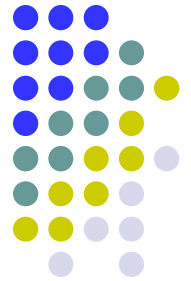


Receivables and Revenue Recognition



15.501/516 **Accounting**
Spring 2004

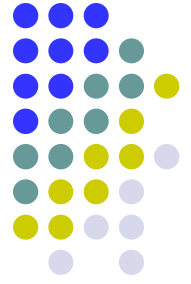
Professor S. Roychowdhury

Sloan School of Management
Massachusetts Institute of Technology

Feb 23 and 25, 2004

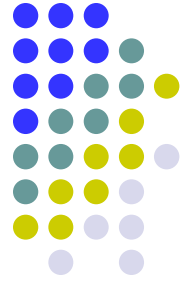


WHY DO WE CARE ABOUT REVENUE RECOGNITION?

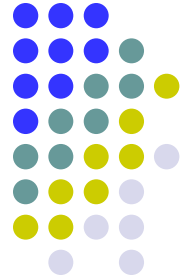


- Revenue has a BIG impact on bottom-line profitability ==> managers may be tempted to manage revenue
- Large Sample Evidence: over 40% of SEC enforcement actions on accounting issues deal with Revenue Recognition
- Sample of headlines from searching Dow Jones Newswire for 2004 and 2003:
 - Ceridian Results for 2000-2003 to restated, Feb 18
 - Wolf Popper files Securities Class Action against Sonus Networks, Feb 13, 2004
 - Tripos postpones earnings release – will revise revenue recognition policies, Feb 12
 - Opware expects 100% revenue growth, *points out transparent revenue recognition policies*, Feb 11
 - Agco Corp faces class action suit, Feb 6

CRITERIA FOR REVENUE RECOGNITION



- Under accrual accounting, a firm recognizes revenue when it has:
 - Performed all, or a substantial portion of, the services to be provided.
 - Incurred a substantial majority of the costs, and the remaining costs can be reasonably estimated.
 - Received either cash, a receivable, or some other asset for which
 - a reasonably precise value can be measured
 - collectibility is reasonably assured.



Cash Basis vs Accrual Basis

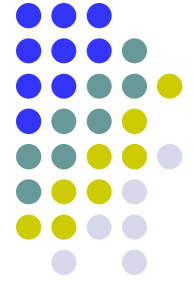
Recognition Criteria

Accrual

Cash

Revenue

Expense



Cash Basis vs Accrual Basis

Recognition Criteria

Accrual

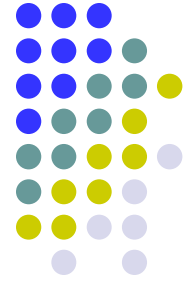
Cash

Revenue

when \$ rec'd

Expense

when \$ paid

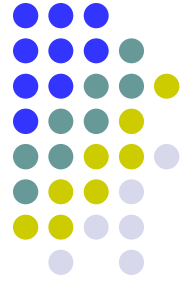


Cash Basis vs Accrual Basis

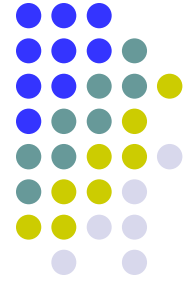
Recognition Criteria

	Accrual	Cash
Revenue	when earned and realized	when \$ rec'd
Expense	when incurred	when \$ paid

EXAMPLES OF REVENUE RECOGNITION EVENTS



- **At the time of sale** (This is, by far, most commonly encountered.)
 - Title passes to the buyer and delivery takes place
 - Reasonable estimate of uncollectibles
 - Reasonable estimate of sales returns
 - Reasonable estimation of all other material expenses representing uncertain future outflows (e.g., warranty costs).
 - Most common in retail, wholesale & manufacturing
 - Even when right of return exists?



Bill & Hold

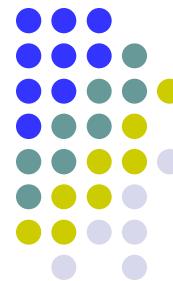
- Hardware
 - Revenue from hardware sales or sales-type leases is recognized **when the product is shipped.**
- Recent experience of Sunbeam

“.....In the fourth quarter of last year Sunbeam recorded \$50 million in sales of cooking grills under an ‘early buy’ program ... [some \$35 million] were categorized ‘bill and hold’ sales and never even left Sunbeam’s warehouses.”

-- from Barron’s, 6/8/98
- Agco Corp

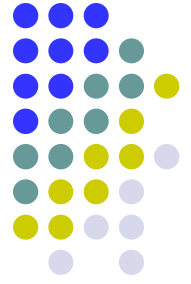
“....Farm equipment company Agco announced that the Securities and Exchange Commission has launched an informal inquiry into its accounting practices..... Agco stated that in some instances it recognizes revenue when equipment remains on its premises after having been invoiced to the dealer. These transactions occur at a dealer's request, added Agco, usually so the dealer can arrange for its own transportation of the equipment.

SAB 101



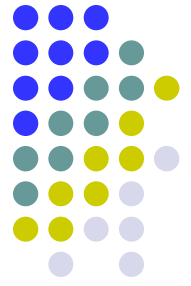
- Fuelled by recent accounting scandals
- Issued by SEC: SAB 101 took effect in calendar year 2000.
- In general, SEC said that the most common reasons for changes in revenue recognition policies to comply with SAB 101 were:
 - Deferral of revenue on product sales until such products are delivered, and title transfers to the customer.
 - Deferral of various up-front, or prepaid, fees for which the company had not completed a separate earnings process.
 - Deferral of revenue until certain non-perfunctory seller obligations (such as equipment installation) were completed.
 - Deferral of revenue that is contingent on the occurrence of some future event (such as the achievement by a lessee of certain minimum sales thresholds) until that event occurs.
- Did the SEC over-react with SAB 101? Altamuro, Beatty and Weber (2003)

Global Crossing and Qwest Communications



- Traded fiber optic capacity and booked revenues
- Say, the two companies traded capacity worth \$10,000
- Global Crossing:
 - Revenues 10,000
 - Cost of networking service 10,000
- Same for Qwest.
- Why did they do this?

Is this accounting manipulation? – channel stuffing, price discounts!



- **Sunbeam**

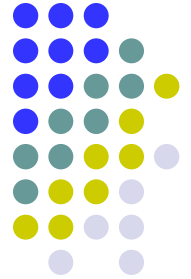
“... Sunbeam jammed as many sales as it could into 1997 to pump both the top and bottom lines. ... Sunbeam either *sent more goods than had been ordered* by customers or shipped goods even after an order had been cancelled. ...

- **Recent experience of Bristol-Myers**

- In another setback for the beleaguered drug maker, Bristol-Myers Squibb Co. confirmed that the Securities and Exchange Commission has opened an inquiry into whether it *improperly inflated revenue last year by as much as \$1 billion through use of sales incentives...* Drug makers, like many other manufacturers, can *boost near-term sales by extending lower prices* to wholesalers, encouraging them to load up. But such "channel-stuffing" hurts later sales. --from WSJ, 7/12/2002
- Recent status of this investigation?

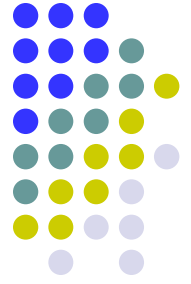
- **Systematic evidence:** Roychowdhury (2003), available on www.ssrn.com

EXAMPLES OF REVENUE RECOGNITION EVENTS (Uncommon cases)



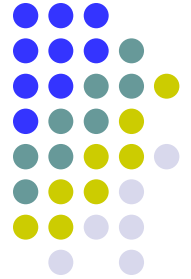
- **During production**
 - Establishment of firm contract price
 - Reasonable assurance of collection
 - Reasonable estimate of cost of completion
 - E.g., defense and construction contracts.
- **At Completion of Production**
 - Existence of deterministic or stable selling price
 - No substantial cost of marketing
 - E.g., precious metals, agricultural products

EXAMPLES OF REVENUE RECOGNITION EVENTS (Uncommon cases)



- **At the time of cash collection**
 - Impossible to value assets received with fair degree of accuracy.
 - E.g., some real estate land development deals.
- **Installment approach**
 - Profits recognized in proportion to cash collected
- **Cost recovery approach**
 - No profit recognized until all the costs have been recovered.

IMPORTANCE OF ACCOUNTS RECEIVABLE

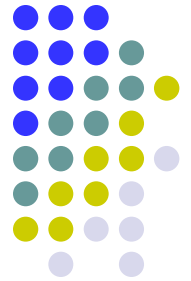


Receivables

Industry	Total Assets
Eating Places	1.6%
Family Clothing Stores (The GAP)	3.0
Race Track Operations	3.1
Grocery Stores	4.9
Intel	8.6
Semiconductors	11.3
Advertising Agencies	42.7
Trans. Freight/Cargo	43.1
Computer Software Wholesale	45.5
Overall Median	13.0%

Source: 5,933 industrial firms from 2000 Global Vantage

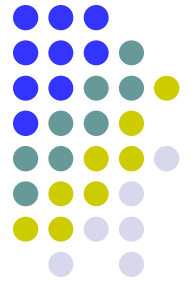
Sears Roebuck & Co. - sales



- Its Year 1: Sears makes sales of microwave ovens for \$ 10,000
- Say customers paid for \$4,000 of these sales with cash, the rest with their Sears credit cards
- So

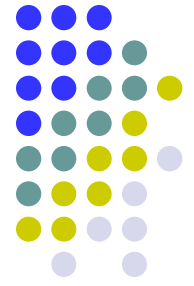
Dr Cash	4,000	
Dr Accounts receivables	6,000	
Cr Revenue		10,000

Sears Roebuck & Co. - receivables



- When Sears makes its credit sales, it estimates from past experience that 5% of its accounts receivables will never be recovered in money
- What does this imply?
- What are its accounts receivables actually worth?
- What is the part of the sale it will actually see?
- One option: Sears recognizes an expense of \$300 and writes *down* its accounts receivable to \$ 5,700

Dr	Bad Debt expense	300	
Cr	Accounts Receivable		300



Sears Roebuck & Co. - ADA

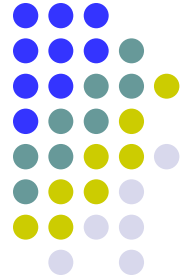
- Problem – what does Sears *not* know?
- It therefore recognizes Bad Debt expense and creates an Allowance for Doubtful Accounts (ADA)

Dr	Bad Debt expense	300	
Cr	ADA		300

- On Balance Sheet, accounts receivable are reported net of ADA

<i>Accounts Receivables</i>	<i>6,000</i>	
<i>less ADA</i>	<i>0,300</i>	
<i>Net Accounts Receivable</i>	<i>5,700</i>	
- ADA is a contra-asset account!

Income Statement and Balance Sheet Relations



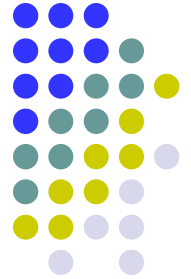
Accounts Receivable (A)

Beg Balance = 0 Credit Sales = 6,000	
Ending balance = 6,000	

Allowance for doubtful accounts (XA)

	Beg Balance = 0 Amount of Bad Debt Expense = 300
	Ending balance = 300

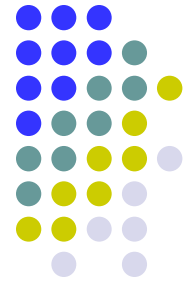
Sears Roebuck & Co. – write-offs



- Its Year 2 end of quarter 1: For simplicity, assume no credit sales during quarter 1 of Year 2
- Customers have paid up \$ 3,000
- **Dr** Cash 3,000
- **Cr** Accounts receivables 3,000

- Also, Customer Billy Joe declares bankruptcy & defaults for \$50
- Sears has now identified a customer who has defaulted: It can write off Billy's Account Receivable
- Of the original \$300 Sears had expected to see as a default, what is the amount it still expects to never recover in the future?
- Which account should reflect this?
- **Dr** ADA 50
- **Cr** Accounts receivables 50

Income Statement and Balance Sheet Relations



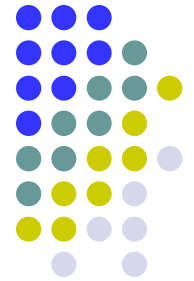
Accounts Receivable (A)

Beg Balance = 6,000	Cash collection = 3,000
	Write-offs = 50
Ending balance = 2,950	

Allowance for doubtful accounts (XA)

Write-offs = 50	Beg Balance = 300
	Ending balance = 250

Income Statement and Balance Sheet Relations



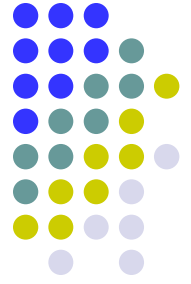
Accounts Receivable (A)

Beg Balance	
Credit Sales	
	Cash collected
	Write-offs
Ending balance	

Allowance for doubtful accounts (XA)

	Beg Balance
	Amount of Bad Debt Expense
Write-offs	
	Ending balance

Income Statement and Balance Sheet Relations



Accounts Receivable (A)

- Allowance for doubtful
Accounts **(XA)**

Beginning Balance

Beginning Balance

+ Credit Sales

+ Amounts Recorded as Bad

- Cash Collected

Debt Expense

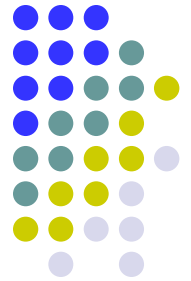
- Amounts Written Off

- Amounts Written Off

= Ending Balance

= Ending Balance

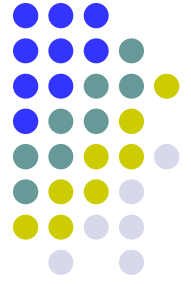
ALLOWANCE FOR BAD DEBTS (UNCOLLECTIBLES)



- Methods
 - Direct Write-Off Method
 - Required by IRS
 - Disallowed under GAAP
 - Percentage of Sales
 - Aging

- How might a firm's choice of method evolve over time?

AGING ANALYSIS OF ACCOUNTS RECEIVABLES

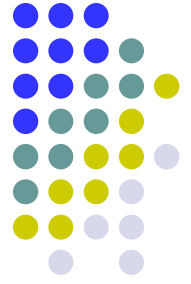


Cowen's, a large department store located in a metropolitan area, has been experiencing difficulty in estimating its bad debts.

The company has decided to prepare an aging schedule for its outstanding accounts receivables and estimate bad debts by the dates of its receivables.

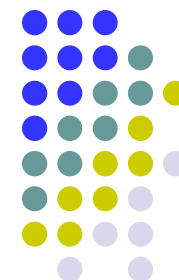
This analysis discloses the following information:

AGING ANALYSIS OF ACCOUNTS RECEIVABLES



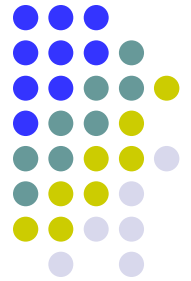
Balance (\$)	Age	Estimated % Uncollectible
198,000	< 30 days	0.8
114,000	30-60 days	2.0
73,000	61-120 days	5.0
39,000	121-240 days	20.0
25,000	241-360 days	35.0
20,000	Over 360 days	50.0
<hr/> 469,000		

AGING ANALYSIS OF ACCOUNTS RECEIVABLES



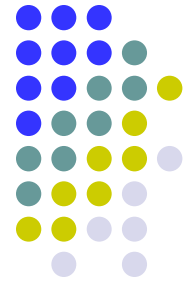
Balance (\$)	Age	Estimated % Uncollectible
198,000 x	< 30 days	0.8 = \$ 1,584
114,000 x	30-60 days	2.0 = 2,280
73,000 x	61-120 days	5.0 = 3,650
39,000 x	121-240 days	20.0 = 7,800
25,000 x	241-360 days	35.0 = 8,750
20,000 x	Over 360 days	50.0 = 10,000
469,000	Total expected uncollectible	\$ 34,064

AGING ANALYSIS OF ACCOUNTS RECEIVABLES



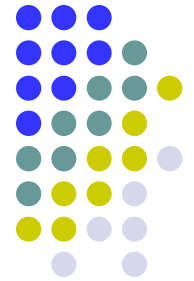
1. Compute the estimated amount of uncollectible Accounts Receivable, i.e., the desired ending balance of the ADA.
2. Given a beginning ADA balance of \$5,700, record the Bad Debt Expense required to achieve the desired ending ADA balance.

AGING ANALYSIS OF ACCOUNTS RECEIVABLES



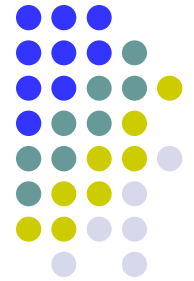
	Cash	A/R (A)	-ADA	Ret.Earnings
BB		469,000	5,700	

AGING ANALYSIS OF ACCOUNTS RECEIVABLES



	Cash	A/R (A)	-ADA	Ret.Earnings
BB		469,000	5,700	
Bad debts			?	
EB			34,064	

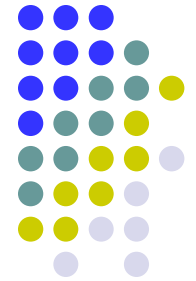
AGING ANALYSIS OF ACCOUNTS RECEIVABLES



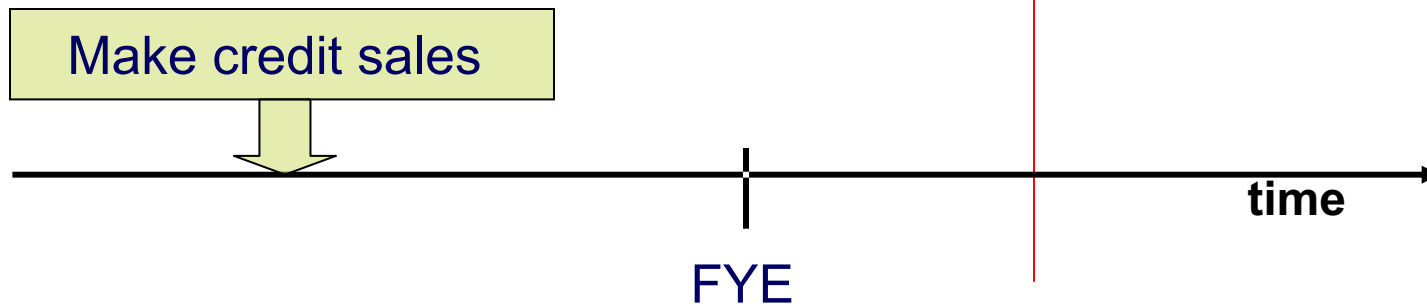
	Cash	A/R (A)	-ADA	Ret.Earnings
BB		469,000	5,700	
Bad debts			28,364	(28,364) (exp.)
EB			34,064	

5,700 + Bdx = 34,064
Bdx = 28,364

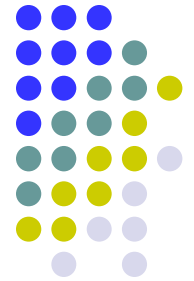
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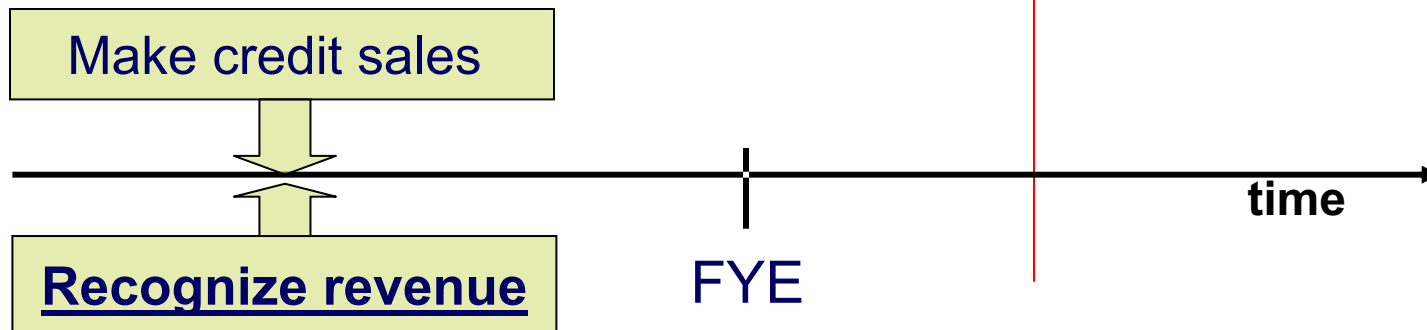
	Cash	A/R (A)	-ADA	Ret.Earnings
BB		469,000	5,700	
Bad debts			28,364	(28,364) (exp.)
EB			34,064	



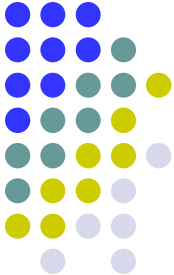
AGING ANALYSIS OF ACCOUNTS RECEIVABLES



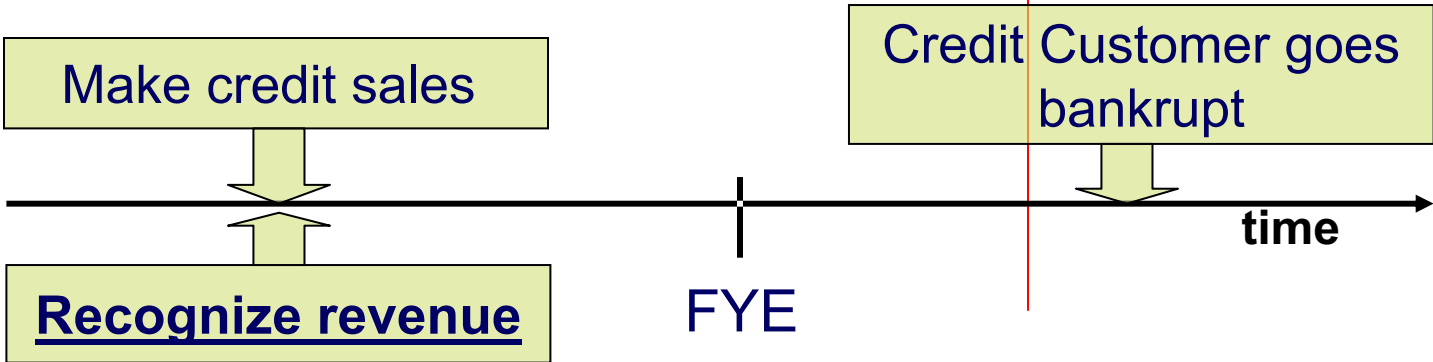
	Cash	A/R (A)	-ADA	Ret.Earnings
BB		469,000	5,700	
Bad debts			28,364	(28,364) (exp.)
EB			34,064	
Write-off		(3,000)	(3,000)	



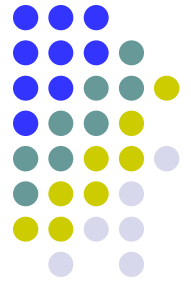
AGING ANALYSIS OF ACCOUNTS RECEIVABLES



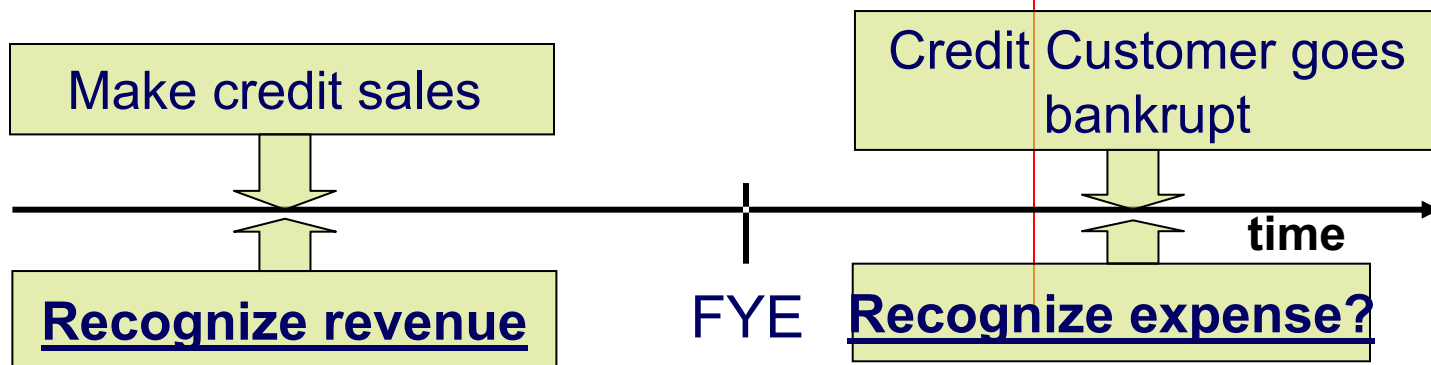
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BB		469,000	5,700	
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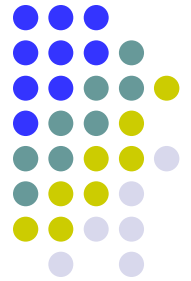
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AGING ANALYSIS OF ACCOUNTS RECEIVABLES



	Cash	A/R (A)	-ADA	Ret.Earnings
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Write-off		(3,000)	(3,000)	

