Education

MBA, University of Alabama at Birmingham

BBA, University of North Alabama
Majors: Finance & Accounting

Certifications

Certified Public Accountant (TN and AL)
Certified Valuation Analyst
Master Analyst in Financial Forensics

AGENDA

- I. Introduction to Valuation (15 Minutes)
 - a) Services Provided by CVA
 - b) Time Value of Money
 - c) What is a business valuation and who needs them?
 - d) Qualifications of a Business Valuation Analyst
 - e) CPA versus Credentialed Valuation Analyst
 - f) Benefits of Using a Valuation Analyst

- II. Valuation Terminology and Process (25 Minutes)
 - a) Standard of Value
 - b) Premise of Value
 - c) Valuation Approaches
 - i. Asset Based Approach
 - ii. Income Approach
 - iii. Market Approach
 - d) Discounts
 - i. Discount for Lack of Control
 - ii. Discount for Lack of Marketability

- III. Forensic Accounting (20 minutes)
 - a) What does Forensic Accounting Have to Do with Valuation?
 - b) Definition of Forensic Accounting
 - c) Forensic Accounting Tools & Methods
 - d) Benford's Law

Introduction to Valuation

Services Provided by CVA & MAFF

- Business Valuation Services
- Alimony and Child Support Services
- Property Settlement Services
- Forensic Examination Services
- Expert Witness Testimony and Alternative Dispute Resolution Services
- Tax Planning and Tax Return Services

****NOTE:** CPA's have varying degrees of experience. A Tax CPA and an Audit CPA have completely different experience levels and job requirements. One deals with the tax code (Tax CPA) and the other (Audit CPA) deals with auditing amounts in financial statements to ensure their accuracy and appropriate presentation in accordance with GAAP. Further, neither of these may be qualified to perform valuation services (as a CVA would likely be needed). Appropriate care/inquiries should be given when hiring a CPA or CVA to ensure that their experience matches the task at hand.

Time Value of Money

- The time value of money is money's **potential** to grow in value over time.
- Because of this potential, money that's available in the present is considered **more** valuable than the same amount in the future.
- Example: assuming one can earn a 5% return, \$100,000 received in 12 months is only worth \$95,238.10 in present day dollars.
- Time value of money is the key concept in various valuation methods.

What is a Business Valuation?

- **Business Valuation** - A process to determine the worth of a Privately Held Company or a partial ownership interest in a Privately Held Company.
- **Common Purposes for Valuation** –
 - Mergers & Acquisitions
 - ESOPS
 - Stock Option Plans
 - Financial Reporting (Level 3 assets)
 - Compensation
 - Estate, Gift and Income tax
 - Litigation & Ownership Disputes
 - Buy/Sell Agreements
 - Shareholder Oppression
 - Business Planning
 - Family Limited Partnerships
 - Divorce

What is a Certified Valuation Analyst (CVA)?

What is a Master Analyst in Financial Forensics (MAFF)?

Other Valuation and Forensics Credentials

Credential	Association
Certified Valuation Analyst (CVA)	National Association of Certified Valuators and Analysts (NACVA)
Accredited in Business Valuation (ABV)	American Institute of Certified Public Accountants (AICPA)
Accredited Senior Appraiser (ASA) Accredited Member (AM)	American Society of Appraisers (ASA)
Certified Business Appraiser (CBA)	Institute of Business Appraisers (IBA) <small>**as of 2013, the IBA is now part of NACVA</small>
Master Analyst in Financial Forensics (MAFF)	National Association of Certified Valuators and Analysts (NACVA)
Certified in Financial Forensics (CFF)	American Institute of Certified Public Accountants (AICPA)

Can't I just use a regular CPA for valuation and forensic purposes?

- It Depends on the CPA.
- Valuation/Financial Forensics and Accounting are two completely different field's.
- Although a CPA can certainly be trained and qualified to perform valuations and forensic procedures without a credential, most who would go through the required training process **would obtain** the certification/credential. As such, most attorney's, bankers, accountants and business owners in need of valuation, forensics or litigation support services, would want to hire a credentialed professional.
- Daubert Challenges and Court's/Judges Sophistication.
- On June 9, 2011, Governor Bentley signed Senate Bill 187 into law, which replaced the *Frye* standard (which is less restrictive) with the *Daubert* Standard

IRS Comments

Comments from Michael Gregory (Territory Manager with IRS for 28 years)

- During IRS classification, a valuation report submitted by a credentialed appraiser has **less likelihood of being audited**.
- IRS classifiers review for potential adjustments. A credentialed valuator providing a report meeting professional standards goes a long way towards reducing the likelihood of an audit. An IRS review will focus on whether those standards were met.
- Use of a credentialed valuator using appropriate standards, significantly reduces the concerns of the IRS.
- If you are not a business appraiser, my recommendation to you is to obtain the services of a credentialed appraiser.

Benefits/Uses of a Certified Valuation Analyst (CVA)

Divorce/Dispute Cases

- Ensuring you meet Daubert challenges
- Judges are becoming very familiar with valuation methods and applications.
- Assistance with case review and opposing expert cross-examination.
- Assistance with state specific business valuation case law/precedent (discounts or no discounts).
- **Advocate vs. Expert**

Estate/Gift Tax

- Estate Planning (minimizing gift and estate taxes and avoiding forced sale of business)
- Ensuring that an overpayment of tax is not paid by client
- IRS requires that a “qualified appraiser” be used
- Ensures that “IRS approved, peer reviewed, industry techniques” are utilized
- Locking in the 3-Year Statute of Limitations
- IRS has credentialed valuation specialists (mostly CVA’s) on the payroll who will pick apart an improperly submitted valuation report

Benefits/Uses of a Certified Valuation Analyst (CVA)

Buy-Sell Agreements

- Review of existing buy-sell agreements (to help avoid future problems when executed)
- Set up buy-sell agreements appropriate language and funding mechanisms(avoiding potential future litigation)
- Independent outside appraisal calculating the buy-sell amount upon execution

Mergers & Acquisitions/Sale of Company

- Ensure investment will generate the needed cash flows for appropriate/expected return
- Perform investigative procedures to ensure financial statement amounts reported are accurate
- Review of Company transactions for “arms-length” status or “perquisite” status

Valuation Terminology and Process

Standard's of Value

- The definition of value can be different depending on the purpose, context, forum, or the individual
- Therefore, before one can estimate value, the definition of value must be clearly determined.
- There are three main standards of value used:
 1. Investment/Strategic Value
 2. Fair Market Value
 3. Fair Value

Investment/Strategic Value

-the value of a business to **specific/prospective** owner (i.e. known)
- Often considers synergies available to a specific purchaser.
- Value is based off of the cash flows that a specific known buyer expects to realize in the way that particular (owner) investor would operate it.
- This value is typically the highest form of value.
- **When used:**
 - Mergers & Acquisitions

Fair Market Value

-price at which a business would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of the relevant facts (i.e. hypothetical buyer)
- Arms-length transaction between independent third parties **and unknown** buyers
- **Perhaps the most well-known standard of value**
- **When used:**
 - Estate/Gift Tax
 - Some states in valuations in connection with divorce (Not Alabama)
 - Business Planning
 - Buy Sell Agreements (although parties can use any value the partners agree to)

Fair Value

- the definition of fair value depends on its context. Its definition is dependent upon the statutory rules, contract agreement or legal precedent
- Fair Value for Financial Reporting (FAS 157)
- Fair Value under State Statutes

When used:

- Dissenting Stockholder Cases
- State Minority Oppression Cases
- Divorce (on a state by state basis)
- Financial Reporting under U.S. GAAP

State of Alabama and Fair Value in Divorce

- *Grelier vs. Grelier* (Appeal from Madison Circuit Court)
 - The Alabama Court of Civil Appeals in *Grelier v. Grelier* [44 So. 3d 1092 (Ala. Civ. App. 2009)] held that the dissenting shareholder statutory fair value standard **was applicable to marital dissolution cases**. The lower court originally applied a 40% minority/marketability discount, but the appeals court concluded that the value should have been a “going concern without applying any discount”.
- Alabama has adopted the broader **equitable standard of value in divorce**, requiring determinations to be fair to the parties under the facts of the case. When spouses hold a minority interest and one contemplates continuing the business after divorce, “it makes little sense to determine fair value by the measuring stick of a hypothetical sales price” (as would be the case under the Fair Market Value standard). That would artificially reduce the value of the marital asset, granting an unfair price to the divested spouse and a windfall to the continuing owner.
- In this situation and in the State of Alabama, fair value and fair market value differ by the application (or non-application) of a minority and marketability discount

Examples of Matching the Purpose to Standard of Value

Purpose of Valuation	Applicable Standard of Value
Gift, estate and inheritance taxes and charitable contributions	Fair Market Value
Purchase or sale	Investment Value or Fair Market Value
Marital dissolution	Dependent upon state precedent. Generally Fair Value, but some states utilize Fair Market Value
Buy-sell agreements	Parties can do anything they want, but it is typically either Fair Market Value or Fair Value
Dissenting stockholder actions	Fair Value in almost all states
Employee stock ownership plans	Fair Market Value (regulated by DOL)
Financial reporting	Fair Value (as defined by FASB)
Mergers & acquisitions	Investment Value

Premise of Value

- Once the standard of value is determined, the appropriate premise of value must then be selected.
- There are four various subsets of Premise of Value:
 1. Book Value
 2. Going Concern Value
 3. Liquidation Value
 4. Replacement Value

Going Concern Value

- The value of a business enterprise that is expected to continue to operate into the future.
- Most common type of Premise of Value

Liquidation Value

- The amount that would be realized if the business is terminated and the assets are sold piecemeal.

Valuation Approaches

The commonly used methods of valuation can be grouped into one of three general approaches:

1. Asset Based Approach
 2. Income Approach
 3. Market Approach
- Each of these three approaches has various methods

Asset Based Approaches

- This approach is a general way of determining a value based on the value of the assets, net of liabilities.
- Methods under this approach
 1. Book Value Method (represents cost basis of assets; rarely used)
 2. Adjusted Net Asset Method (adjust assets and liabilities from cost basis to fair market value basis)

Asset Based Approaches – Adjusted Net Assets Method

- Under this method, the valuation analyst adjusts the book value of the assets to fair market value and then reduces the total adjusted value of the assets by the fair market value of all recorded and unrecorded liabilities.
- The Adjusted Net Assets Method is a sound method for estimating the value of a non-operating business, such as a holding or investment company.
- This method generally sets the “floor value”
- Negative aspect is that it does not address the operating earnings of the business

Asset Based Approaches – Adjusted Net Assets Method Example

	Book Cost	FMV Adjustment	Adjusted Net Asset Value
Cash	\$595,000	-	\$595,000
Truck, net	25,000	(5,000)	20,000
<u>Investments</u>	<u>58,000</u>	<u>10,000</u>	<u>68,000</u>
Total Assets	678,000	5,000	683,000
Bond Payable	(250,000)	(20,000)	(270,000)
Total Liabilities	(250,000)	(20,000)	(270,000)
Equity/Value	<u>\$428,000</u>	<u>\$(15,000)</u>	<u>\$413,000</u>

Income Approach

- This approach is a general way of determining a value by converting anticipated economic benefits (i.e. cash flows) into a present single amount.
- This is perhaps the most widely recognized approach used to value privately held companies.
- Key concept with the income approach is the Time Value of Money
- Methods under this approach
 1. Capitalization of Earnings Method
 2. Discounted Cash Flow Method

Income Approach

- Forward Looking Premise (i.e. expected future earnings)
- Income Approach is a mathematical fraction consisting of a numerator and a denominator.
- Numerator – represents future payments of an investment
- Denominator – represents a quantification of the associated risk and uncertainty of those future payments

Income Approach – Capitalization of Earnings

The basic formula for valuation using the capitalization of earnings method is as follows:

$$PV = \frac{E}{k}$$

Where:

PV = Present Value

E = Current Years expected income at stable growth rate

k = Capitalization rate (cost of capital, i.e., the expected rate of return available in the market for other investments that are comparable in terms of risk and other investment characteristics less growth rate)

Income Approach

Using our previous \$100,000 example, where the Present Value was \$95,238.10 (and the future cash flow of \$4,761.90 to get to the future \$100,000), the value, under the capitalization of earnings, would be calculated as follows:

$$\text{Value} = \frac{\text{Future Cash Flow}}{\text{Quantified Risk}} = \frac{\$4,761.90}{.05} = \$95,238$$

$$\text{Proof of equation} = \$95,238 \times 5\% \text{ interest} = \$4,761.90$$

$$\$4,761.90 + \$95,238.10 = \$100,000$$

Income Approach – Discounted Cash Flow

The basic formula for valuation using the discounted cash flow method (which is more complex than the capitalization of earnings method) is as follows:

$$PV = \sum_{i=1}^n \frac{E_i}{(1+k)^i}$$

Where:

PV = Present Value

Σ = Sum of

n = the last period for which economic income is expected

E_i = Expected economic income in the i th period in the future

k = Discount rate (cost of capital, i.e., the expected rate of return available in the market for other investments that are comparable in terms of risk and other investment characteristics)

i = The period (usually stated as a number of years) in the future in which the prospective economic income is expected to be received

T = Terminal Value (value when growth becomes consistent)

The basic formula can be expanded very simply as follows:

$$PV = \frac{E_1}{(1+k)} + \frac{E_2}{(1+k)^2} + \frac{E_3}{(1+k)^3} + \dots + \frac{T_n}{(1+k)^n}$$

Income Approach

Capitalization of Earnings Method vs. Discounted Cash Flow Method

Capitalization of Earnings Method – Assumes a steady growth rate into the future

Discounted Cash Flow Method – Assumes a varying growth rate into the near future at which some point a steady growth rate can be achieved

Rate of Return

- Capitalization of Earnings excludes long term growth rate
- Discounted Cash Flow includes long term growth rate

Income Approach – Seems Simple, but there is a lot of work calculating the appropriate numerator and denominator to use

Numerator (i.e. benefit stream)

1. You must define your benefit stream and the recipient
 - a. Cash flow to Equity (after debt and interest paid)
 - b. Cash flow to Invested Capital (prior to debt and interest paid)

2. You must make appropriate adjustments to the benefit stream based on the valuation being performed
 - a. Non-operating adjustments
 - b. Non-recurring adjustments
 - c. Discretionary Adjustments (i.e. owner perquisites)

Income Approach – Seems Simple, but there is a lot of work calculating the appropriate numerator and denominator to use

Denominator (i.e. Required Rate of Return)

1. You must match the rate of return with the appropriate cash flow and appropriate method:
 - a. Discount Rate vs. Capitalization Rate
 - b. Cash flow to equity vs. cash flow to invested capital

2. Components of Discount/Capitalization Rate (Build Up Method)
 - a. Risk Free Rate
 - b. Equity Risk Premium
 - c. Firm Size Premium
 - d. Industry Risk Premium
 - e. Company Specific Risk Premium
 - f. Long Term Growth (Discount rate only)

Compounded Annual Growth Rate (CAGR)

$$\text{CAGR} = [(\text{Ending Value} \div \text{Beginning Value})^{1/n}] - 1$$

where “n” is the number of time periods

Income Approach

Pass through Entities

Issue: Pass through Entities themselves do not pay taxes on income. These are paid by the shareholder of the entity on their personal return. Should the cash flows used in the Income Approach be “tax affected” for the taxes paid even though they are paid at the owner level?

Case Law:

Gross v. Commissioner

Wall v. Commissioner

Estate of Heck v. Commissioner

Estate of Adams v. Commissioner

**all 4 rejected the previously accepted practice of simply tax affecting the earnings of pass through entities as one would with a C-Corp.

Side Note:

IRS Employee Handbook, prior to these rulings, instructed its employees to tax affect the earnings. It then took the stance of not tax affecting in the above cases.

Income Approach

Pass through Entities (PTE's)

- While there have been 4 court cases that rejected straight tax affecting, they did not reject the fact that pass PTE's entities are paying taxes.
-
- In fact, there has been 1 recent case in Delaware Chancery Court, an approach was utilized that adjusted for the tax affects of a Pass-through entity that are more in line with economic reality
- Common sense tells us that if you have 2 companies, one a C-Corp and one an S-Corp, and they are identical in every aspect other than at the level income taxes are paid, that the value of the 2 companies would be identical

Income Approach

Example of Not Tax-Affecting

	Tax-Affecting	Not Tax-Affecting
1 Pre-Tax Cash Flow	\$100,000	\$100,000
2 Corporate Tax Liability (40%)	(40,000)	0
3 After Tax Cash Flow	60,000	100,000
4 Divided by: Capitalization Rate	10.0%	10.0%
5 Indicated Value	\$600,000	\$1,000,000
	<u>67% Premium</u>	

Income Approach

Models for Valuation of Pass-through Entities

- Treharne Model
- Van Vleet Model
- Mercer Model
- Grabowski Model
- Delaware Chancery Court (Delaware Open MRI Radiology v. Kessler)

Market Approach

- The idea behind this approach is that the value of a business can be determined by reference to sales of reasonably comparable guideline companies (both public and private) that have taken place in either the public or the private market
- This is the same approach that most real estate appraisers use

Two Primary Methods:

1. Guideline Public Company Method (Public Company price comparison)
2. Guideline Company Transaction Method (Private Company price comparison)

Market Approach

Whether you are using Public Company Comparables or Private Company Comparables, the idea is the same.

Sale Price of Company = Price to Revenue Multiple
Company Revenue

Example:

Company A Sales Price = \$1M Company A Revenue = \$750K

Price to Revenue Multiple = $\frac{\$1M}{\$750K} = 1.33$

Company B Revenue (being valued) = \$5M

Company B Estimate Value = $1.33 \times \$5M = \$6.65M$

Discounts

Discounts

- The most challenged area of valuation by IRS and opposing attorneys
- Highest degree of significance in business valuation.
- More money at stake in determining what discounts (or premiums) are applicable than arriving at the base value (i.e. pre-discounted value) itself

Example: *Estate of Weinberg v. Commissioner*

Parties agreed to the pre-discounted value of apartment building (\$10,050,000).

The point of disagreement centered on the magnitudes of discounts:

Discounts	Taxpayer's Expert	IRS Expert	Tax Court
Minority Interest Discount	43%	20%	37%
Marketability Discount	35%	15%	20%
Combined Discount	63%	32%	50%
Value after Discounts	\$3,718,500	\$6,834,000	\$5,025,000
Taxes Owed for this transaction (using 2013 rate)	\$0	\$633,600	\$0

Discounts

Types of Discounts:

- Discount for Lack of Control
- Discount for Lack of Marketability
- Restrictive Agreement Discount
- Key Person/Thin Management Discount
- Blockage Discount
- Company-Specific Risk Discount (usually taken into account in the discount or capitalization rate)

In most cases, the difference between FMV and FV, is the use or lack of use of Discounts.

Discount for Lack of Control (DLOC)

What is a DLOC?

- Also called the Minority Interest Discount
- Minority interest cannot compel a majority owner(s) to do anything in the business that the controlling owners do not want.
- Applied when transaction is for less than 50% ownership

How do we measure DLOC?

- Mergerstate/BVR Control Premium Study
- Tracks daily control purchase transactions on stock exchanges (which are minority interests) and compares the prices paid to the minority values on the open market.

Minority Discount formula:

$$DLOC = 1 - \left[1 / (1 + \text{Control Premium Paid}) \right]$$

Discount for Lack of Control (DLOC)

Assuming Bill Gates paid \$7 per share to gain control of an open market company currently trading at \$5 (a \$2 premium, or 40% premium), we get the following:

$$DLOC = 1 - [1 / (1 + 0.40)] = 28.571\%$$

$$\$7 \times (1 - .28571) = \$5$$

This is the simplified essence of how we can calculate a discount from the Mergerstat control premiums. A 40% control premium correlates to a 28.571% minority interest discount.

Discount for Lack of Marketability (DLOM)

What is a DLOM?

Generally 4 sources of evidence for the DLOM

1. Cost of “Flotation” studies
2. Restricted Stock Studies
3. Pre-IPO studies
4. Tax Court Cases

Cost of Flotation Studies – what would be the cost of going public (i.e. attorney fees, registration fees, accountant fees, etc.). This is typically not used as most business valuations are for privately held smaller companies.

Discount for Lack of Marketability (DLOM)

Restricted Stock Studies – examine restricted stock under the Securities Act of 1933

Empirical Study	Years Covered in Study	Average Discount
SEC Overall Average	1966-1999	25.8%
SEC Non-reporting OTC Companies	1966-1999	32.6%
Gelman	1968-1970	33.0%
Trout	1968-1972	33.5%
Morony	1969-1972	35.6%
Maher	1969-1973	35.4%
Standard Research Consultants	1978-1982	45.0%
Willamette Management Associates	1981-1984	31.2%
Silber	1981-1988	33.8%
FMV Opinions, Inc.	1979-1992	23.0%
Management Planning, Inc.	1980-1995	27.7%
Bruce Johnson	1991-1995	20.0%
Columbia Financial Advisors	1996-Apr. 1997	21.0%
Columbia Financial Advisors	May 1997-Dec. 1998	13.0%

Discount for Lack of Marketability (DLOM)

Pre-IPO Studies – With the reduction of restricted stock issuances after the 1970's, there was a steady stream of Initial Public Offerings to examine for evidence of DLOM

Two Major Studies that compared pre-IPO announcement prices to post-IPO announcement prices:

1. Willamette
2. Emory

Willamette: performed studies between 1975-1995. Average discount was 40.3% and exceeded 35% in all but 5 of the 16 years studied.

Emory: performed studies between 1985-1997. Average discount was 44%.

Discount for Lack of Marketability (DLOM)

Tax Court Cases– There have been various court decisions related to Discounts. The most prominent court decision was Mandelbaum v. Commissioner, in which the DLOM was the main issue at hand.

- Mandelbaum embraced the notion that the average discounts from the Restricted Stock Studies and the Pre-IPO studies ranged from 35% to 45%.
- It used this as a starting base, and then established nine factors that would increase or decrease the discount based on company specific attributes

Courts and the IRS are currently accepting DLOM's in the 30-35% maximum range, but they review each case individually.

Forensic Accounting

Forensic Accounting

Forensic Accounting Definition (AICPA) - forensic accounting services are nonattest services that involve the application of special skills in accounting, auditing, finance, quantitative methods and certain areas of the law, and research, and investigative skills **to collect, analyze, and evaluate evidential matter and to interpret and communicate findings.**

Forensic Accounting Definition (Forensic Accounting Academy) – The art & science of investigative techniques in accounting and financial matters.

Forensic Accounting

Forensic Investigation vs. Fraud Investigation

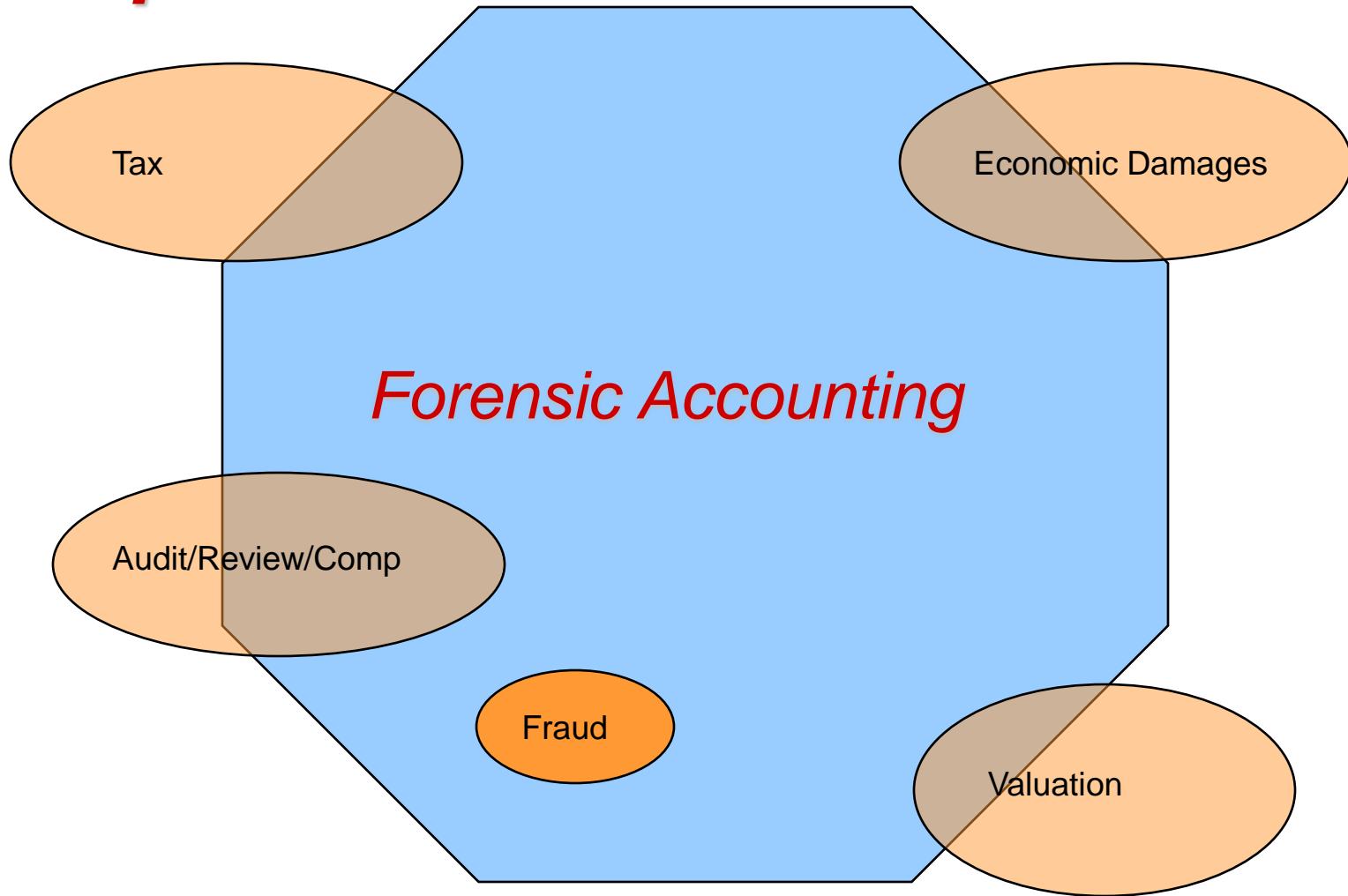
- A common misconception is that they are one in the same
- Fraud investigation is a subset of forensic investigation.
- Fraud investigations are forensic investigations.
- However, forensic accounting isn't always related to fraud investigations.

Forensic Accounting and Valuations

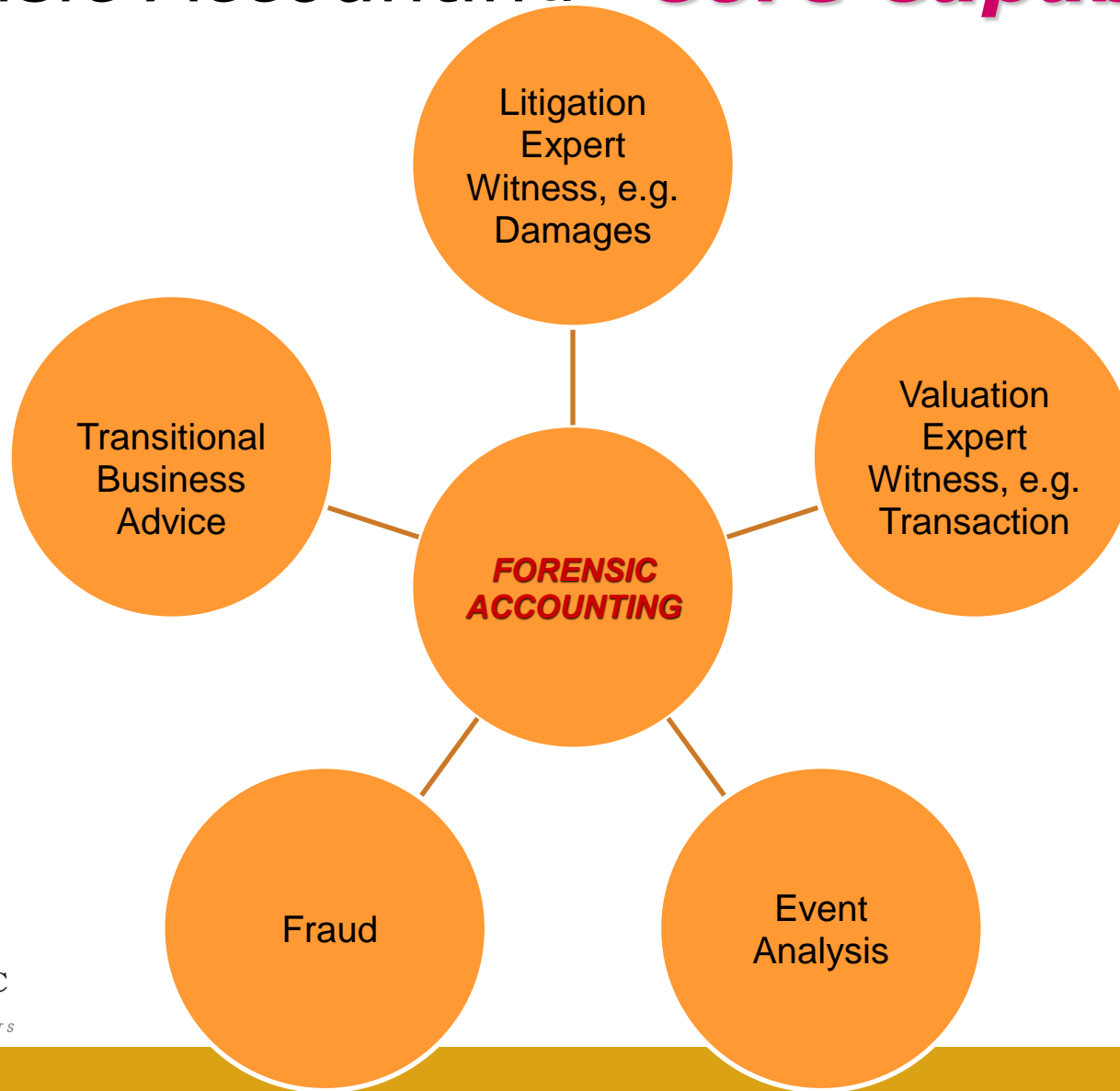
What does forensic accounting have to do with valuation?

- Financial Analysis
- Normalizing Adjustments
- Earnings Estimates
- Management Assessments
- Guideline Company Comparisons/Selection

Forensic Accounting – *Foundational Discipline*



Forensic Accounting - **Core Capability**



Forensic Accounting

Public Perceptions

Clients expectations typically reach beyond a CPA's core expertise, which is no surprise since ***forensic accounting*** is now a household term

Thanks to extensive media coverage of several high profile corporate collapses and showcasing of forensic accounting specialists (who are typically CPAs), the public "thinks" that ***all*** CPAs have such expertise and are performing forensic accounting procedures (which is almost always not the case).

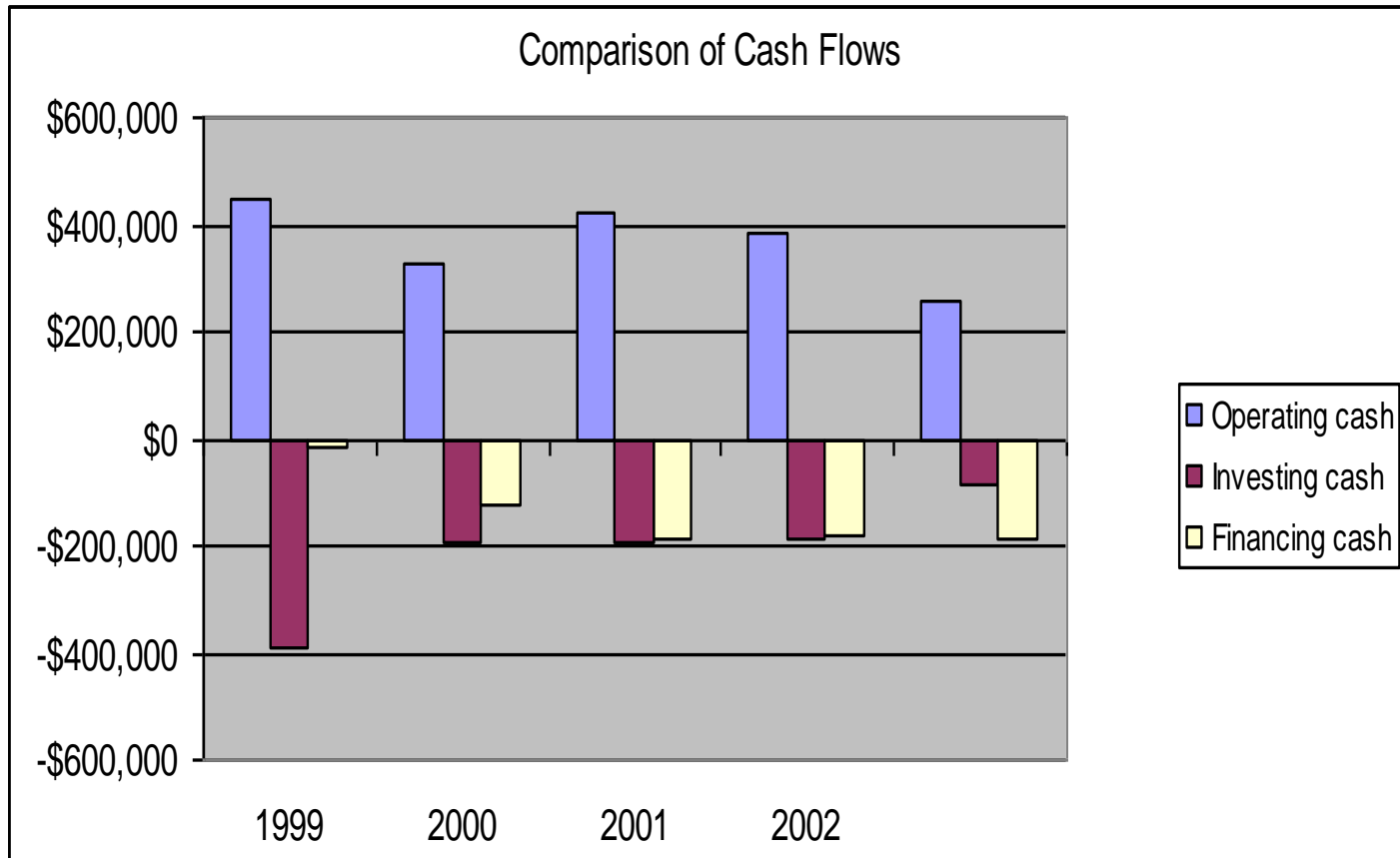
The accounting profession has reinforced such perceptions despite failing to provide guidance to their member CPAs.

It is extremely important to know if your CPA is knowledgeable in forensic accounting and whether they have the appropriate training.

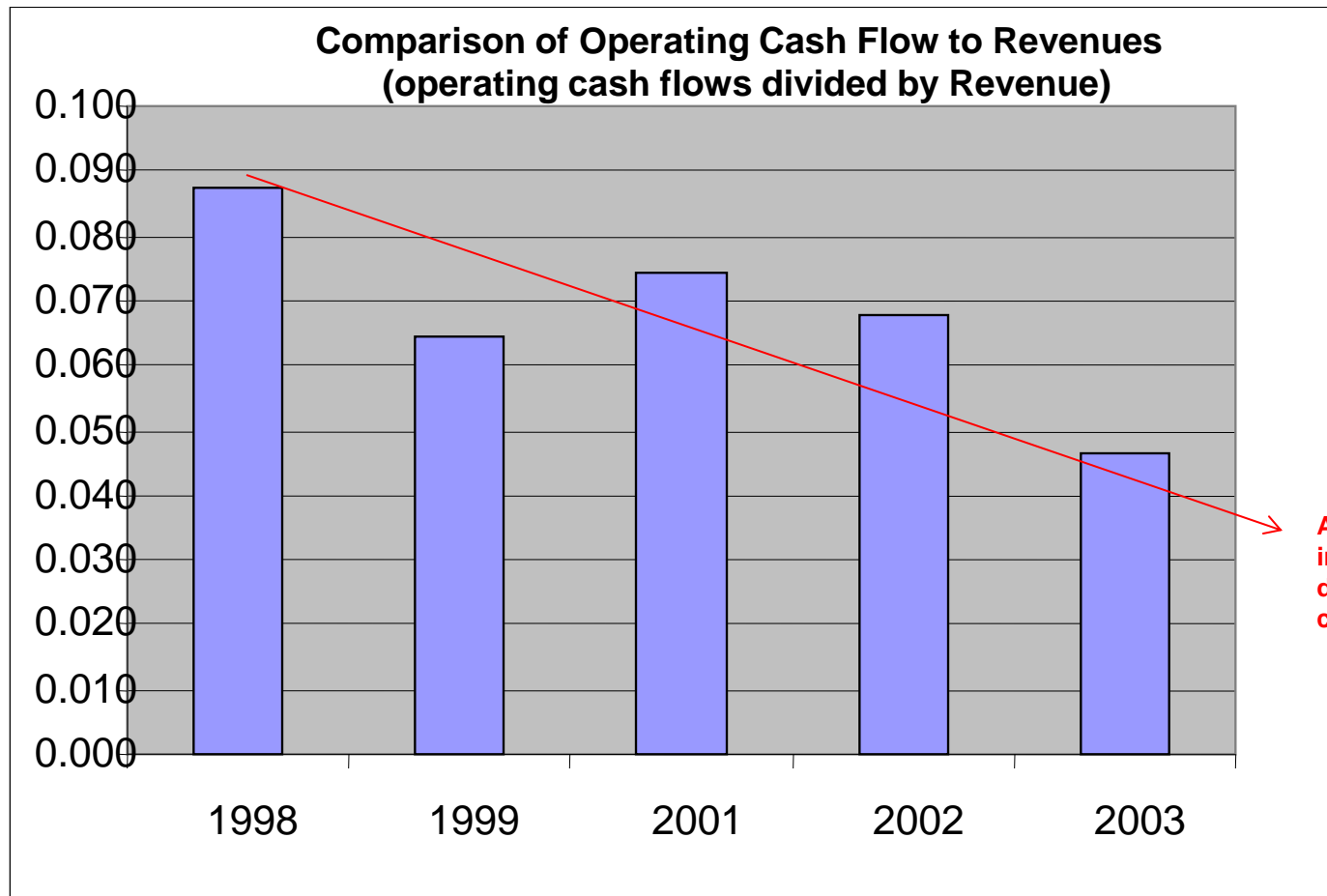
A Few Forensic accounting tools...

- Full-and-False Inclusion
- Cash Flow Correlation
- Key Account Reconciliations
- Reconcile Equity
- Link Analysis
- Item Listing
- (Modified) Net Worth
- Source and Use of Cash
- Proof-of-Cash
- Digital Analysis
 - Duplicate Numbers Test
 - Benford's Law
- Financial Analysis

Decompose the Cash Flows



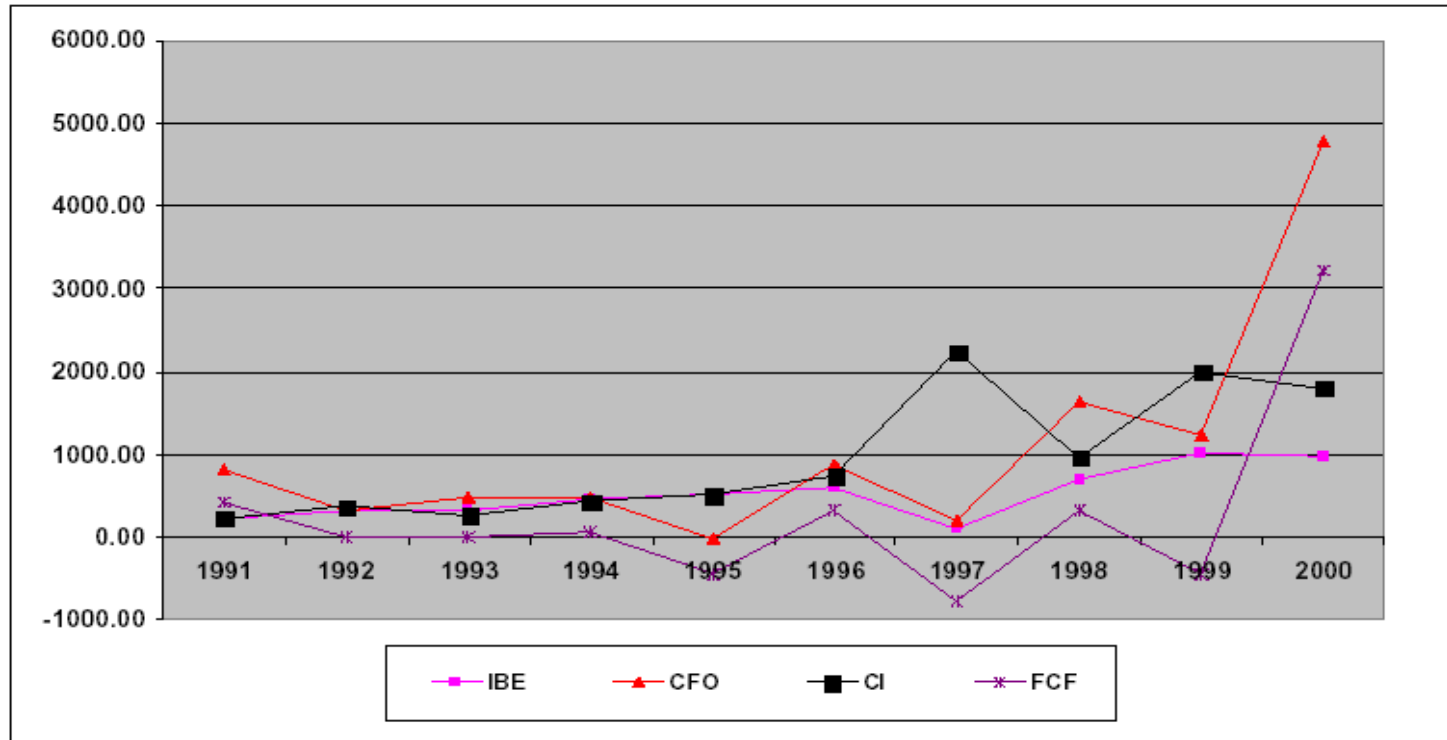
Is Correlated Cash Flow Improving?



A decreasing ratio indicates a decreasing company value

Cash Flow Correlation

Is there any indication of Fraud?



IBE - Income before extraordinary items and discontinued operations.

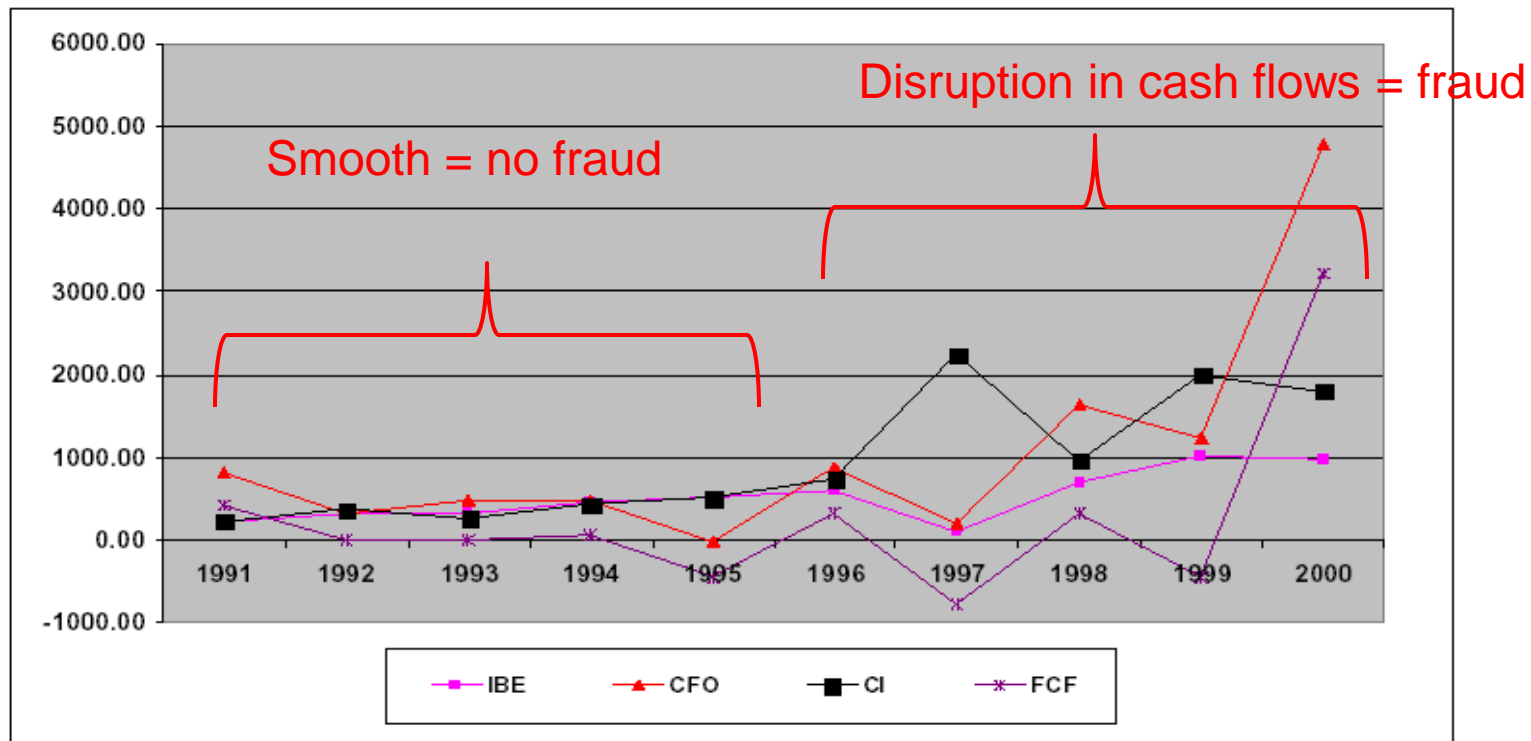
CFO - Cash flow from operations.

CI - Comprehensive income defined as the change in owners' equity plus dividends net of capital contributions.

FCF - Free cash flow is measured by cash flow from operations (CFO) minus net capital expenditures plus net interest payments.

Cash Flow Correlation

Is there any indication of Fraud? **YES. This is Enron's Cash Flow Correlation (VIE's started in 1997)**



IBE - Income before extraordinary items and discontinued operations.

CFO - Cash flow from operations.

CI - Comprehensive income defined as the change in owners' equity plus dividends net of capital contributions.

FCF - Free cash flow is measured by cash flow from operations (CFO) minus net capital expenditures plus net interest payments.

Forensic Accountants can help attorneys.....

Knowing both sides of a Litigation Case

Knowing how the opposing side (or both sides) will manipulate data in a litigation case is key to forensic accounting techniques and gives the forensic accountant a starting point for their investigation

Inventory

DEFENDANT	CATEGORIES	PLAINTIFF
<ul style="list-style-type: none">• Is obsolete inventory written off?• Inventory may contain consignments• May be subject to liens, pledged or party to loan covenants• LIFO accounting will generally produce correct income but understate inventory• Have all purchase discounts been properly recorded?• Accounting change analysis	<p>Current Assets</p> <ul style="list-style-type: none">• Inventory	<ul style="list-style-type: none">➤ Inventory held by third parties (warehouses, consignments)➤ FIFO accounting will generally overstate income but correctly state inventory➤ Were quantities generated by a perpetual record system or was a physical count made?➤ Look for significant purchases with FOB shipping point terms➤ Look for sales or transfers after cut-off➤ Consider accrual impact

Net Sales

DEFENDANT	CATEGORIES	PLAINTIFF
<ul style="list-style-type: none">➤ May record an estimate for sales returns & allowances➤ See related items in accounts receivable➤ Analyze by:<ul style="list-style-type: none">• LOB• SBU• customer• geography• market• competition• Units➤ Look for key contracts➤ Look for competitive advantage	<p>Net Sales</p> <ul style="list-style-type: none">• Sales• Returns and allowances	<ul style="list-style-type: none">➤ Proper cut-off of sales activity➤ See related items in accounts receivable➤ Analyze by:<ul style="list-style-type: none">• LOB• SBU• customer• geography• market• competition• Units➤ Look for key contracts➤ Look for competitive advantage

STATEMENT OF CASH FLOWS

DEFENDANT	CATEGORIES	PLAINTIFF
<p>Play up cash Downplay earnings</p>	<p>Earnings are strong Cash flow is weak</p>	<p>Downplay cash Play up earnings</p>
<p>Downplay cash Play up earnings</p>	<p>Earnings are weak Cash flow is strong</p>	<p>Play up cash Downplay earnings</p>
<p>Questions the numbers Divert attention</p>	<p>Earnings are strong Cash flow is strong</p>	<p>Play up cash Play up earnings</p>
<p>Play up cash Play up earnings</p>	<p>Earnings are weak Cash flow is weak</p>	<p>Focus on the future Questions the numbers</p>

Key Account Reconciliations

- Regular account reconciliations are a ***foundational*** control tool.
 - Vorhies, James Brady, “*Account Reconciliation: An Underappreciated Control*,” Journal of Accountancy, September 2006.

Reconcile the Equity

	2004	2003	2002	2001	2000	1999
Beginning Shareholders' Equity	604,786	627,107	619,803	545,570	436,486	687,574
Net Income/(Loss)	768,398	598,466	307,138	267,377	417,797	29,475
Dividends Paid Common Stock						
Dividends Paid Common Non-Voting Stock						
Dividends Paid Preferred Stock						
Common Stock Issued						
Common Non Voting Stock Issued						
Treasury Stock Purchased						
Distributions to Shareholder	(299,834)					
Change in Accounting Method						
Additions to ESOP Liability						
Reduction of ESOP Liability						
Prior Period Adjustments						
Other Restatements, Net	(298,632)					
Ending Shareholders' Equity	774,718	1,225,573	926,941	812,947	854,283	717,049

Link Analysis

Entity Name	Registry Date	Principal Place of Business	Registered Agent
Hobbies, Inc.	8/11/1978	2301 N. Watermain Rd City ZIP	Old Attorney, P.C.
Watermain Marketing, Inc.	8/11/1978	Links to "Hobbies, Inc..."	Old Attorney, P.C.
Regional Purchasing, Inc.	8/11/1978	2301 N. Watermain Rd City ZIP	Old Attorney, P.C.
Hobbies, Inc.	2/23/1973	13367 Street Rd NE City ZIP	Old Attorney, P.C.
Example Dog and Cat Hospital, P.C.	7/31/1981	9876 SW Small Road Hwy Example ZIP	First Name Partner #2
The Spouse Company	8/12/1985	xxxxx SW Heather Road #620 Small Town ZIP	First Name Spouse, Jr.
Big-Ticket Services, Inc.	8/15/1985	Links to "The Spouse Company"...	First Name Spouse, Jr.
Big-Ticket Services, Ltd.	8/12/1985	Links to "The Spouse Company"...	First Name Spouse, Jr.
Spouse Partner Clinic Properties, L.L.C.	4/7/1995	9876 SW Small Road Hwy Example ZIP	First Name Spouse, Jr.
Spouse Partner Management Company of STATE, Inc.	4/7/1995	9876 SW Small Road Hwy Example ZIP	First Name Spouse, Jr.
Spouse Partner Management Company of STATE, Inc.	6/17/1996	9876 SW Small Road Hwy Example ZIP	First Name Spouse, Jr.
CSmall Townsed, P.C.	4/7/1995	433 Third St Small Town ZIP	First Name Spouse, Jr.
Ark Management, Inc.	4/7/1995	Links to Spouse Partner Management Co"...	First Name Spouse, Jr.
City Spouse Partner Clinic, P.C.	5/1/1996	9876 SW Small Road Hwy Example ZIP	C.First Name Spouse, Jr.
Town Square Spouse Partner Hospital, P.C.	11/22/1996	Address SW Main #100 Town, State ZIP	C.First Name Spouse, Jr.
Spouse Econometrics, Inc.	10/7/1998	xxxxx SW Heather Road #330 Small Town ZIP	First Name Spouse, Jr.
Hobby Toy Ventures, LLC	5/26/1999	P.O. Box 459 City State ZIP	New Attorney
Animal Allergy & Skin Clinic	8/12/1999	4100 SW 109th Beaverton 97005	First Name Partner #2
America's Doolhouse Company	8/20/1999	2301 N. Watermain Rd City ZIP	Old Attorney, P.C.
Racings Farm	10/22/2001	Address SW Alpine Road WL 97068	First Name Spouse (auth. rep.)
Racings Farm, LLC	10/22/2001	Address SW Alpine Rd WL 97068	First Name Spouse
Auto/Truck Specialties, Inc.	5/17/2002	Address SW Advance Road Town ZIP	Partner #3
Estates Shrunken, LLC	3/7/2003	xxxxx SW Heather Road #330 Small Town ZIP	New Attorney
High-End Dollars CStatepStateation	4/10/2003	Address SW Alpine Road First Namet Linn 97068	New Attorney
Tails & Paws	5/6/2004	Address SW Main #100 Town, State ZIP	James New Partner
Regional CollectState Cars LLC	12/12/2005	n/a	Partner #3
Regional TendonCars LLC	12/12/2005	Links to "Regional TendonCars LLC"...	Partner #3
Creative Transactions, Inc.	4/3/2006	n/a	Regional CollectState Cars LLC

Item Listing Method

- Logical starting point
- Very easy to modify
- Provides a trail of investigation
- Leads to other evidence
- Simple for the “court,” jury, judge, etc.

Item Listing - Beginning

PARTIES

Bank Statement Activity

Sorted by "Bank & Account Number"

Source: Bank Statement Deposits & Withdrawals of \$500.00 or more.

Stmnt Date	Trans Date	Bank	Acct#	Acct Name	Deposit \$ Amount	Withdrawal \$ Amount	Comment/Source	Comment
6/15/04	5/20/04	BOA-WA	763xxxxx	BW	20,000.00		unknown source	perhaps from joint acct?
11/16/04	11/1/04	BOA-WA	763xxxxx	BW		871.66	cashiers check	
12/15/04	12/1/04	BOA-WA	763xxxxx	BW		1,764.89	cashiers check	
12/15/04	12/15/04	BOA-WA	763xxxxx	BW	2,500.00		maintenance	
2/15/05	2/10/05	BOA-WA	763xxxxx	BW		2,500.00	cashiers check	
4/15/05	4/4/05	BOA-WA	763xxxxx	BW		961.80	withdrawal	
3/15/05		BOA-WA	763xxxxx	BW			no activity	
1/18/05		BOA-WA	763xxxxx	BW			no activity	
10/18/04		BOA-WA	763xxxxx	BW			no activity	
9/16/04		BOA-WA	763xxxxx	BW			no activity	
8/16/04		BOA-WA	763xxxxx	BW			no activity	
7/16/04		BOA-WA	763xxxxx	BW			no activity	
5/16/05		BOA-WA	763xxxxx	BW			no activity	
6/15/05	5/19/05	BOA-WA	763xxxxx	BW	2,500.00		maintenance	
6/15/05	6/3/05	BOA-WA	763xxxxx	BW		3,000.00	cashiers check	
					<u>25,000.00</u>	<u>9,098.35</u>		
8/23/04	8/13/04	BB&T Florida	1452xxxxx	EO/BW	40,000.00		unknown source	Wachovia
11/22/04	11/22/04	BB&T Florida	1452xxxxx	EO/BW	263,632.67		Estate Title of St. Augustine	
1/24/05	1/14/05	BB&T Florida	1452xxxxx	EO/BW	4,679.40		EQUIP Medical	
3/23/05	3/21/05	BB&T Florida	1452xxxxx	EO/BW	-	4,679.40	no activity	
10/24/05	9/29/05	BB&T Florida	1452xxxxx	EO/BW	-	309,197.66	close account	
9/22/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
8/22/05		BB&T Florida	1452xxxxx	EO/BW	-		statement is missing	
7/22/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
6/22/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
5/20/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
4/22/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
3/23/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
2/18/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
12/22/04		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
10/22/04		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
9/23/04		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
					<u>308,312.07</u>	<u>313,877.06</u>		
11/22/04	10/29/04	BB&T Florida	1452xxxxx	EO/BW	16,342.37		First Independent	
3/23/05	3/11/05	BB&T Florida	1452xxxxx	EO/BW	5,019.25		EQUIP Medical	
3/23/05	3/21/05	BB&T Florida	1452xxxxx	EO/BW	3,664.34		EQUIP Medical	
3/23/05	3/21/05	BB&T Florida	1452xxxxx	EO/BW	4,679.40		EQUIP Medical	
4/22/05	4/5/05	BB&T Florida	1452xxxxx	EO/BW		5,000.00	EO	
5/20/05	5/9/05	BB&T Florida	1452xxxxx	EO/BW		24,867.16	close account	to Key Bank # ...5275
2/18/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
1/24/05		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
12/22/04		BB&T Florida	1452xxxxx	EO/BW	-		no activity	
					<u>29,705.36</u>	<u>29,867.16</u>		
9/28/05	4/12/05	First Indep.	4000xxxxx	BW	3,000.00		IRA account	
9/30/04	7/15/04	First Indep.	4021xxxxx	BW	2,500.00		unknown source	maintenance?
9/30/04	8/15/04	First Indep.	4021xxxxx	BW	5,187.55		EQUIP Medical	
9/30/04	9/15/04	First Indep.	4021xxxxx	BW	4,139.31		EQUIP Medical	
11/14/04	10/12/04	First Indep.	4021xxxxx	BW	5,511.12		EQUIP Medical	
11/14/04	11/13/04	First Indep.	4021xxxxx	BW		16,342.37	withdrawal	
3/14/05		First Indep.	4021xxxxx	BW			missing statements	
2/14/05		First Indep.	4021xxxxx	BW			missing statements	
1/14/05		First Indep.	4021xxxxx	BW			missing statements	
12/14/04		First Indep.	4021xxxxx	BW			missing statements	
4/15/05	4/5/05	First Indep.	4021xxxxx	BW	6,025.34		missing statements	DDA inquiry
4/15/05	4/12/05	First Indep.	4021xxxxx	BW		3,000.00	missing statements	DDA inquiry
4/15/05	4/15/05	First Indep.	4021xxxxx	BW		4,029.42	close account	
					<u>23,363.32</u>	<u>23,371.79</u>		

(Modified) Net Worth Method

- ***Long-recognized*** by the courts
- Implied income based upon changes in cost-based net worth (equity)
- Intuitively understood
- “Relatively” simple to prepare
- Straightforward to explain in court
- aka “*Indirect Method*”

(Modified) Net Worth Method

- This method is how Al Capone was prosecuted and convicted by the Federal Government



Net Worth Method

Modified Net Worth Method - Exhibit P
--

Net worth as of December 31, 2002	\$\$\$,\$\$\$
Less: net worth as of December 31, 2001	<u>\$\$,\$\$\$</u>
Increase in net worth	\$\$,\$\$\$
Add: Living expenses	<u>\$\$,\$\$\$</u>
Total expenditures	\$\$\$,\$\$\$
Less: Income from known sources	<u>(\$,\$\$\$)</u>
Expenditures in excess of known sources of funds	<u><u>\$\$,\$\$\$</u></u>

Example Net Worth Method

Hypothetical Modified Net Worth Method - Exhibit Q				
Line	ASSETS	Ref.	5/17/1999	2/20/2022
	Cash			
1	Currency	Test.	unk	\$71,000
2	Checking accounts	BR	1,732	8,434
3	Other accounts	BR	unk	5,100
	Undeposited items			
4	Traveler's checks	SR	-	9,000
	Time deposits			
5	60-day CD	BR	unk	5,000
6	120-day CD	BR	unk	12,000
7	Food stocks	SR	unk	2,932
8	Firearms, ammunition, explosives	SRS	unk	16,700
9	Computers, cameras, software	SRS	-	16,256
10	Automobile	BR	-	3,600
	Total Assets		1,732	150,022
	LIABILITIES			
11	Automobile loan	BR	-	1,900
12	Net worth, beginning and end		1,732	148,122
13	Less: Beginning net worth			1,732
14	Increase in net worth			146,390
15	Add: Personal living expenses	CES		61,748
16	Total expenditures			208,138
17	Less: Funds carried into country	Test.		3,000
18	Funds earned through employment	BR		19,976
19	Wire transfers from family	BR		17,000
20	Expenditures in excess of funds			\$ (168,162)

Cash Inflows/Outflows Analysis

Hypothetical Source and Use of Cash Method - Exhibit R						
	1999	2000	2001	2002	Total	
Line	Known sources of cash					
1	Earned in various jobs	\$ 1,736	7,845	136	10,259	\$ 19,976
2	Wire transfers from family	4,000	700	11,000	1,300	17,000
3	Carried into country	3,000	-	-	-	3,000
	Total known sources of cash	8,736	8,545	11,136	11,559	39,976
	Expenditures					
4	Seized currency	unknown			71,000	71,000
5	Increase in checking account				6,702	6,702
6	Seized in other accounts				5,100	5,100
7	Increase in traveler's checks				9,000	9,000
8	Increase in time deposits				17,000	17,000
9	Seized food stocks				2,932	2,932
10	Seized firearms, etc.				32,956	32,956
11	Net automobile purchase				1,700	1,700
12	Personal living expenses	9,952	14,871	16,589	20,336	61,748
13	Total expenditures	9,952	14,871	16,589	166,726	208,138
14	Expenditures in excess of funds	(1,216)	(6,326)	(5,453)	(155,167)	\$ (168,162)

Proof-of-Cash

- Traces “reported” receipts and disbursements to bank statement(s)
- Relatively simple to prepare
- Excellent validation tool
- Intuitively understood
- Start with annual, “drill-down” to monthly

Example Proof-of-Cash (Annual)

PROOF OF CASH WORKSHEET/DOCUMENTATION

Period ended: _____

<u>Description</u>	<u>Beginning of Fiscal Year Bank Reconciliation (June 30, 2001)</u>	<u>Fiscal year receipts</u>	<u>Fiscal year disbursed</u>	<u>End of Fiscal Year Bank Reconciliation (June 30, 2002)</u>
<u>Balance per Bank:</u>	(1) _____	(1) _____	(1) _____	(1) _____
Deposits in transit:				
June 2001	(2a) _____ +	(2a) _____ -		(_____)
June 2002	* _____	(2b) _____		(2b) _____ +
Outstanding Checks:				
per list 6-30-2001	(3a) _____ -		(3a) _____	
per list 6-30-2002			(3b) _____ +	(3b) _____ -
<u>ADJUSTED BALANCE</u>	(4) _____	(4) _____	(4) _____	(4) _____
<u>Balance per Books:</u>	(5) _____	(5) _____	(5) _____	(5) _____
June Service charge:			(6) _____ +	(6) _____ -
NSF Checks returned:			(7) _____ -	(7) _____ -
Bank transfers, errors in recording, other adjustments		(8) _____ + -	(8) _____ + -	(8) _____ + -
Interest posted, by bank:		(9) _____ +		(9) _____ +
<u>ADJUSTED BALANCE</u> <i>(same as line 4)</i>	(10) _____	(10) _____	(10) _____	(10) _____

*shaded areas should not

need an entry

**

Actual Proof-of-Cash (Monthly)

EXAMPLE TARGET COMPANY
 Proof of Cash
 Bank of America Account No. XXXXXX-XXXXX

	Line	Begin 12/31/03	Received 2004	Disbursed 2004	End 12/31/04	Proof	Difference
Balance per Bank:	1	\$ 184,256	\$ 676,073,010	\$ (676,106,648)	\$ 150,618	\$ 143,000	\$ 7,618
Less Transfers to/from Sweep Account #XXXXXXXXXXXXXX			(22,910,848)	10,771,464			-
Less Transfers to/from Master XXXXXXXXXXXXX			(3,155,662)	19,269,718			-
Less "Sweep credits or debits" per statement			(591,928,329)	596,668,006			-
Less Transfers to/from XXX Ltd. XXXXXXXXXXXXXXXXX			-	2,487,765			-
Deposits in transit:			-	-			-
Begin (computed, do not have actual)	2a	639,240	(639,240)				-
End	2b		21,114	-	21,114	21,114	-
Outstanding Checks:			-				-
Begin (computed, do not have actual)	3a	(826,589)		826,589			-
End	3b			(79,726)	(79,726)	(79,726)	0
ADJUSTED BALANCE	4	\$ (3,093)	\$ 57,460,046	\$ (46,162,832)	\$ 92,006	\$ 84,388	\$ 7,618
Balance per Books:	5	\$ (3,093)	\$ 675,015,076	\$ (675,497,228)	\$ 84,388	\$ 84,388	\$ -
Less Transfers to/from Sweep Account			(614,829,975)	607,432,665			-
Less Transfers to/from Master XXXXXXXXXXXXX			(3,155,662)	19,269,718			-
Less Transfers to/from XXX Ltd. XXXXXXXXXXXXXXXXX			-	2,487,765			-
Service charge:	6		-	-			-
NSF Checks returned:	7		-	-			-
Bank transfers, errors in recording, other adjustmer	8		11,254	(7,164)	7,618		7,618
"SURPRISE"			-	565,543			-
Interest posted, by bank:	9		(2,396)	-			-
ADJUSTED BALANCE	10	\$ (3,093)	\$ 57,038,297	\$ (45,748,700)	\$ 92,006	\$ 84,388	\$ 7,618
(same as line 4)							0
Difference		0.01	\$ 421,749	\$ (414,131)	\$ 7,618	\$ (0)	\$ 7,618
Transfers to/from AFFILIATE			\$ 67,495	\$ 9,809,541			

Notes

- February beginning balance per reconciliation does not tie to ending balance prior month. Difference \$4,090.05
- Missing page 5 of the March 2004 BoA XXXXXXXXXXXXXXXXXXXX statement.
- Beginning in May, 2004 sweep credits and debits appear on the checking account and format of bank statements changed.
- Credit of \$7,164 per bank on 5/10/05 & debit of \$7,164 on 5/6/05 not shown in XXX disbursements. Transactions wash.
- Beginning in June transactions in and out of funds sweep account no longer appear on checking account statements.
- A sweep debit of \$2,936,986.86 appears as a sweep credit on July 1 - technically a sweep in transit but not tracked that way by XXX on bank reconciliations.
- Do not have the Dec. checking account statement. Pages from internet show debits and credits. Balance column not readable.

Account Description
Bank of America Account No. XXXXXX-XXXXX
NEW BANK Checking
Bank of America FundSweep Statements (Account No. XXXXXXXXXXXXX)
Bank of America Master Settlement Account No. XXXXX-XXXXX

Digital Analysis

- Procedures used to analyze the digit and number patterns of data sets, with the aim of finding anomalies and reporting on broad statistical trends
- Benford's Law, duplicate numbers, round numbers, etc.

Benford's Law

- Benford's Law is an analytical technique identified in the late 1800s and developed during the 1920s by Frank Benford, a physicist at General Electric research laboratories. He noted that the first few pages of logarithm table books were more worn than the later pages. In those days, logarithm table books were used to accelerate the process of multiplying 2 large numbers by summing the log of each number and then referring to the table for the requisite integer.
- Benford's Law states that digits and digit sequences in a dataset follow a predictable pattern. The technique applies a data analysis method that identifies possible errors, potential fraud or other irregularities. For example, if artificial values are present in a dataset the distribution of the digits in the dataset will likely exhibit a different shape (when viewed graphically), than the shape predicted by Benford's Law. Benford proved his theory by using 20 lists containing 20,229 numbers, and produced the statistical array that is still applied today.

Benford's Law – Major Digit Tests

Major Digital Tests

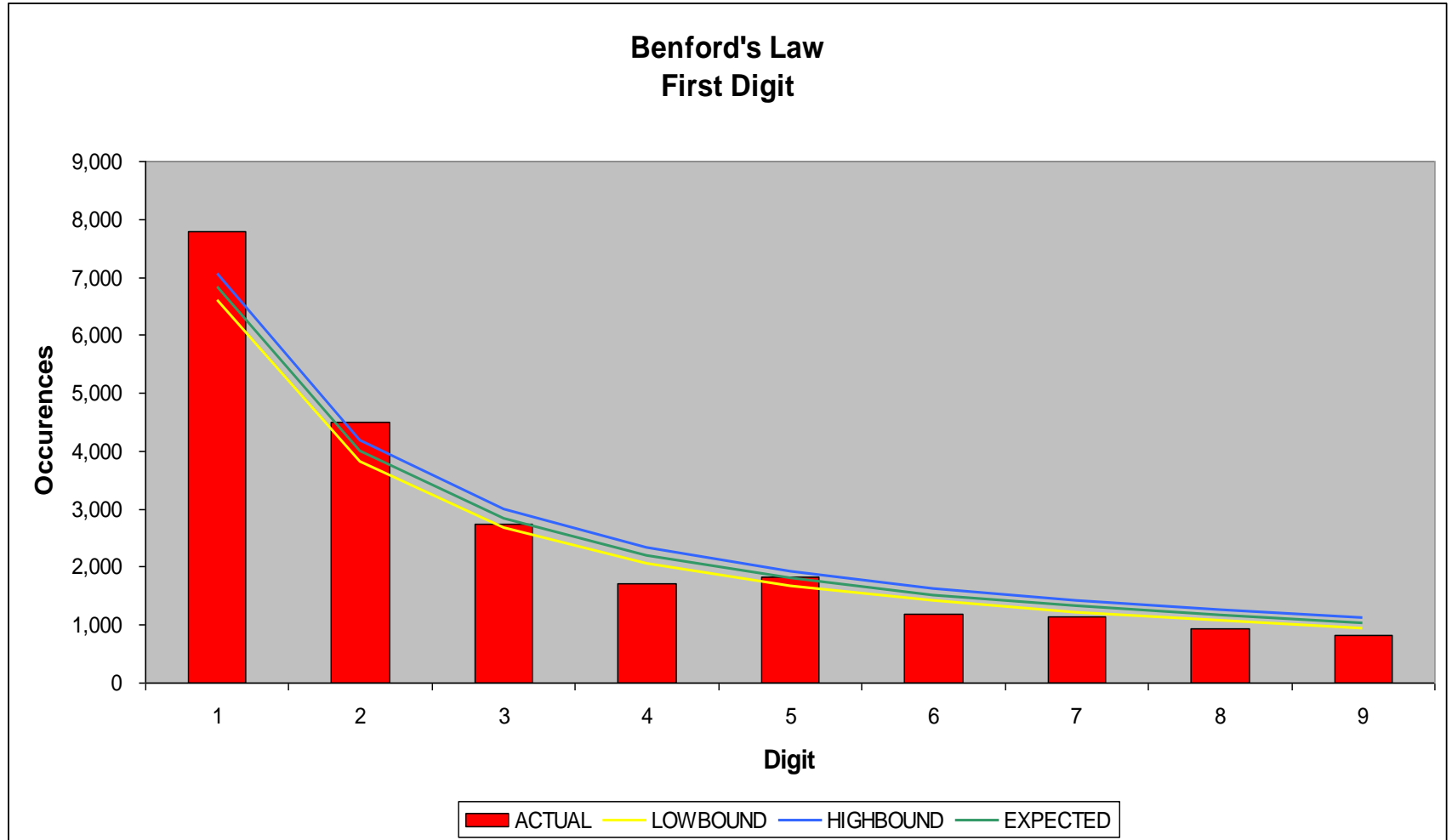
The digital analytical tests applied through Benford's Law are comprised of the following:

- ❑ **First Digits Test** - The first Major Digital Test is a test of the first digit proportions, a test for reasonableness. The first digit of a number is the leftmost digit with the understanding that the first digit can never be a zero. For example, the first digit of 7,380 is “7.”
- ❑ **Second Digits Test** - The second Major Digital Test is a test of the second digit proportions, also a test for reasonableness. The second digit of a number is likewise determined by its placement within the number, thus the second digit of 7,380 is “3.”
- ❑ **First 2 Digits Test** – This test is more focused than the 2 preceding tests and uses the first 2 leading digits, again excluding zeros. For example, the first 2 digits of 7,380 are “73” and the first 2 digits of 0.07380 are also “73.” There are 90 possible first-two digit combinations: 10 to 99 inclusive. This test finds anomalies in the data that are not readily apparent from either the first or second digits seen on their own.
- ❑ **First 3 Digits Test** – This test focuses on the 900 possible first 3 digit combinations: 100 to 999 inclusive. This highly focused test indicates abnormal duplications.

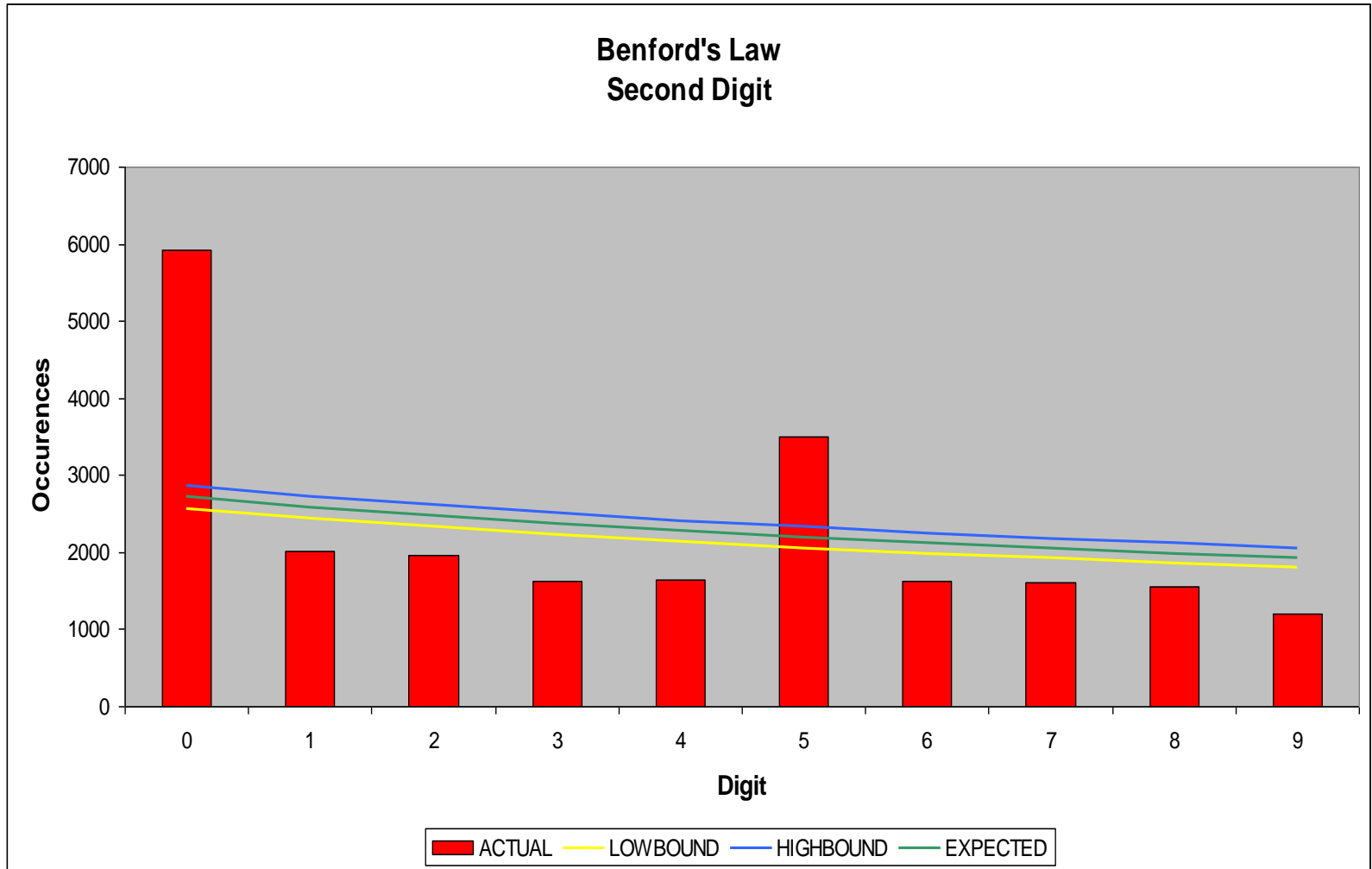
Benford's Law – Major Digit Tests

- Benford's Law tests results can provide a roadmap for the investigation as well as provide indirect evidence.
 - The 1st and 2nd digit test are high level and not used to select samples.
 - The 1st two and 1st three digits tests are designed to select audit samples.
 - The last two digits test detect excessive rounding or numeric invention.
- Existence of a pattern or benchmark
 - Not necessarily one consistent pattern, but some pattern which false or wrong data will deviate from.
 - "Before and After" Testing.

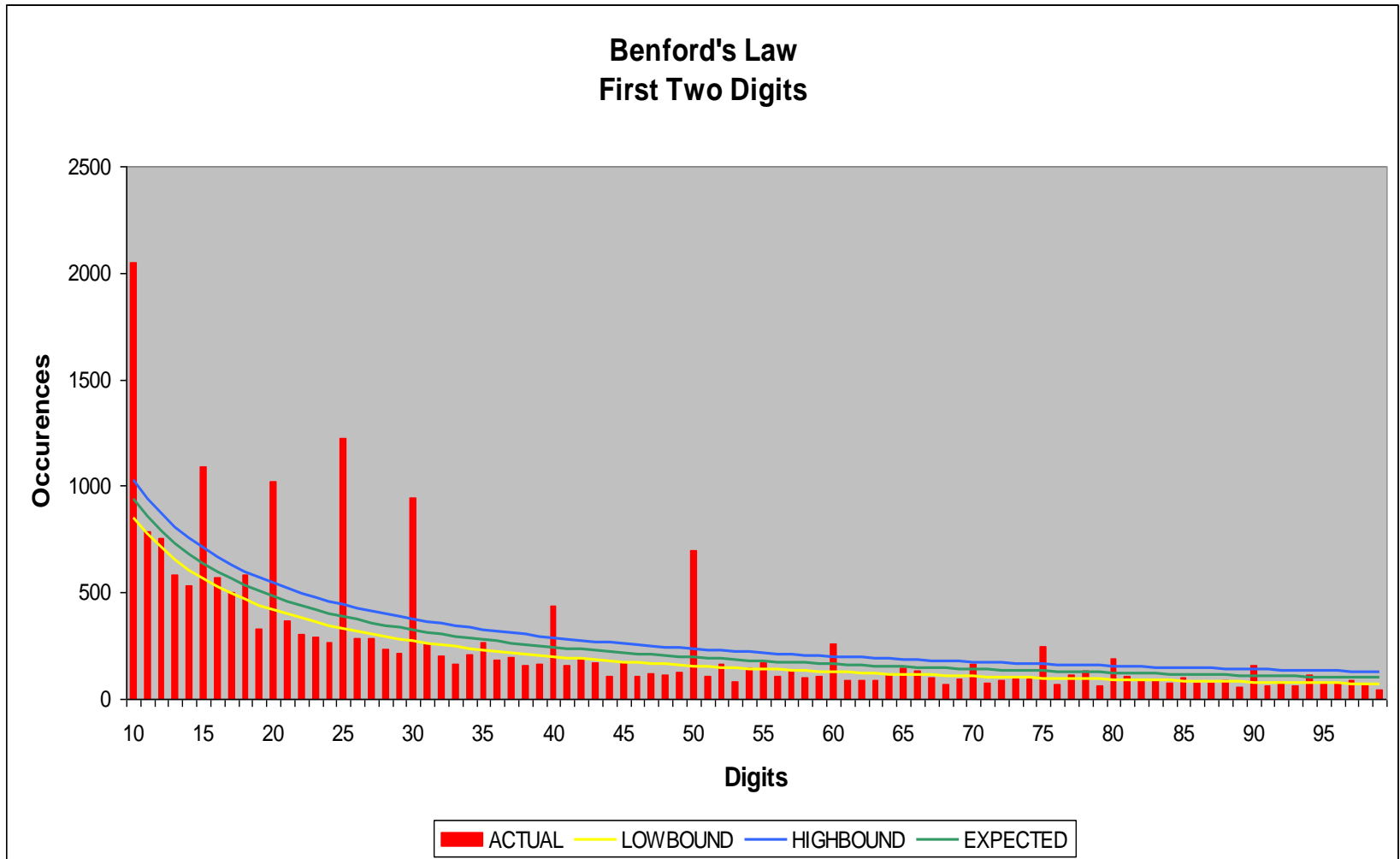
First Digit Test



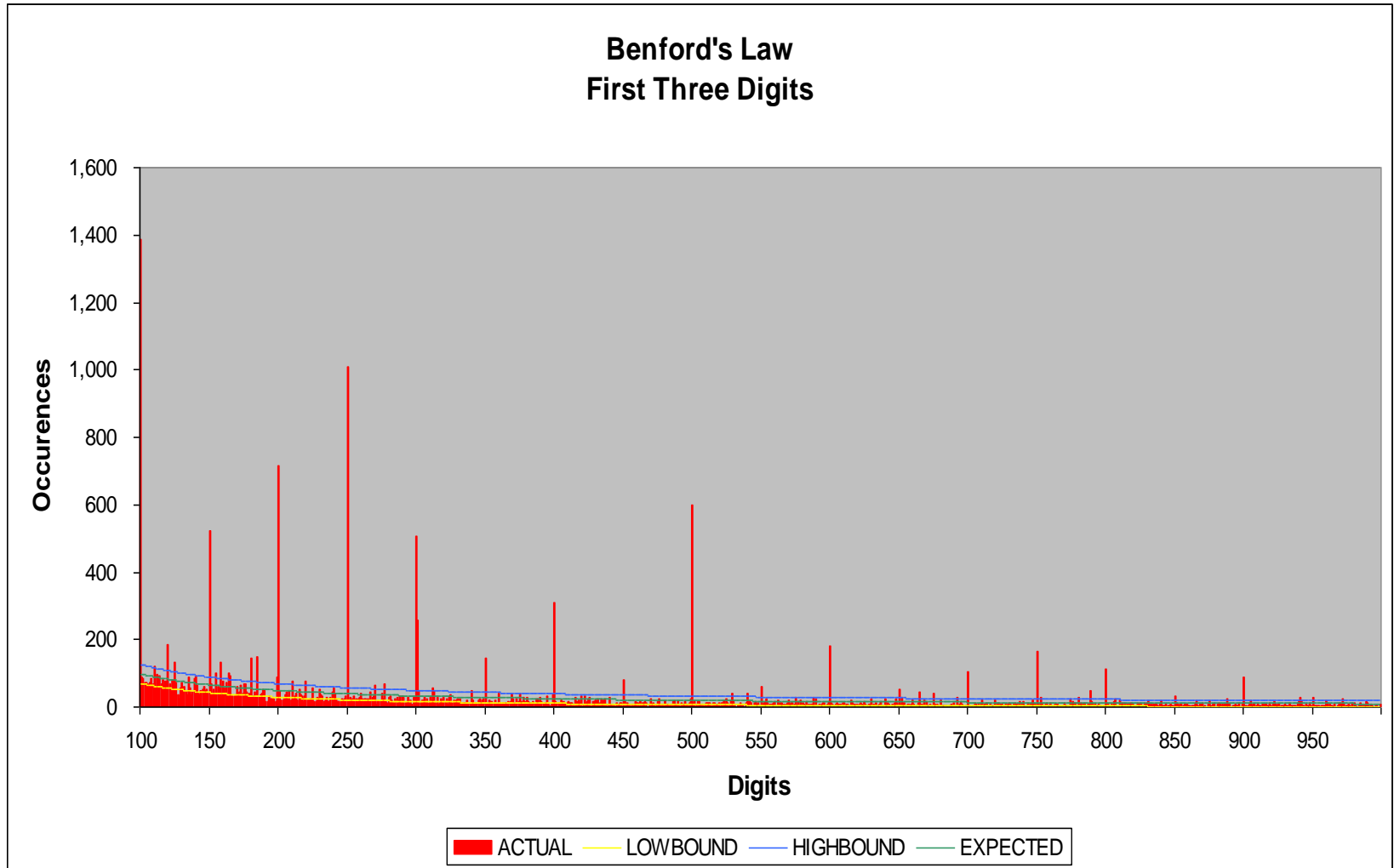
Second Digit Test



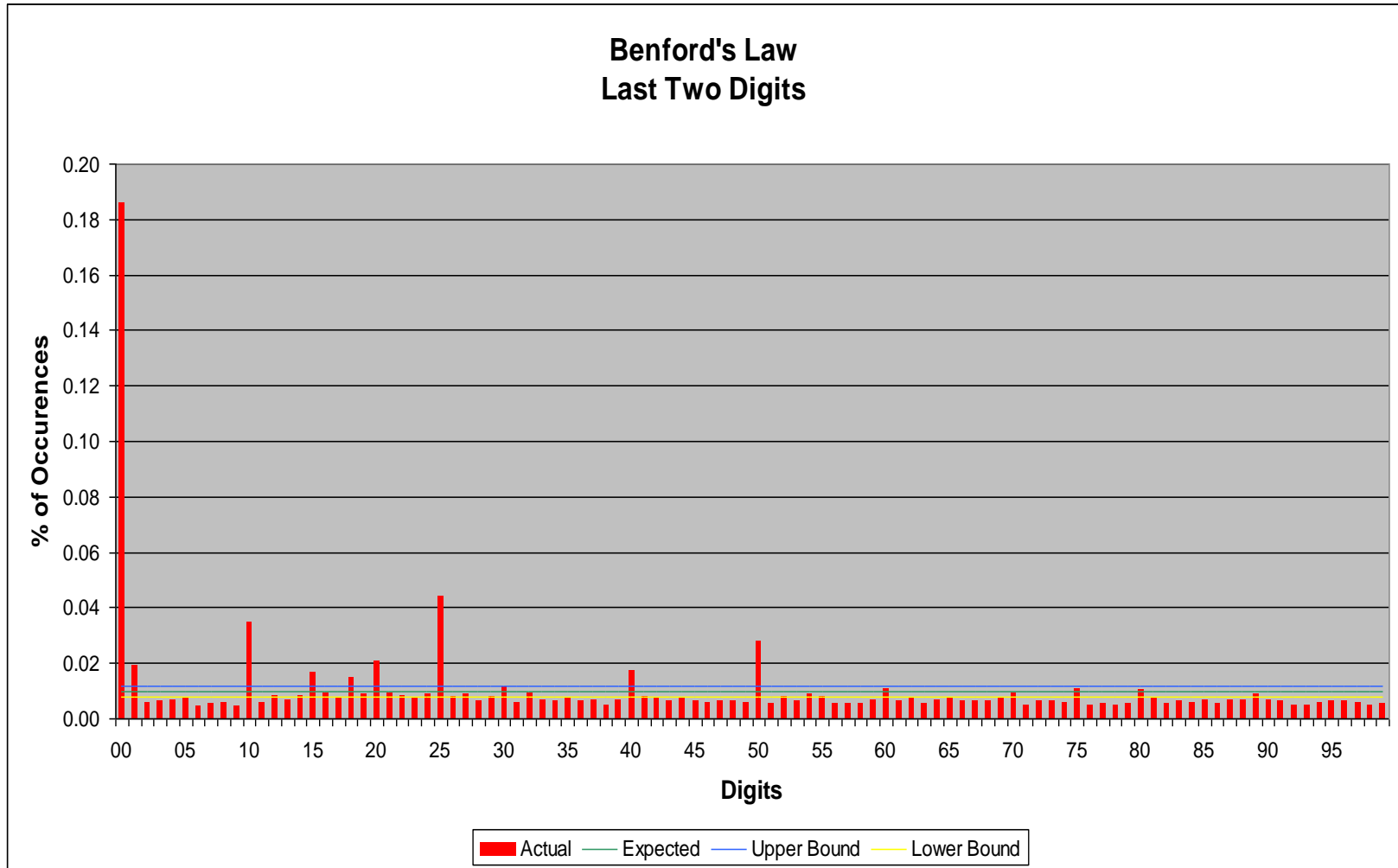
First Two Digits Test



First Three Digits Test



Last Two Digits Test



Duplicate Numbers Test

Amount	# of Records	Total Amount	% of Records	% of Debits
10.00	469	4,690.00	2.21%	0.00%
15.00	144	2,160.00	0.68%	0.00%
18.00	41	738.00	0.19%	0.00%
18.50	129	2,386.50	0.61%	0.00%
20.00	201	4,020.00	0.95%	0.00%
22.00	37	814.00	0.17%	0.00%
25.00	651	16,275.00	3.07%	0.01%
30.00	45	1,350.00	0.21%	0.00%
40.00	114	4,560.00	0.54%	0.00%
50.00	42	2,100.00	0.20%	0.00%
100.00	204	20,400.00	0.96%	0.01%
150.00	41	6,150.00	0.19%	0.00%
200.00	91	18,200.00	0.43%	0.01%
250.00	38	9,500.00	0.18%	0.01%
300.00	208	62,400.00	0.98%	0.04%
301.50	111	33,466.50	0.52%	0.02%
400.00	34	13,600.00	0.16%	0.01%
450.00	22	9,900.00	0.10%	0.01%
500.00	91	45,500.00	0.43%	0.03%
550.00	16	8,800.00	0.08%	0.01%
600.00	34	20,400.00	0.16%	0.01%
650.00	10	6,500.00	0.05%	0.00%
700.00	23	16,100.00	0.11%	0.01%
750.00	38	28,500.00	0.18%	0.02%
800.00	26	20,800.00	0.12%	0.01%
900.00	14	12,600.00	0.07%	0.01%
950.00	10	9,500.00	0.05%	0.01%