



## Stern Stewart Research

North American Airlines

# The New Math: 4 > 8

Justin Pettit  
(212) 261-0706  
[jpettit@sternstewart.com](mailto:jpettit@sternstewart.com)

Michael Goldberg  
(212) 261-0678  
[mgoldberg@sternstewart.com](mailto:mgoldberg@sternstewart.com)

- In conjunction with Morgan Stanley Dean Witter, we have undertaken an economic review of 11 North American Airlines. After recasting all data to an “apples-to-apples” economic basis with EVA<sup>®</sup>, we benchmark both performance and valuation, and relate these to strategy. We also evaluate the economics of the industry and examine the case for airline consolidation in the North American market.
- Unable to earn a return in excess of the cost of capital over most of the business cycle, the industry creates little wealth, measured by the excess enterprise value over book value (i.e. Market Value Added among airlines is poor) – only one-half the airlines have created wealth, and the top four airlines account for 82% of the industry’s \$20 billion of wealth creation.
- Consolidation offers a glimmer of hope for this economically challenged industry – by better utilizing aircraft, eliminating wasteful duplicity of cost, activities and assets through route optimization, and better leveraging expertise in management, preventative maintenance, centralized purchasing and fuel cost hedging.
- After years of poor returns, Air Canada delivered a 215% return to owners from July 99 to July 00. Notwithstanding the cost of extra perks to frequent business travellers, a level of service that stands above many carriers, integration issues, and a sea of fare discounts, the merger still created C\$1.5 billion dollars of new wealth for the economy.
- Cost leadership, particularly fuel and labour, and asset utilization are the keys to financial outperformance. But industry valuations imply a significant expectation for performance mean-reversion, particularly for margin advantages. However, velocity (asset utilization) is a source of financial advantage that is treated much more attractively in airline stock pricing – capitalized as a sustainable advantage, achievable through consolidation.

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EVALuation is a series of periodic reports from Stern Stewart & Co., drawing on the depth of our experience and internal research, to cover issues of valuation, organisational design, decision making, remuneration, and corporate governance. We assist in understanding how actions affect value. We believe that all stakeholders benefit from the creation of value through both innovation and efficiency.

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# THE NEW MATH; 4 > 8

## OVERVIEW

**The industry cannot earn its cost of capital over the business cycle – only one-half the airlines have created wealth**

Stern Stewart & Co., in conjunction with Morgan Stanley Dean Witter, compiled and analyzed data from 11 publicly traded North American carriers. Our North American airline review benchmarks financial performance, valuations, and reviews different strategies in the industry. We also evaluate the economic case for consolidation in the North American market. Our review identified and adjusted material accounting issues, including operating leases, deferred taxes and employee pensions, to establish a comparable economic basis for measurement and evaluation.

Not surprisingly, the industry fares very poorly in our analysis. Unable to earn a return in excess of the cost of capital over most of the business cycle, the industry creates little wealth. Wealth creation, as measured by the excess enterprise value over book value, or Market Value Added (MVA), among airlines is poor – only one-half the airlines have created wealth, and the top four airlines account for 82% of the industry’s \$20 billion wealth creation.

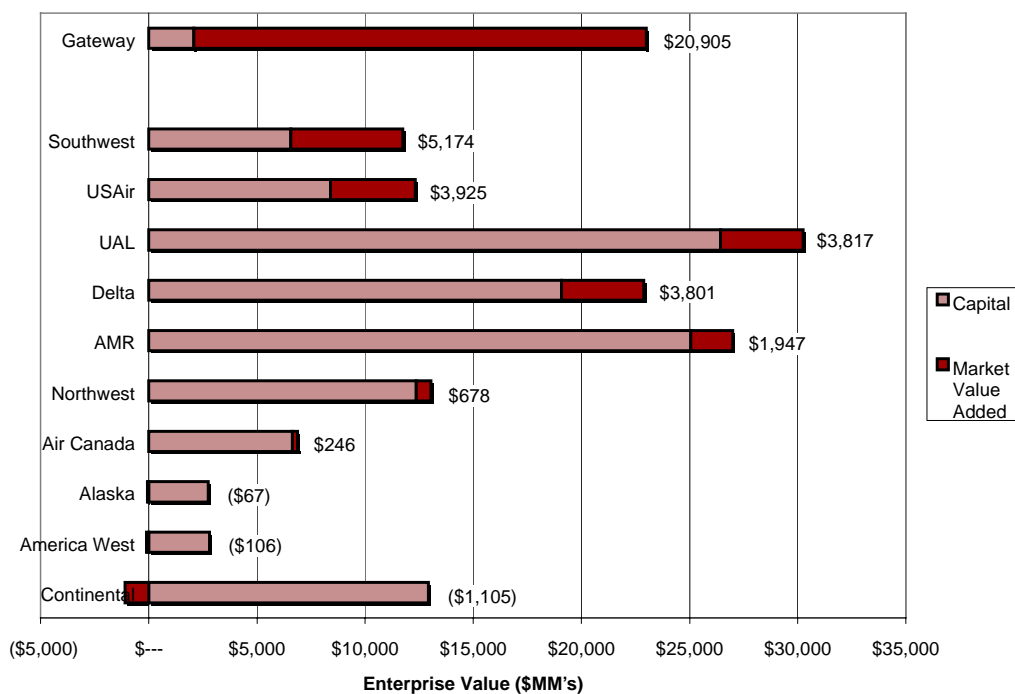
**... consolidation offers hope through better equipment utilization, route optimization, and leveraging management, maintenance, purchasing and fuel hedging expertise.**

Consolidation offers a glimmer of hope for this economically-challenged industry – by better utilizing aircraft, eliminating waste through route optimization, and better leveraging expertise in management, preventative maintenance, centralized purchasing and fuel cost hedging.

As a case study, we evaluated the economic impact of the Air Canada-Canadian Airlines merger. Notwithstanding on-going labour challenges, the merger seems to have proven an economic success. After years of poor returns, Air Canada delivered a 215% return to owners from July 99 to July 00. Notwithstanding the cost of extra perks to frequent business travellers, a level of service that stands above many carriers, integration issues, and a sea of fare discounts, the merger still created C\$1.5 billion dollars of new wealth for the economy through efficiencies.

## NORTH AMERICAN AIRLINE INDUSTRY ECONOMICS

Industry wealth creation, as measured by the excess enterprise value over book value, or Market Value Added (MVA) among airlines is poor – only one-half the airlines have created wealth, and the top four airlines account for 82% of the industry’s \$20 billion wealth creation (Figure 1).



**Figure 1. Top 4 Airlines Create 82% of Industry’s \$20 billion Wealth; Many Create None**



**Regulatory Policy & Wealth Creation in the Face of Globalism**

Why all the fuss about shareowner value and creating wealth? What about other stakeholders?

Asia’s economic crisis demonstrated the risk to social and economic stability and standards of living created by poor market discipline, a general apathy toward value maximization, and weak systems of corporate governance – the measures, incentives, tools and controls that support decision making. Prolonged periods of pervasive capital misallocation and mismanagement destroy massive amounts of wealth and undermine the economy.

A basic and fundamental tenet of capitalism is the obligation to maximize shareowner value – an expectation of a return is created with every dollar raised and invested, or each dollar of profit that is retained rather than distributed. A tacit promise to maximize value is made. The litmus test behind any decision to raise, invest, or retain a dollar must be to create more value than could have been achieved with an otherwise alternative investment opportunity of similar risk.

For example, what would happen if “Brick Bank” paid only a 5% return on savings accounts while “E-Bank” offered 15% on money market accounts of virtually equal risk? Obviously, a 15% return is much better than 5%, when all else equal. Consequently, many people will storm into Brick Bank, withdraw their life’s savings, and march down the street to E-Bank.

This example illustrates that capital is a scarce resource that all businesses, and even government agencies, must compete for and efficiently manage. This means that they must provide customer-valued products and services effectively and efficiently to maximize the utility of their invested capital. The limited supply of, and liquid markets for, capital require that its users maximize its value - maximize shareowner value, or face the flight of capital to more attractive opportunities.

If managing for value is embracing the interests of owners, what then of the interests of other stakeholders? Let’s start with a look at who these owners are, for they are not rich young professionals on Wall Street. Our mutual funds, pension plans, life insurance policies, and many small investor holdings represent the vast majority of stock ownership. Our largest institutional investors represent the savings of everyday citizens. We each invest our life’s savings and bear risk, in the hopes of the best return possible.

But this need not imply a conflict between the interests of customers, employees, owners and the managers, executives and directors who act as stewards of our savings. Fashionable shareowner-stakeholder discussions belie a confusion of means and ends. Value maximization, the heart of economic growth, is a long-term proposition that delivers higher economic output and prosperity through productivity gains, employment growth and higher wages. The interests of stakeholders and of society are best served when our scarce resources are put to their most productive uses, as revealed in our comparison of Japan’s top and bottom ten wealth creators over the past three years.

<b>Stakeholder</b>	<b>Top 10</b>	<b>Bottom 10</b>
Revenue (Customers)	+24%	-13%
Size of Workforce	+12%	-14%
Total Investment	+24%	-2%
Wealth Creation	+107%	-151%

Globalism presents both an opportunity and a challenge. As historically insular product, labour and capital markets become increasingly global, companies will continue to face increasing competitive pressures. Under pressure to perform, investors are warming to notions of shareowner activism and heightened corporate governance. Market liquidity and the emergence of more sophisticated and demanding institutional investors have made the consequences of destroying shareowner value much more important to employees, executives, directors and policymakers.

**In Asia, we saw how prolonged periods of capital misallocation destroys wealth and undermines the economy ...**

**... the interests of society are best served when our scarce resources are put to their most productive uses.**



## THE NEW MATH; 4 > 8

Figure 1 depicts a rank ordering of the North American airline industry’s major participants, on the basis of wealth creation, or Market Value Added (MVA). MVA is the excess enterprise value over its book value, or total capital employed. If management has made the company more valuable as a going concern than the value of total capital invested – it has created wealth.<sup>1</sup>

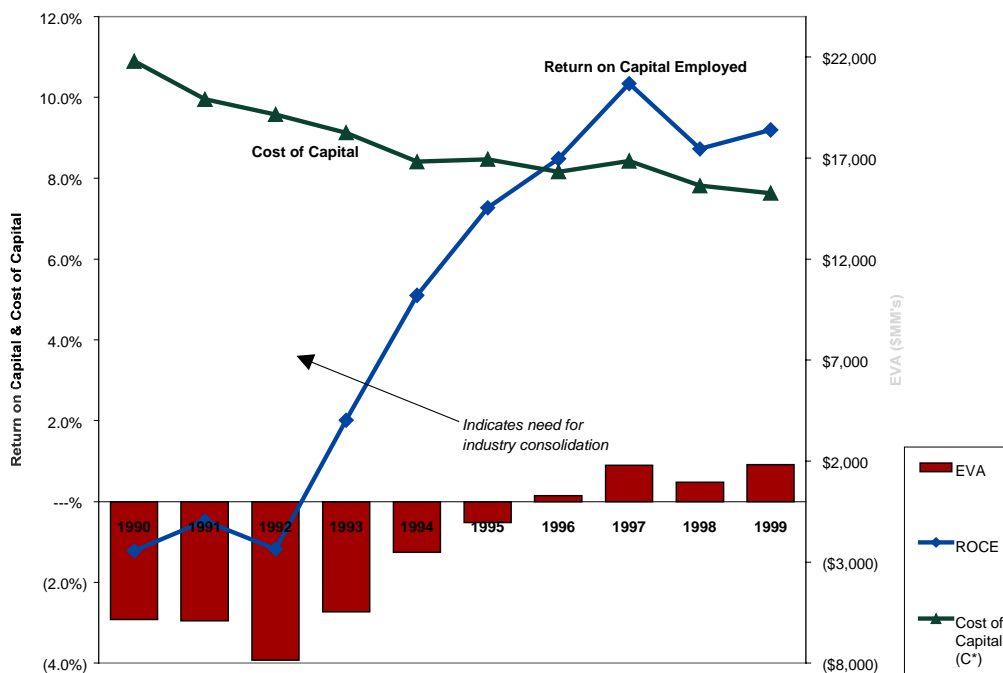
**Southwest has created \$1.77 from every dollar – Continental has turned each dollar into 95 cents.**

For example, Southwest has an enterprise value of \$11.7 billion, yet only \$6.6 billion of capital is invested – thus \$5.1 billion of wealth has been created – \$1.77 has been created from each dollar invested. Continental has a nearly identical enterprise value of \$12.2 billion, but this is achieved with \$12.9 billion of capital invested – twice the capital of Southwest. Thus, Continental has destroyed \$700 million of wealth – each dollar invested is now only worth 95 cents!

At a macro level, size is not the competitive advantage in this industry that one might assume, perhaps because the industry remains fragmented and over-supplied. Even the largest player, AMR, is unable to earn its cost of capital or create any significant level of MVA. While AMR, Northwest and Continental account for 40% of the industry’s economic capital, they create only 16% of the wealth! In fact, in a regression of size (capital employed) versus wealth created (MVA) for the 11 carriers we found an inverse correlation!

**The industry is uneconomic in most years – too much capital is allocated to this sector.**

Figure 2 shows the industry (11 airlines summed) return on capital, cost of capital and Economic Value Added (EVA), over the past ten years. From 1990 through 1994, the industry failed to earn its cost of capital. The industry operated around an economic “break-even” in 1995-1996. From 1997 to 1999, the industry has earned a return above the cost of capital (positive EVA). Clearly, the aggregate economic losses far exceed the sum of the economic profits (EVA), indicating an uneconomic industry – typically a good sign of the need for consolidation or major change.



**Figure 2. Can Consolidation Cure Chronic Returns?**

Even the large carriers suffer – the North American market as a whole remains far too competitive to discern any advantage even for the larger carriers. In fact, the opposite may be true. AMR was unable to earn its cost of capital in 1999 and has earned its cost of capital in only 2 of the past 10 years! Meanwhile, smaller airlines such as Alaska, America West and Southwest have been achieving positive EVA.

<sup>1</sup> We included Gateway in our study to provide context and illustrate how a typical well-performing company scores on the metrics presented. Gateway’s enterprise value is similar to leading airline companies, yet it achieves this value on a smaller capital base as a result of its significantly higher EVA.

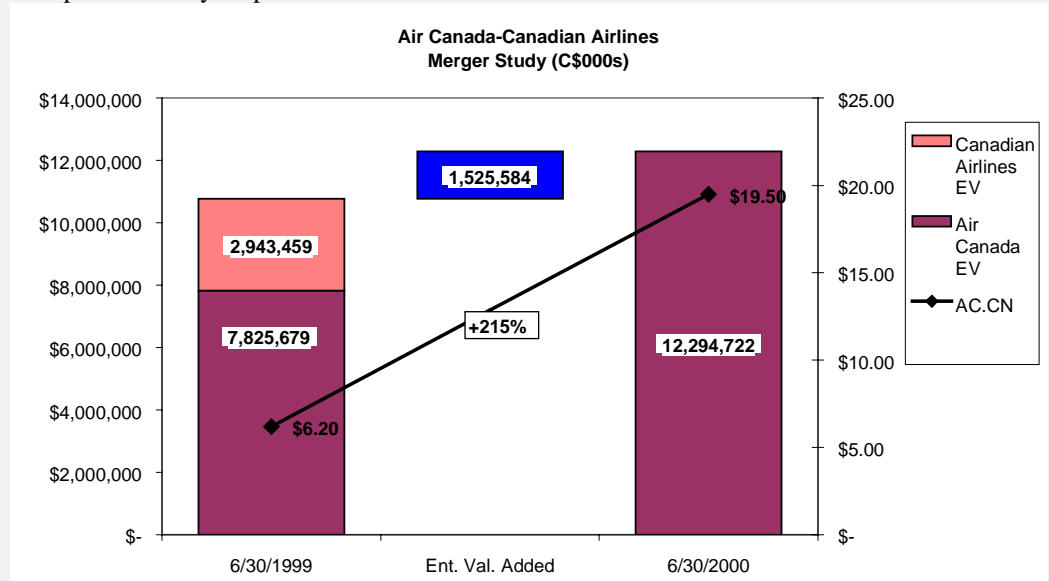


After years of poor returns – Air Canada delivered 215% to its owners.

O' Canada!

The case for consolidation in the North American airline market is perhaps best illustrated by the economic success of the recent Air Canada-Canadian Airlines merger. Notwithstanding ongoing labour challenges within Air Canada – common to such times of turbulent change, the merger seems to have proven a success.

After years of poor returns, Air Canada delivered a 215% return to owners from July 99 to July 00. Notwithstanding the cost of extra perks to frequent business travellers, a level of service that stands above many carriers, integration issues, and a sea of fare discounts, investors enjoyed one of the few real airline stock return bonanzas since deregulation. The merger efficiencies created C\$1.5 billion dollars of new wealth for the economy and increased the combined airline enterprise value by 14 percent.



The tremendous wealth created is not a speculative bubble, but real gains in cashflow.

And the tremendous amount of wealth created by this transaction is not a speculative, stock market illusion; rather, this economic value has already been created through efficiencies evident in the current operations value (COV). We estimate that the net present value of normalized annual operating cashflow after tax has already increased by at least C\$1.5 billion.

Thus, the market value increase from July 1999 to July 2000, can be accorded to an increased COV, while none of this increase is premised on increased expectations – future growth value (FGV).

Clearly, the market has been proven correct in assigning such tremendous economic benefit to this merger – real economic efficiencies achieved through the better utilization of expensive aircraft, eliminating costly waste through route optimization, and better leveraging cost and expertise in preventative maintenance, centralized purchasing, fuel cost hedging, and general management.

A “Big 4” may offer gains in utilization, waste reduction and leveraging specific expertise.

Analysts, investors, executives and policymakers can learn from this “test-case” – potential gains from a consolidating North American airline industry that leads to a “Big 4” (AC/CP, AMR/NWAC, UAL/U, DAL/CAL) may be too enormous to ignore. Clearly, the question is not *if*, but *how*, the integration should be best managed to maximize the net benefit to all.



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PERFORMANCE BENCHMARKING

Nearly half the industry was unable to earn the cost of capital in a good year ...

Performance, in terms of EVA as a percentage of capital (the spread between the return on capital and cost of capital), for each airline is charted in Pareto form in Figure 3 – dollarized amounts are shown above each bar. Just over half the industry earned more than the cost of capital, *but that many cannot* – even in a good year – is even more telling.

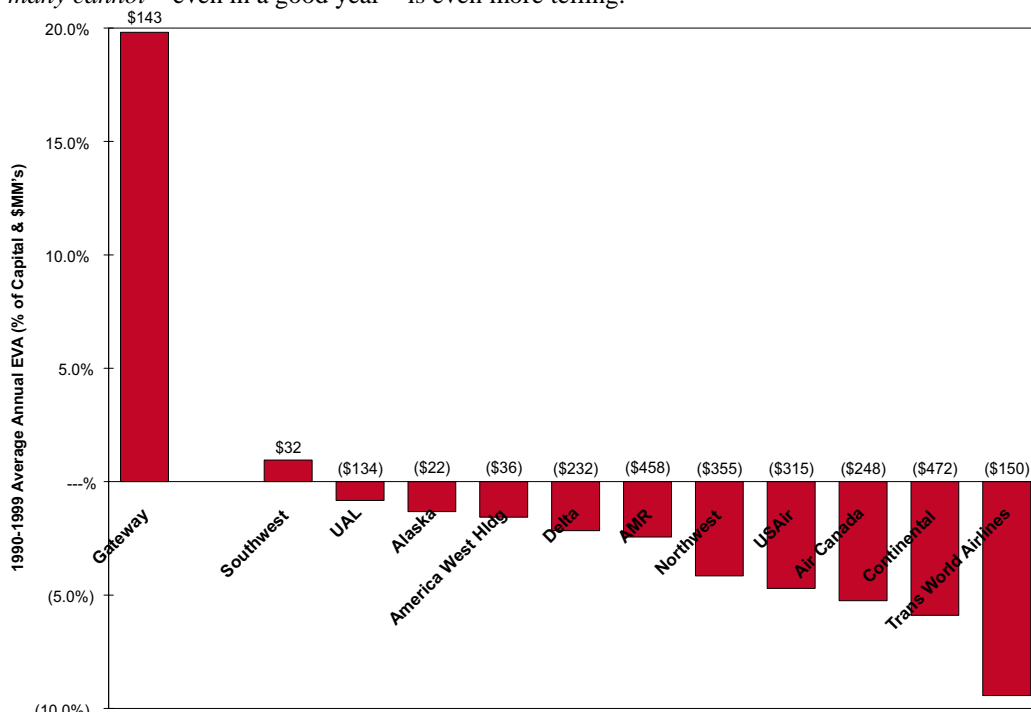


Figure 3. All airlines (except Southwest) destroy value over the business cycle

... despite high velocity business models in the “New Economy”, this industry remains plagued with too much capital.

USAir and Air Canada highlight the impact of a business model’s capital utilization, or *velocity*, in determining financial performance. USAir’s profit margin of 5.4% trails Air Canada’s 8.4%. But while USAir has nearly twice the revenue of Air Canada, it does so with only 30% more property and equipment. Fixed asset turns are 1.30x for USAir and only 0.86x at Air Canada. USAir also edges out Air Canada with working capital at -5% of sales, versus only -2% at Air Canada. Thus, return on capital (6.8%) is more (versus 5.8%). Despite the prevalence of high velocity business models in the “New Economy”, asset turns among airlines remain poor across the board – the industry is plagued with too much capital.

Airline (1999)	NOPAT Margin	NWC/Sales	Asset Turns	Return on Capital	EVA (\$MM's)
Delta	13.9%	-10.9%	0.80x	11.6%	\$750
Southwest	16.2	-5.6	0.78	13.2	246
America West	13.3	-8.0	1.01	11.4	93
Alaska	12.2	-11.8	0.84	10.9	86
UAL	15.5	-15.0	0.69	11.2	756
Northwest	11.8	-12.0	0.99	10.3	331
Continental	12.7	1.8	1.04	9.0	220
USAir	5.4	-4.8	1.30	6.8	-43
AMR	7.8	-14.2	0.74	5.8	-307
Air Canada	8.4	-2.2	0.86	5.8	-147
TWA	-0.1	-7.1	1.18	-0.1	-167

Figure 4. USAir versus Air Canada – The Capital Velocity Opportunity



VALUATION BENCHMARKING

Figure 5 charts the valuation premiums (Future Growth Value as a percentage of total enterprise value) for each of the airlines, in descending order. While TWA shows the highest expectations implicit in its valuation, this result is essentially “n/a” due to its poor financial performance – a minimum enterprise value is provided by either the liquidation value of the assets or expectations of improvement from a low base. Similarly, they also have a n/a price-earnings ratio.

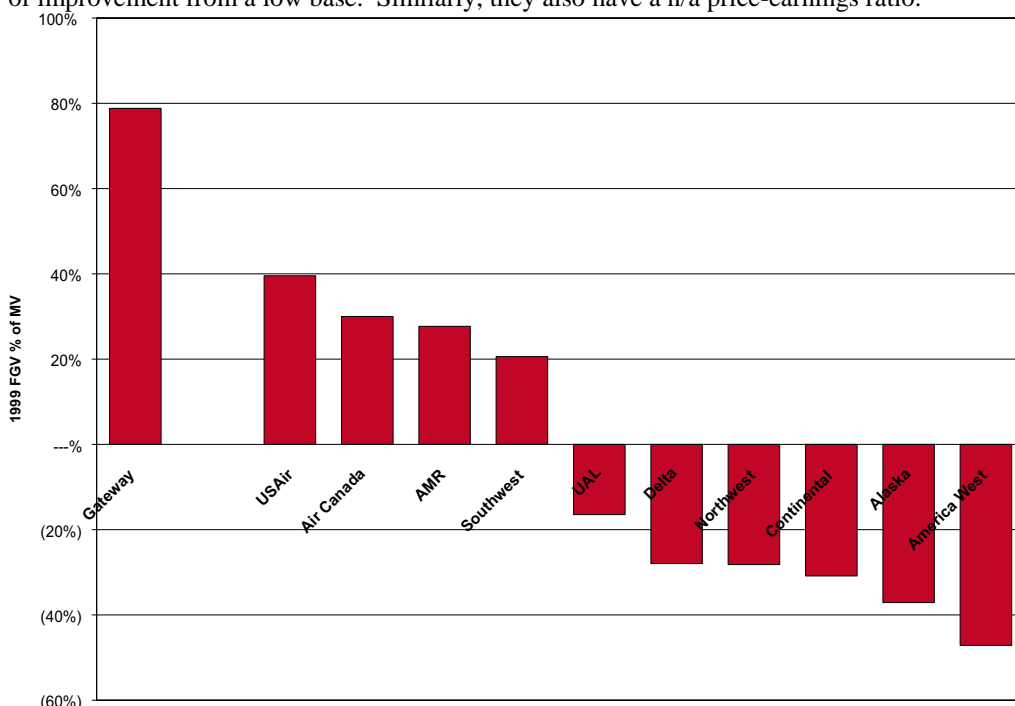


Figure 5. Very Low Expectations Implied by Valuations

**It is the better performers that exhibit the lowest valuations – mean-reversion implies no sustainable competitive advantage.**

Conversely, it is the better performers (DAL, AWA, UAL) that exhibit the lowest valuations – values that imply significantly negative expectations, or expectations for a decline in performance. Valuation premiums typically exhibit such mean-reversion characteristics in cyclical commodity industries - industries with little to no *sustainable competitive advantage*.

Only Southwest defies the valuation trend – ostensibly carrying a valuation premium, despite strong financial performance, due to some sustainable advantage in their business model.

	Absolute (1999)			NOPAT/ Sales	Relative (1999)	
	P/E	EV/EBITDA	FGV/MV		P/E	EV/EBITDA
TWA	N/a	13.4x	85%	-0.1%	N/a	1.7x
USAir	N/a	14.2	40	5.4	N/a	1.8
Air Canada	7.5	8.1	30	8.4	1.0	1.0
AMR	43.8	9.6	28	7.8	5.8	1.2
Southwest	18.3	9.8	21	16.2	2.4	1.3
Median	7.5	7.7	-17		-	-
UAL	14.0	8.8	-17	15.5	1.9	1.1
Delta	8.1	6.3	-28	13.9	1.1	0.8
Northwest	7.5	7.5	-28	11.8	1.0	1.0
Continental	9.1	7.5	-31	12.7	1.2	1.0
Alaska	7.2	6.1	-37	12.2	1.0	0.8
America West	7.0	4.7	-47	13.3	0.9	0.6

Figure 6. Valuation Summary: Expectations of Mean Reversion



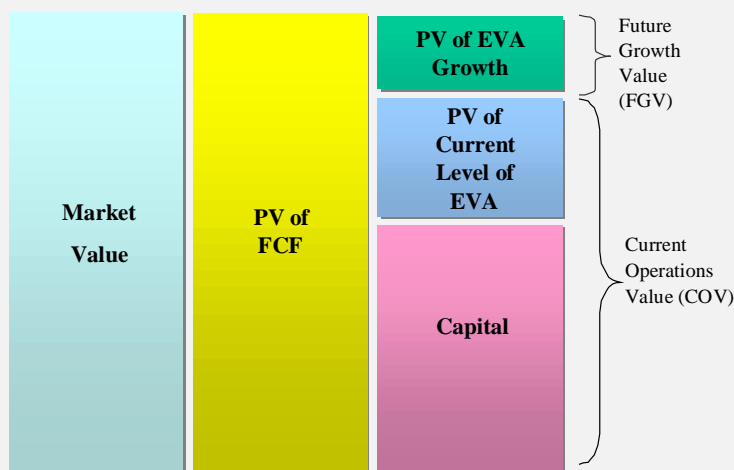
### Performance, Value & Strategy

Many of us complain that pennies are simply not worth the effort – why then, when a company announces that it will miss quarterly earnings estimates by a mere penny, does the stock plummet? When does a penny matter?

Simplistically, one can express a company’s value as the net present value of all future cashflow.<sup>2</sup> While present value concepts are more easily, and therefore more commonly, applied to fixed income valuation (e.g., the value of bonds), the same concept also holds for stocks, albeit with much less certainty in the forward numbers. Therefore, a business generating \$100 per year, every year, can be valued into perpetuity as \$1000, assuming a 10% cost of capital, or time value of money ( $\$100 \div 10\% = \$1000$ ). This base, or zero-growth, case implies a “multiplier” of 10 times operating cashflow, and is the current operations value (COV).<sup>3</sup>

Now, let’s try a growth case where operating cashflow grows at a rate of 5% per year, forever. While many of us might think that forever is a long time, it may not be long enough to justify some of the recent internet stock prices! Our simple case can be valued on a present value basis at  $\$100 \div (10\% - 5\%)$ , or \$2000. The growth case implies a multiplier of 20 times and happens to illustrate a price level common to today’s marketplace, where many stock prices imply a multiplier of 20 times or more. In this example, the market has based one half of the stock price on the present value of current operating cashflows, forever, and the other half on profitable growth expectations above this level – i.e., fifty percent of the value is COV, while the remainder is future growth value (FGV). The FGV term subsumes not only expected growth, but also implicitly values any real options. For example, the 5% growth assumption might really be a proxy for a 90% likelihood of no growth, and a 10% chance of 50% growth.

Strategically, enterprise value is maximized through the simultaneous maximization of Current Operations Value (COV) and Future Growth Value (FGV)



Strategically, enterprise value is *not* maximized solely through the maximization of Current Operations Value (COV), but through the simultaneous maximization of the sum of *both* COV and Future Growth Value (FGV), including the value of real options.

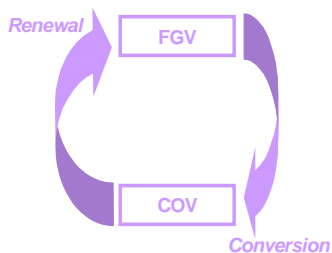
While the valuation of internet stocks might be interpreted as proof of a patient and forward-looking stock market, leading business strategists are concerned that many of today’s corporations remain overly fixated on the *near-term*.<sup>4</sup> The implications for business strategy, financial policy, financial management and compensation strategies are far-reaching.

<sup>2</sup> This can also be expressed as the mathematically equivalent sum of capital and the present value of all future EVA.  
<sup>3</sup> The current operations value can be also expressed as the sum of capital invested, plus the present value of current EVA into perpetuity, with no growth. The nominal zero-growth assumption implies decay in real terms.  
<sup>4</sup> See, for example, the roundtable discussion led by C.K. Prahalad of the University of Michigan, *Journal of Applied Corporate Finance*, Volume 12, Number 2 (Summer 1999).



When a company misses its earnings number, what are the implications for its net present value? If the miss has no implications for the future, the value of the stock is reduced by only *one cent*. A miss expected to persist for four quarters is worth *four cents*. A permanent miss, using our multiplier of 10 times, is worth *40 cents*. If the shortfall has implications for growth opportunities, we might expect a much larger impact, like our example with a 20 times multiplier. A one-penny shortfall on the quarter can thus be worth a 40-cent reduction in the perpetuity value, and another 40-cent reduction in growth value – an *80-cent* impact!

A focus on the development of Future Growth Value, conversion to Current Operations Value and renewal



of Future Growth Value directs strategic thinking

Future Growth Value (FGV) as a % of Market Value	100%	<p><b>EXPENSIVE</b></p> <p>“Hot” stocks and sectors with extreme future upside, or</p> <p>Poor performers with a protective valuation floor (liquidation value), or</p> <p>Overvalued candidates for a <u>sale</u>.</p> <p>(TWA, Polaroid, Motorola)</p>	<p><b>SUPER STARS</b></p> <p>Perennial high performers that are typically fully valued.</p> <p><i>Invests</i> for FGV (strategy), <i>converts</i> FGV investment into COV (execution), and <i>renews</i> FGV.</p> <p>(LUV, Dell, Gateway)</p>
	50%	<p><b>TURNAROUNDS</b></p> <p>Disappointments awaiting breakthrough change.</p> <p>Candidates for <u>turnaround</u>.</p> <p>(CP, Sears, Xerox)</p>	<p><b>BARGAINS</b></p> <p>Out of favour stocks and sectors facing an expected (cyclical) downturn, or</p> <p>Strong performers with a valuation constraint (unscalable business model), or</p> <p>Undervalued candidates for <u>growth/purchase</u>.</p> <p>(AWA, DAL, DuPont)</p>
0%	Low EVA	0.0%	High EVA
<b>EVA per Dollar of Capital (Return on Capital minus Cost of Capital)</b>			

A healthy dose of investor prudence can lead to a larger stock price impact – where there’s smoke, there’s fire. Managers have significant financial incentives to do just about anything to avoid falling short. And aggressive accounting practices often understate how bad things really are (e.g. revenue recognition, offsetting gains and losses, and reversals in acquisition, restructuring, warranty, bad debt, inventory and actuarial reserves). So when a company does miss by a penny, it may warrant a more dramatic, downward revision of expectations and FGV.

The matrix maps companies based on both financial performance (EVA) and valuation (FGV). Both qualities are scaled on company size for comparability, giving us Future Growth Value as a percentage of total enterprise value, and return on capital versus cost of capital.

**Superstars** (LUV, Dell, Gateway) are perennial high performers that enjoy full valuations, with strategies to invest in the intangibles that drive FGV, convert FGV to COV through operational excellence and great execution, and perpetually renew FGV for their future. **Turnarounds** (CP, Sears, Xerox) are often perennial disappointments awaiting breakthrough change.

“Hot” stocks and sectors with high expectations for upside, or poor performers with a minimum valuation floor often seem **Expensive** and can be candidates for sale (TWA, Polaroid, Motorola).

**Bargains** are often out-of-favour stocks and sectors or cyclicals facing a downturn, or strong performers with a valuation constraint (unscalable business model) that may be candidates for investment (AWA, DAL, DuPont).



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SUCCESSFUL AIRLINE STRATEGIES

Margins, working capital and fixed asset turns explain 94% of variation in performance, yet size offers no advantage ...

... nor does size have a bearing in valuations ...

... margins are not capitalized – they aren't expected to be sustainable – only velocity supports value as a sustainable competitive advantage.

Consolidation offers hope, not through increased scale, but through velocity – the increased asset utilization that comes with industry consolidation. Size alone brings no performance advantage – a simple regression analysis of our industry database found no significant correlation between size (either in terms of revenue or capital) and performance (return on capital and EVA). However, margins, working capital and fixed asset turns, together explain 94% of the variation in financial performance among airlines.

Nor does scale have any bearing on market expectations of future performance – valuation premiums are not correlated with size. Yet, both profit margin and overall financial performance are both strongly inversely correlated with valuation premiums – market expectations decline considerably with increased margins or increased levels of overall performance. Investors do not expect these conditions to be sustainable. Again, the exception to this trend is Southwest (LUV). While working capital and fixed asset efficiency are significant financial performance drivers, they do not suffer from the same valuation discount in the marketplace – velocity is fully capitalized into valuations as a sustainable condition, a source of competitive advantage.

Figure 7 illustrates the Valuation/Performance Matrix as applied to the North American Airline Industry. As the only airline to inhabit the top-right quadrant (“Superstars”), LUV deserves special notice. LUV achieves both a performance and valuation premium despite the lowest revenue per plane in the industry (tied with TWA at \$16.1 MM), among the lowest Load Factors (69%), and RASM that is only slightly better than TWA (8.96 cents). However, LUV also has the lowest unit cost (CASM 7.48 cents). No hub cities, a homogenous fleet (737), no-frills service, ticketless operations, no defined benefit pension, one of the youngest fleets (9.1 years), and effective fuel purchasing and hedging (53 cents/gallon) help minimize cost.

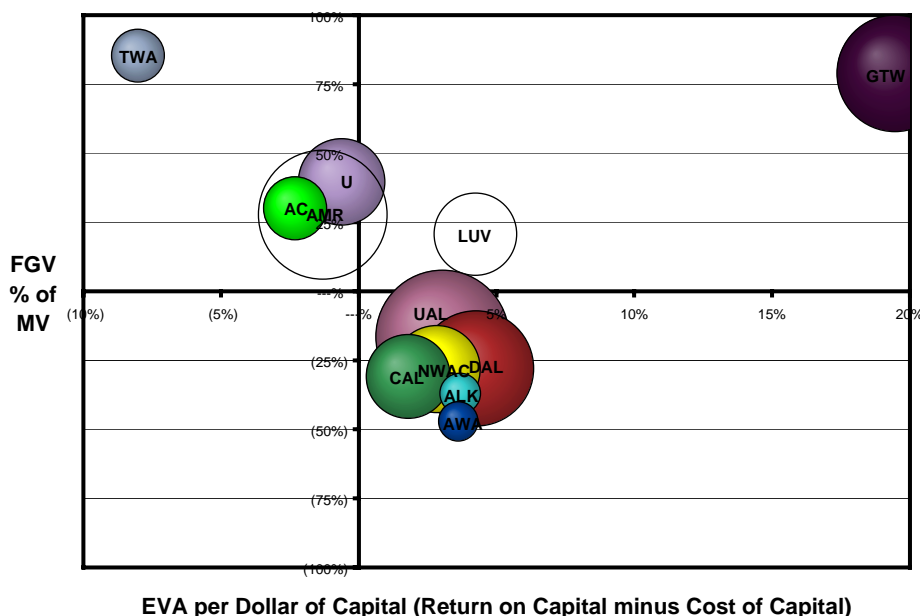


Figure 7. Valuation/Performance Matrix: Only LUV Stands Apart

No matter how poorly an airline performs, there is a price floor.

While AC was close, there are no domestic airlines in the lower-left quadrant (“Turnarounds”) because no matter how poorly an airline performs, there is typically a price floor – thus lower levels of performance imply higher expectations for the future to maintain the minimum enterprise value, say, an asset-based liquidation value. Also close was CAL with among the best load factors (73%), RASM (11 cents) and revenue per plane (\$24 MM) but also a high cost structure (CASM 10 cents), despite a significant fuel cost advantage (49 cents/gallon). The valuation may also be weak due to a perceived dependency on NWAC for growth - its real-option value.



**DAL/AWA valuations imply a market expectation that financial outperformance will not continue.**

TWA dominates the problematic upper-left quadrant (“Expensive”) with very poor financial performance, but a significant value-implied expectation for improvement. TWA has one of the worst RASM (8 cents) in the industry, coupled with an old fleet (17 years) and a high cost operation (CASM 10 cents). Employee and asset utilization are also the worst in the industry, yet somehow the subsequent valuation downside seems limited.

In the lower-right quadrant (“Bargains”) DAL and AWA have achieved excellent financial performance as cost leaders (CASM 9 and 8 cents, respectively), in part due to very low fuel costs (52 and 53 cents per gallon). Load factors and RASM are also very good for these two airlines (11 and 9 cents RASM). However, the DAL/AWA valuations imply an expectation that these conditions are not sustainable – the present value of current operations exceeds the current total enterprise value, such that negative market expectations are implied, that is, a significant downturn in financial performance is expected.

Competition, substitute services, price-elasticity and the discretionary nature of much travel limits the degree to which pricing can play a major degree of freedom in the value dynamic for airlines. Cost leadership, particularly fuel and labour, as well as asset utilization are the keys to financial outperformance. However, industry valuations tend to imply a significant expectation for performance mean-reversion. This is especially true for margin advantages; however, working capital and asset utilization are a source of financial advantage that are treated much more attractively in airline stock pricing – as sustainable advantages.

#### IN CLOSING

**We recast all data to an economic basis to better evaluate the industry and benchmark performance and valuation.**

Our economic review of 11 North American Airlines recasts all data to an “apples-to-apples” economic basis with EVA to evaluate the economics of the industry, benchmark performance and valuation, and examine the case for airline consolidation in the North American market.

Unable to earn a return in excess of the cost of capital over most of the business cycle, the industry creates little wealth, measured by the excess enterprise value over book value (i.e. Market Value Added among airlines is poor) – only one-half the airlines have created wealth, and the top four airlines account for 82% of the industry’s \$20 billion of wealth creation.

**Airline valuation is dominated by mean-reversion expectations, except for gains made through *velocity*.**

The industry is uneconomic in most years – unable to earn the cost of capital. Too much capital is allocated to this sector. At a macro level, size is not the competitive advantage that one might assume, perhaps because the industry remains fragmented and over-supplied. Even the large carriers suffer - the North American market as a whole remains far too competitive to discern any advantage even for the larger carriers. In fact, the opposite may be true. AMR was unable to earn its cost of capital in 1999 and has earned its cost of capital only twice in the past ten years.

Size brings no performance advantage. However, margins, working capital and fixed asset turns, together explain 94% of the variation in financial performance among airlines. Nor does size have any bearing on market expectations of future performance – valuation premiums are not correlated with size. Yet, both profit margin and overall financial performance are both strongly *inversely* correlated with valuation premiums – investors do not expect these conditions to be *sustainable*. Working capital and fixed asset efficiency are significant financial performance drivers that *do not* suffer from the same valuation discount in the marketplace – *velocity is fully capitalized* into valuations as a sustainable condition, a source of competitive advantage.

Consolidation offers a glimmer of hope for this economically-challenged industry – by better utilizing aircraft, eliminating operational waste through route optimization, and better leveraging expertise in management, preventative maintenance, centralized purchasing and fuel cost hedging. After years of poor returns, Air Canada delivered a 215% return to owners from July 99 to July 00, notwithstanding the cost of extra perks to frequent business travellers, a level of service that stands above many carriers, integration issues, and a sea of fare discounts.



## APPENDIX A: WHAT IS EVA?

“There is no profit unless you earn the cost of capital.” Peter Drucker.

**EVA measures profit less the cost of all capital employed** EVA measures profit after the cost of all capital employed.<sup>5</sup> It is the one measure that properly accounts for the trade-offs between the income statement and balance sheet in creating value. EVA is also the spread between a company’s return on and cost of capital, times invested capital:

$$\text{EVA} = (\text{Rate of Return} - \text{Cost of Capital}) \times \text{Capital}$$

For example, a \$1000 investment in a hot-dog stand produces a 5% return, where investments of similar risk elsewhere can earn 15%. The EVA from this case would be:

$$\text{EVA} = (5\% - 15\%) \times \$1000 = -\$100$$

Another way to think of EVA comes from multiplying through by capital:

$$\text{EVA} = \text{Operating Profit} - \text{A Capital Charge}$$

where,

$$\text{Capital Charge} = \text{Cost of Capital} \times \text{Capital}$$

For example, although the accounting profit in this example is \$50, there was an opportunity to earn \$150:

$$\text{EVA} = \$50 - \$150 = -\$100$$

**EVA simultaneously captures both profit and capital efficiency** Under EVA, a business is effectively charged by investors for the use of capital through a “line of credit” that bears interest at a rate equal to the cost of capital - shareowner accountability can thus be effectively decentralized into the operating units. EVA simultaneously focuses on both the profit and loss statement and the balance sheet and can be tailored to remedy accounting anomalies that fail to reflect economic value. Finally, EVA sets a required rate of return – the cost of capital – as a hurdle rate below which performance is unacceptable.

Although in any given business there are countless individual operating actions that can create value, eventually they must all fall into one of four categories measured by an increase in EVA.

Specifically, EVA can be increased through the following four means:

1. **Fix.** Improve the returns on existing capital through higher prices or margins, more volume, or lower costs.
2. **Harvest.** Through rationalizing, liquidating, or curtailing investments in operations that cannot generate returns greater than the cost of capital. This might be through divestitures or through withdrawing from unprofitable markets.
3. **Grow.** Profitable growth through investing capital, where increased profits will cover the cost of additional capital. Investments in working capital and production capacity may be required to facilitate increased sales, new products or new markets.
4. **Optimize Cost of Capital.** Through reducing the cost of capital but maintaining the financial flexibility necessary to support the business strategy through the prudent use of debt, risk management, and other financial products.

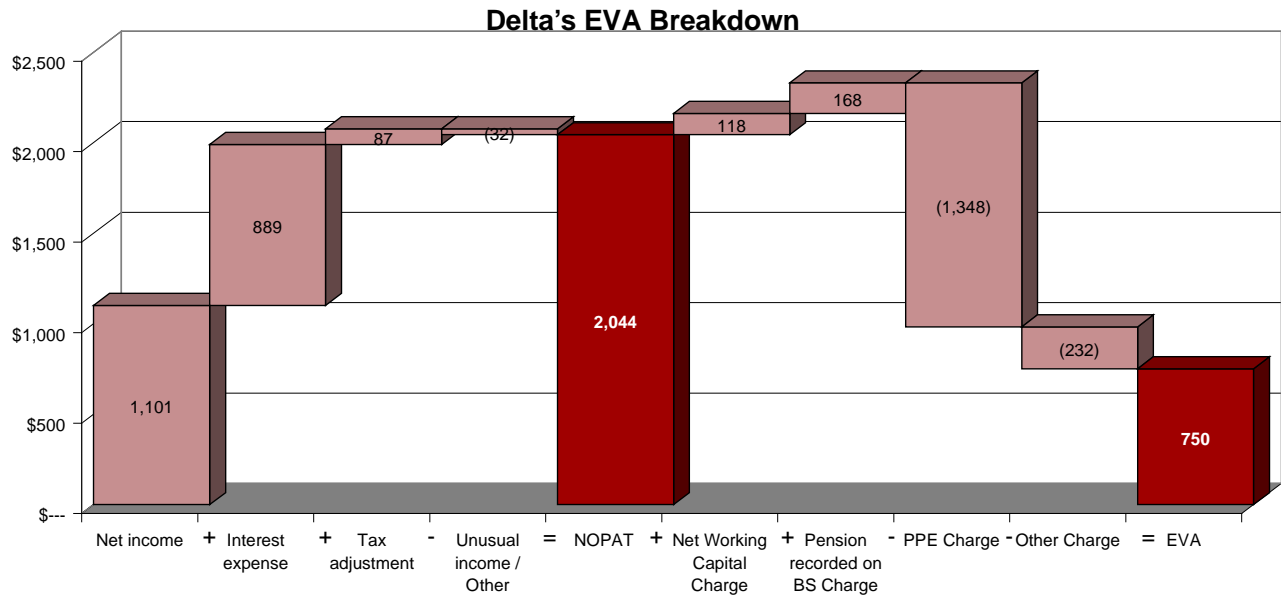
**EVA is not just a performance measure – it is an integrated performance measurement, management and reward system**

EVA Companies measure, report, and reward performance on the basis of EVA and use EVA to evaluate, execute and communicate strategies, investments, plans, tactics and decisions.

<sup>5</sup> The EVA framework is presented in more detail in the book, *The Quest for Value*, Harper Collins, 1991 by Bennett Stewart. EVA<sup>®</sup> is a registered trademark of Stern Stewart & Co.



APPENDIX B: EVA FOR DELTA AIRLINES



← NOPAT →

← Capital Charge →

NOPAT	
Net income	\$1,101
+ Interest expense	889
+ Tax adjustment	87
- Unusual income / Other	32
<b>= NOPAT</b>	<b>\$2,044</b>

Capital Charge @ 7.3%	
Net Working Capital Charge	(\$118)
- Pension recorded on BS Charge	168
+ PPE Charge	1,348
+ Other Charge	232
<b>= Capital Charge</b>	<b>\$1,294</b>

**= EVA \$750**



APPENDIX C: GLOBAL AIRLINE PERFORMANCE SUMMARY (\$000s)

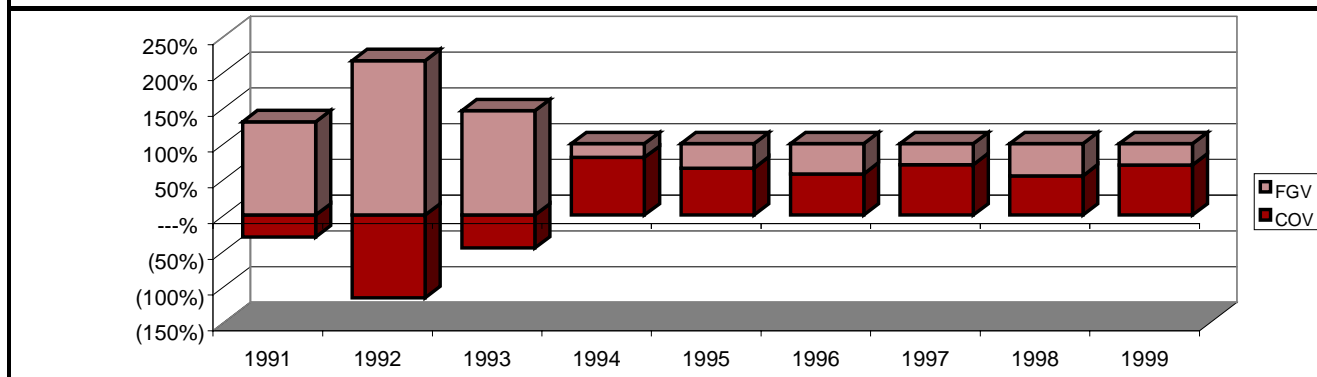
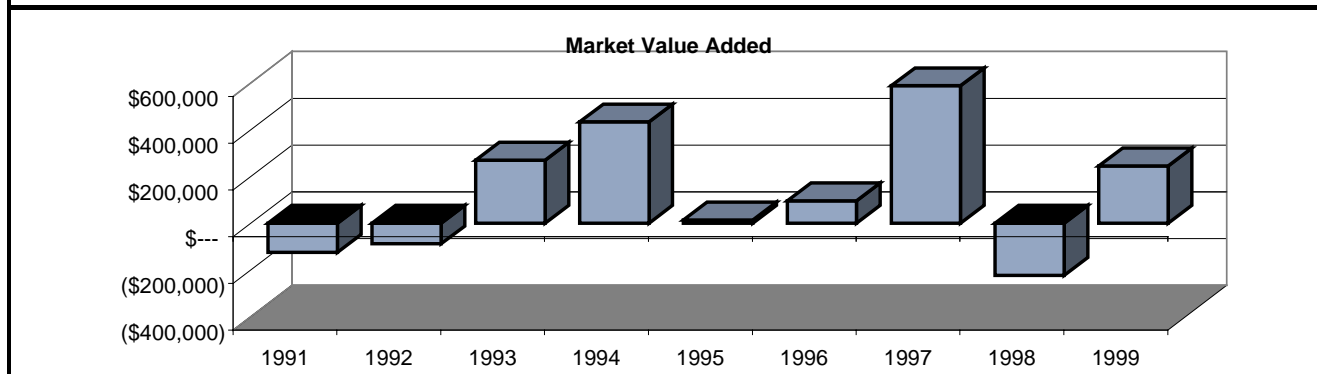
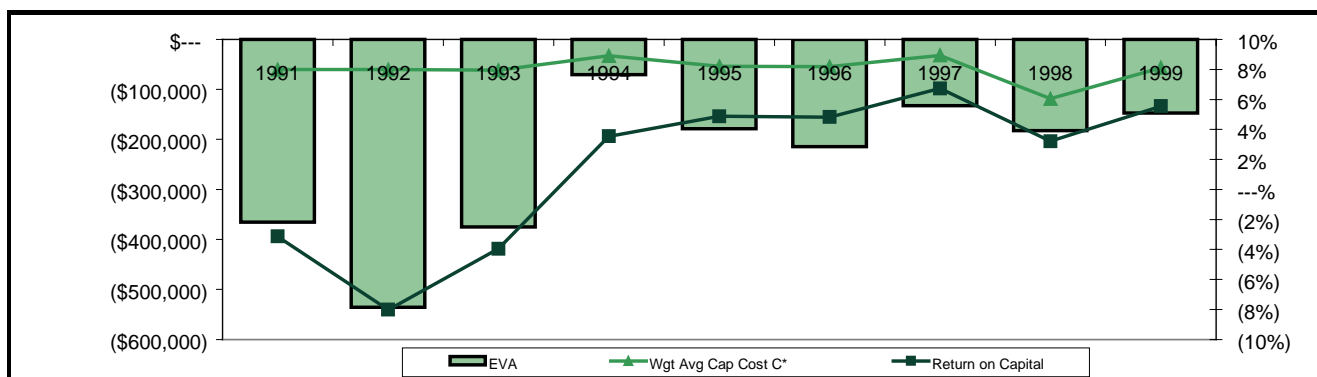
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>Air Canada</b>										
NOPAT	(45,523)	(111,032)	(252,822)	(124,402)	209,802	307,994	302,416	428,958	204,359	368,243
Capital	3,183,972	3,533,483	3,152,011	3,144,711	5,924,640	6,325,407	6,285,139	6,379,943	6,363,918	6,631,783
ROCE	(1.6%)	(3.5%)	(7.2%)	(3.9%)	6.7%	5.2%	4.8%	6.8%	3.2%	5.8%
Cost of Capital (C*)	8.0%	8.0%	8.0%	8.0%	8.9%	8.2%	8.2%	8.9%	6.1%	8.1%
EVA (Beg Cap)	(276,971)	(365,538)	(535,266)	(375,057)	(70,392)	(178,420)	(214,346)	(132,425)	(182,098)	(147,135)
Market Value	2,899,000	3,409,130	3,063,523	3,414,569	6,357,751	6,338,902	6,381,169	6,968,150	6,139,657	6,877,312
<b>Alaska</b>										
NOPAT	42,394	47,654	(38,499)	15,550	115,485	110,239	120,848	176,125	226,295	252,888
Capital	1,169,251	1,277,375	1,412,067	1,524,440	1,875,894	1,929,817	2,140,917	2,372,517	2,328,682	2,739,976
ROCE	4.4%	4.1%	(3.0%)	1.1%	7.6%	5.9%	6.3%	8.2%	9.5%	10.9%
Cost of Capital (C*)	9.8%	9.1%	8.3%	7.2%	7.3%	7.1%	6.9%	7.5%	7.5%	7.2%
EVA (Beg Cap)	(51,266)	(59,146)	(144,586)	(85,536)	3,971	(23,370)	(12,997)	14,862	48,102	85,688
Market Value	1,205,817	1,543,591	1,640,929	1,737,555	2,048,536	2,128,100	2,363,600	2,847,499	2,926,540	2,869,364
<b>America West</b>										
NOPAT	6,206	(38,800)	20,882	169,258	92,783	196,979	168,469	187,386	270,042	294,361
Capital	2,196,171	2,272,034	1,932,797	1,997,970	2,464,258	2,366,730	2,351,428	2,514,378	2,572,040	2,800,831
ROCE	0.3%	(1.8%)	0.9%	8.8%	4.6%	8.0%	7.1%	8.0%	10.7%	11.4%
Cost of Capital (C*)	8.9%	8.9%	8.9%	8.2%	7.7%	8.3%	7.9%	8.0%	7.9%	7.4%
EVA (Beg Cap)	(188,594)	(233,600)	(180,647)	10,189	(60,262)	(7,801)	(18,503)	3,034	70,652	92,970
Market Value	2,345,852	2,468,632	2,216,525	2,257,388	2,277,822	2,495,742	2,416,736	2,577,948	2,487,472	2,710,675
<b>AMR</b>										
NOPAT	12,213	88,971	596,727	854,153	1,343,743	1,463,293	1,899,171	2,006,285	2,171,015	1,379,600
Capital	11,224,719	18,256,765	20,765,084	17,022,285	22,703,175	21,998,737	21,936,238	21,634,952	23,620,429	25,042,891
ROCE	0.1%	0.8%	3.3%	4.1%	6.4%	6.6%	8.6%	9.1%	10.0%	5.8%
Cost of Capital (C*)	10.3%	9.9%	8.9%	8.5%	8.7%	9.0%	8.7%	8.9%	8.8%	7.1%
EVA (Beg Cap)	(888,632)	(1,025,395)	(1,035,780)	(908,367)	(132,795)	(571,185)	(25,289)	50,986	264,277	(306,898)
Market Value	10,826,315	19,964,399	23,975,421	19,705,969	24,974,691	26,505,891	26,685,162	29,448,896	28,603,063	28,695,765
<b>Continental</b>										
NOPAT	(881,850)	3,660	103,424	(259,193)	(30,626)	494,347	738,675	862,649	959,588	1,096,084
Capital	6,297,401	6,046,881	5,899,346	7,290,258	7,777,256	7,961,978	8,412,778	9,600,154	12,188,675	12,924,344
ROCE	(10.4%)	0.1%	1.7%	(4.4%)	(0.4%)	6.4%	9.3%	10.3%	10.0%	9.0%
Cost of Capital (C*)	12.6%	13.2%	13.1%	15.5%	8.3%	8.1%	8.1%	8.4%	7.6%	7.2%
EVA (Beg Cap)	(1,950,928)	(830,009)	(685,997)	(1,176,364)	(637,404)	(135,567)	90,667	159,259	229,796	219,718
Market Value	8,572,406	8,586,844	8,587,952	5,297,462	6,013,943	7,322,664	8,200,355	10,217,606	11,279,293	12,211,238
<b>Delta</b>										
NOPAT	422,687	(189,097)	(276,582)	(144,885)	222,592	737,876	931,456	1,499,113	1,729,640	2,044,220
Capital	7,631,769	9,340,343	9,765,601	10,840,059	10,180,226	10,249,701	9,879,129	15,200,039	17,626,302	19,079,749
ROCE	6.3%	(2.5%)	(3.0%)	(1.5%)	2.1%	7.2%	9.1%	15.2%	11.4%	11.6%
Cost of Capital (C*)	10.4%	10.5%	9.4%	8.4%	8.4%	9.0%	8.6%	8.7%	8.2%	7.3%
EVA (Beg Cap)	(269,772)	(992,893)	(1,158,316)	(961,255)	(688,508)	(180,470)	50,366	640,518	485,573	750,449
Market Value	7,557,177	9,788,400	11,560,116	11,497,895	11,581,850	15,625,431	14,720,215	19,223,965	24,472,444	22,900,195
<b>Northwest</b>										
NOPAT	(226,762)	(263,684)	(765,452)	232,727	859,295	877,418	1,034,691	1,235,540	64,288	1,207,249
Capital	7,703,563	7,996,563	5,955,237	7,155,316	8,715,022	8,818,564	9,384,730	10,608,999	11,686,805	12,363,614
ROCE	(3.1%)	(3.4%)	(9.6%)	3.9%	12.0%	10.1%	11.7%	13.2%	0.6%	10.3%
Cost of Capital (C*)	11.2%	11.0%	10.2%	9.3%	8.7%	9.2%	8.7%	8.8%	8.1%	7.5%
EVA (Beg Cap)	(1,055,009)	(1,111,076)	(1,581,101)	(321,110)	238,487	75,183	268,911	407,118	(798,186)	330,738
Market Value	7,663,700	7,956,700	6,373,300	8,622,556	11,248,207	14,127,049	12,592,204	15,264,987	12,807,432	13,082,586
<b>Southwest</b>										
NOPAT	56,218	53,120	156,656	263,132	290,366	310,489	365,902	494,314	623,160	764,938
Capital	1,482,501	1,910,356	2,326,523	2,663,507	3,629,519	4,289,802	5,002,405	5,451,345	5,810,060	6,560,977
ROCE	4.0%	3.6%	8.2%	11.3%	10.9%	8.6%	8.5%	9.9%	11.4%	13.2%
Cost of Capital (C*)	10.3%	9.9%	9.6%	8.9%	9.6%	9.2%	8.8%	8.8%	8.2%	8.9%
EVA (Beg Cap)	(88,093)	(94,007)	(26,987)	55,618	34,343	(22,517)	(10,650)	53,843	176,836	246,100
Market Value	1,530,616	2,641,327	4,091,195	6,777,007	4,573,132	5,909,224	6,212,201	8,466,199	10,417,690	11,735,015
<b>TWA</b>										
NOPAT	(53,581)	241,952	(311,907)	(298,747)	(155,190)	(53,206)	(59,242)	108,911	145,219	(3,085)
Capital	2,337,275	1,764,604	1,558,543	806,733	716,534	1,142,852	1,722,710	2,178,138	2,088,493	2,845,232
ROCE	(2.3%)	10.4%	(17.7%)	(19.2%)	(19.2%)	(7.4%)	(5.2%)	6.3%	6.7%	(0.1%)
Cost of Capital (C*)	9.2%	9.2%	9.2%	7.6%	8.2%	8.3%	8.2%	7.7%	7.8%	7.9%
EVA (Beg Cap)	(267,442)	241,952	(473,368)	(417,041)	(221,423)	(112,822)	(152,727)	(23,737)	(23,805)	(167,449)
Market Value	3,635,963	3,183,148	3,487,796	2,904,283	3,052,716	3,077,398	3,595,885	4,261,608	3,985,187	4,870,617
<b>UAL</b>										
NOPAT	412,028	47,699	125,145	807,981	1,146,918	1,454,000	1,479,863	1,822,958	1,855,440	2,796,394
Capital	6,432,397	13,220,202	17,726,047	17,049,290	16,472,340	16,988,217	20,379,340	22,753,618	24,909,567	26,425,676
ROCE	7.8%	0.7%	0.9%	4.6%	6.7%	8.8%	8.7%	8.9%	8.2%	11.2%
Cost of Capital (C*)	12.8%	10.4%	10.0%	9.3%	8.3%	7.7%	7.2%	7.4%	6.6%	8.2%
EVA (Beg Cap)	(263,492)	(619,129)	(1,196,052)	(840,770)	(274,233)	180,503	252,796	316,139	348,283	756,300
Market Value	8,179,772	15,718,834	21,463,690	22,968,938	20,752,683	21,846,082	24,118,098	26,837,994	25,110,954	30,621,505
<b>USAir</b>										
NOPAT	(333,045)	(154,524)	(214,713)	30,004	(217,922)	449,393	540,419	849,070	979,875	466,604
Capital	6,906,483	7,379,981	6,323,881	6,531,929	6,894,102	6,616,937	6,062,729	7,071,577	6,834,006	8,397,000
ROCE	(5.3%)	(2.2%)	(2.9%)	0.5%	(3.3%)	6.5%	8.2%	14.0%	13.9%	6.8%
Cost of Capital (C*)	9.7%	9.6%	8.3%	7.5%	7.5%	7.5%	7.3%	9.1%	9.0%	7.5%
EVA (Beg Cap)	(945,252)	(815,368)	(829,780)	(443,839)	(705,883)	(69,954)	56,455	300,048	346,077	(42,529)
Market Value	5,895,354	6,656,694	7,343,259	8,058,375	8,201,639	8,477,676	9,060,729	13,159,209	11,558,962	12,945,805



THE NEW MATH; 4 > 8

**Air Canada (AC) - \$000s**

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Revenue - \$	\$3,114,379	\$2,883,914	\$2,781,672	\$2,937,083	\$3,295,012	\$3,579,112	\$4,012,386	\$3,981,698	\$4,393,940
= NOPAT MARGIN	(3.6%)	(8.8%)	(4.5%)	7.1%	9.3%	8.4%	10.7%	5.1%	8.4%
=> NOPAT - \$	(\$111,032)	(\$252,822)	(\$124,402)	\$209,802	\$307,994	\$302,416	\$428,958	\$204,359	\$368,243
NWC / Sales	11.8%	4.2%	3.4%	12.9%	7.9%	11.8%	3.2%	5.7%	(1.6%)
+ Net PP&E	70.7%	97.0%	86.8%	69.0%	146.5%	139.1%	125.1%	123.8%	115.7%
+ Other Assets	19.7%	21.3%	23.1%	25.1%	25.4%	25.9%	28.4%	30.7%	30.7%
= Total Capital	102.2%	122.5%	113.3%	107.1%	179.8%	176.7%	156.6%	160.2%	144.8%
=> Total Capital - \$	\$3,183,972	\$3,533,483	\$3,152,012	\$3,144,711	\$5,924,640	\$6,325,407	\$6,285,139	\$6,379,942	\$6,363,918
Wgt Avg Cap Cost C*	8.0%	8.0%	8.0%	8.9%	8.2%	8.2%	8.9%	6.1%	8.1%
Capital Charge / Sales	8.2%	9.8%	9.0%	9.5%	14.8%	14.4%	14.0%	9.7%	11.7%
Capital Charge - \$	\$254,506	\$282,443	\$250,655	\$280,194	\$486,414	\$516,762	\$561,383	\$386,457	\$515,378
<b>EVA Margin</b>	<b>(11.7%)</b>	<b>(18.6%)</b>	<b>(13.5%)</b>	<b>(2.4%)</b>	<b>(5.4%)</b>	<b>(6.0%)</b>	<b>(3.3%)</b>	<b>(4.6%)</b>	<b>(3.3%)</b>
x Net Revenue	\$3,114,379	\$2,883,914	\$2,781,672	\$2,937,083	\$3,295,012	\$3,579,112	\$4,012,386	\$3,981,698	\$4,393,940
=> <b>EVA</b>	<b>(\$365,538)</b>	<b>(\$535,266)</b>	<b>(\$375,057)</b>	<b>(\$70,392)</b>	<b>(\$178,420)</b>	<b>(\$214,346)</b>	<b>(\$132,425)</b>	<b>(\$182,098)</b>	<b>(\$147,135)</b>

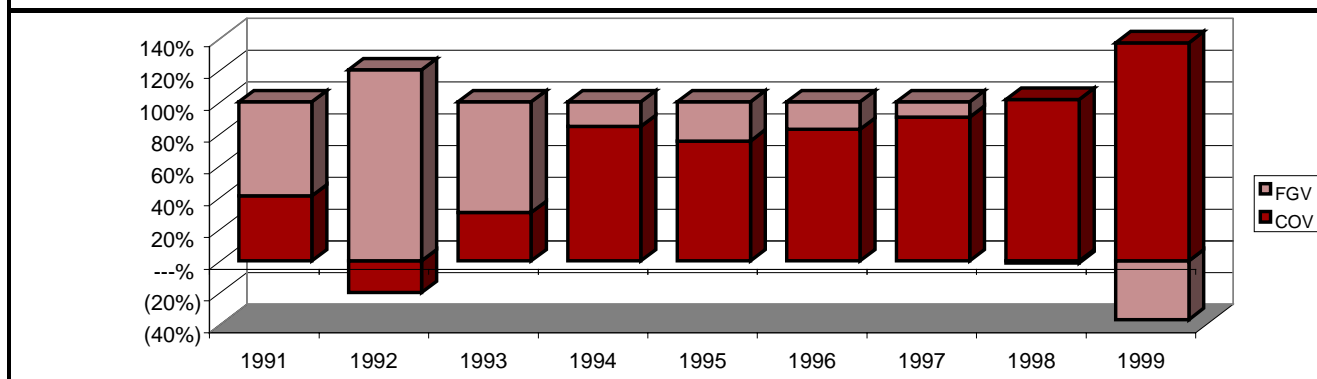
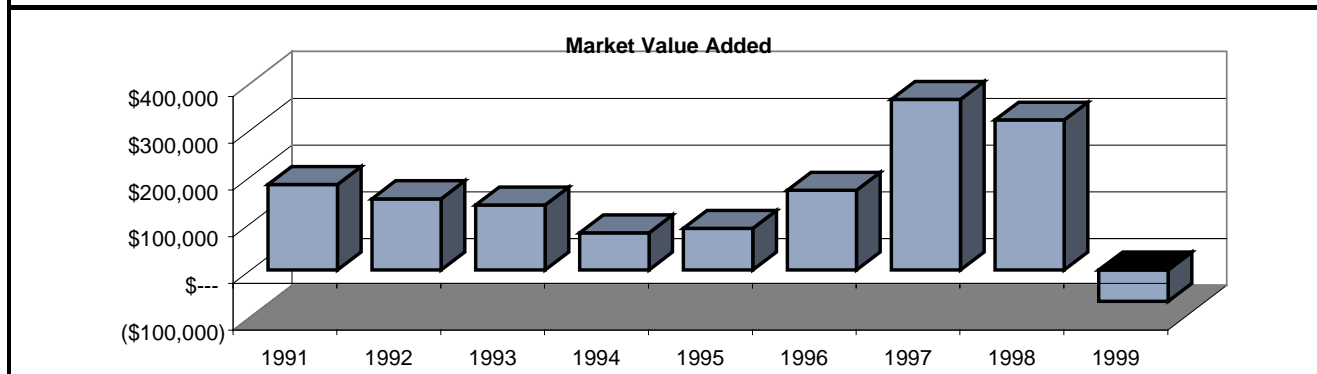
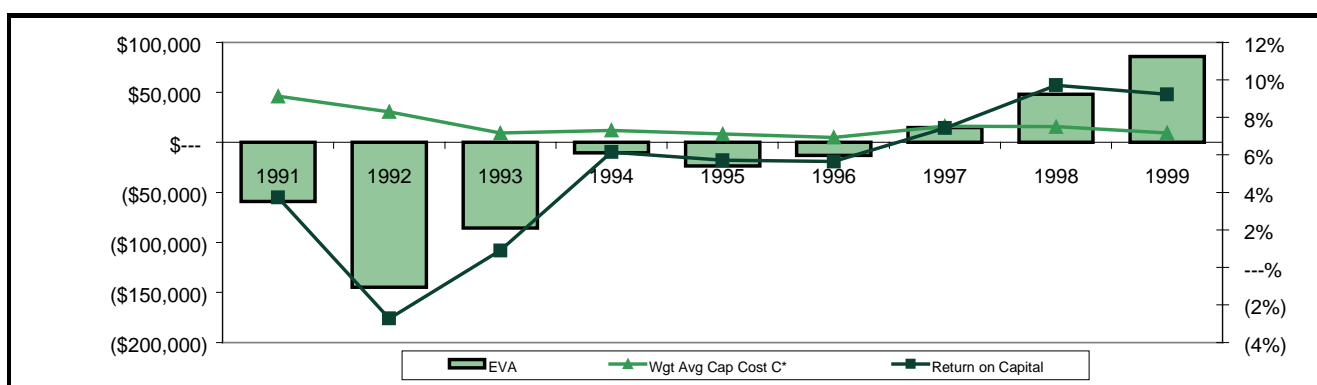




THE NEW MATH; 4 > 8

Alaska (ALK) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$1,104,031	\$1,115,378	\$1,128,329	\$1,315,620	\$1,417,500	\$1,592,200	\$1,739,400	\$1,897,700	\$2,081,900
= NOPAT MARGIN	4.3%	(3.5%)	1.4%	8.8%	7.8%	7.6%	10.1%	11.9%	12.1%
=> NOPAT - \$	\$47,654	(\$38,499)	\$15,550	\$115,485	\$110,239	\$120,848	\$176,125	\$226,295	\$252,888
NWC / Sales	(7.7%)	(7.4%)	(8.0%)	(5.9%)	(10.0%)	(6.8%)	(9.5%)	(6.8%)	(11.8%)
+ Net PP&E	101.0%	108.5%	119.1%	123.9%	130.2%	118.6%	125.6%	126.1%	119.2%
+ Other Assets	12.6%	13.5%	14.1%	12.8%	12.1%	9.4%	7.0%	5.7%	4.5%
= Total Capital	105.9%	114.5%	125.1%	130.9%	132.3%	121.2%	123.1%	125.0%	111.9%
=> Total Capital - \$	\$1,169,251	\$1,277,375	\$1,412,067	\$1,722,034	\$1,875,894	\$1,929,817	\$2,140,917	\$2,372,517	\$2,328,682
Wgt Avg Cap Cost C*	9.1%	8.3%	7.2%	7.3%	7.1%	6.9%	7.5%	7.5%	7.2%
Capital Charge / Sales	9.7%	9.5%	9.0%	9.6%	9.4%	8.4%	9.3%	9.4%	8.0%
Capital Charge - \$	\$106,799	\$106,087	\$101,086	\$125,968	\$133,609	\$133,845	\$161,263	\$178,193	\$167,199
EVA Margin	(5.4%)	(13.0%)	(7.6%)	(0.8%)	(1.6%)	(0.8%)	0.9%	2.5%	4.1%
x Net Revenue	\$1,104,031	\$1,115,378	\$1,128,329	\$1,315,620	\$1,417,500	\$1,592,200	\$1,739,400	\$1,897,700	\$2,081,900
=> EVA	(\$59,146)	(\$144,586)	(\$85,536)	(\$10,483)	(\$23,370)	(\$12,997)	\$14,862	\$48,102	\$85,688

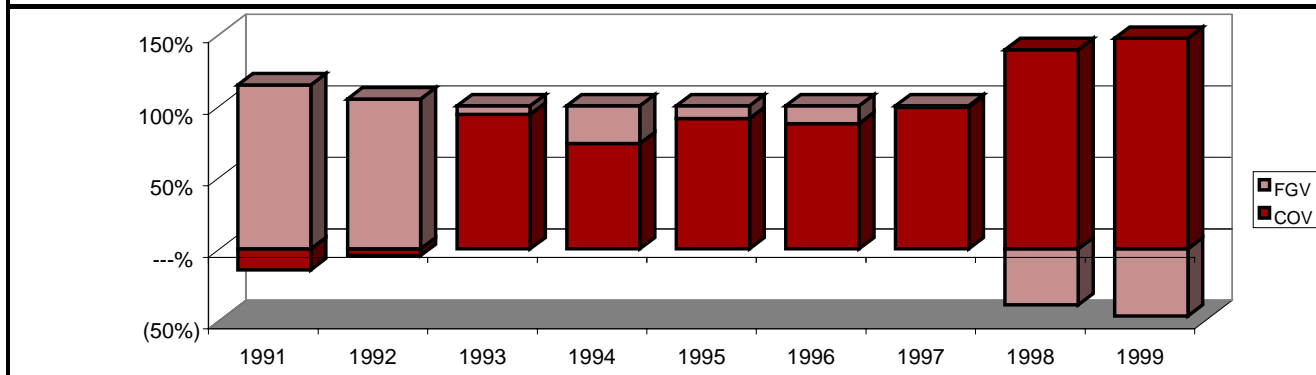
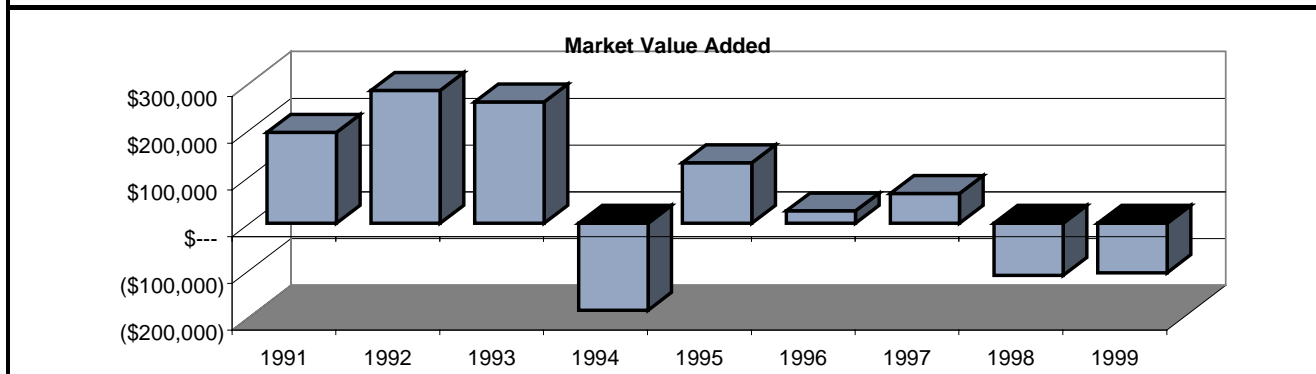
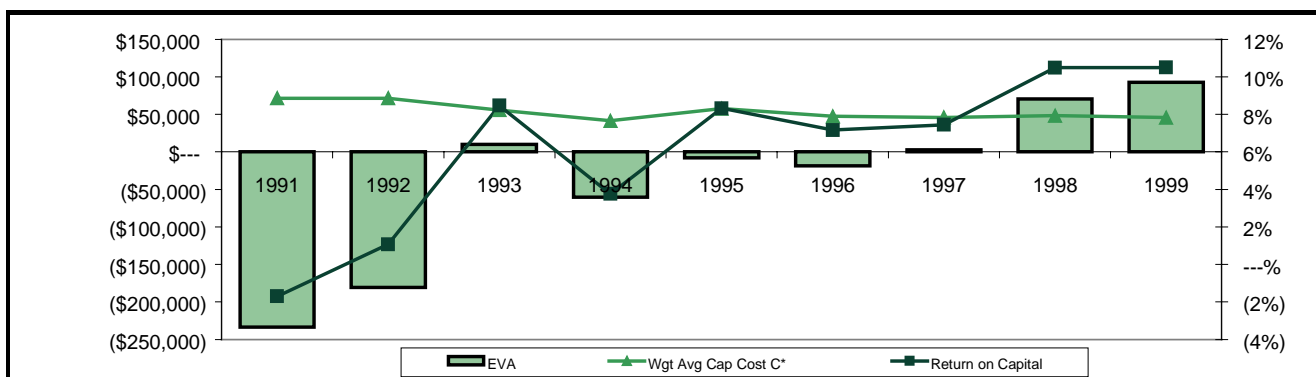




THE NEW MATH; 4 > 8

**America West (AWA) - \$000s**

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$1,413,925	\$1,294,140	\$1,325,364	\$1,408,794	\$1,550,642	\$1,739,526	\$1,874,956	\$2,023,284	\$2,210,884
= NOPAT MARGIN	(2.7%)	1.6%	12.8%	6.6%	12.7%	9.7%	10.0%	13.3%	13.3%
=> NOPAT - \$	(\$38,800)	\$20,882	\$169,258	\$92,783	\$196,979	\$168,469	\$187,386	\$270,042	\$294,361
NWC / Sales	(3.2%)	0.9%	(2.0%)	1.3%	3.1%	1.2%	(4.7%)	(3.4%)	(6.0%)
+ Net PP&E	159.5%	170.6%	142.7%	134.6%	115.9%	101.8%	100.4%	99.5%	98.9%
+ Other Assets	(1.0%)	4.1%	5.1%	5.9%	39.9%	33.0%	29.7%	28.1%	23.5%
= Total Capital	155.3%	175.6%	145.8%	141.8%	158.9%	136.1%	125.4%	124.3%	116.3%
=> Total Capital - \$	\$2,196,171	\$2,272,034	\$1,932,797	\$1,997,970	\$2,464,258	\$2,366,730	\$2,351,428	\$2,514,378	\$2,572,040
Wgt Avg Cap Cost C*	8.9%	8.9%	8.2%	7.7%	8.3%	7.9%	7.8%	7.9%	7.8%
Capital Charge / Sales	13.8%	15.6%	12.0%	10.9%	13.2%	10.7%	9.8%	9.9%	9.1%
Capital Charge - \$	\$194,800	\$201,529	\$159,069	\$153,045	\$204,780	\$186,972	\$184,352	\$199,390	\$201,391
<b>EVA Margin</b>	<b>(16.5%)</b>	<b>(14.0%)</b>	<b>0.8%</b>	<b>(4.3%)</b>	<b>(0.5%)</b>	<b>(1.1%)</b>	<b>0.2%</b>	<b>3.5%</b>	<b>4.2%</b>
x Net Revenue	\$1,413,925	\$1,294,140	\$1,325,364	\$1,408,794	\$1,550,642	\$1,739,526	\$1,874,956	\$2,023,284	\$2,210,884
=> <b>EVA</b>	<b>(\$233,600)</b>	<b>(\$180,647)</b>	<b>\$10,189</b>	<b>(\$60,262)</b>	<b>(\$7,801)</b>	<b>(\$18,503)</b>	<b>\$3,034</b>	<b>\$70,652</b>	<b>\$92,970</b>

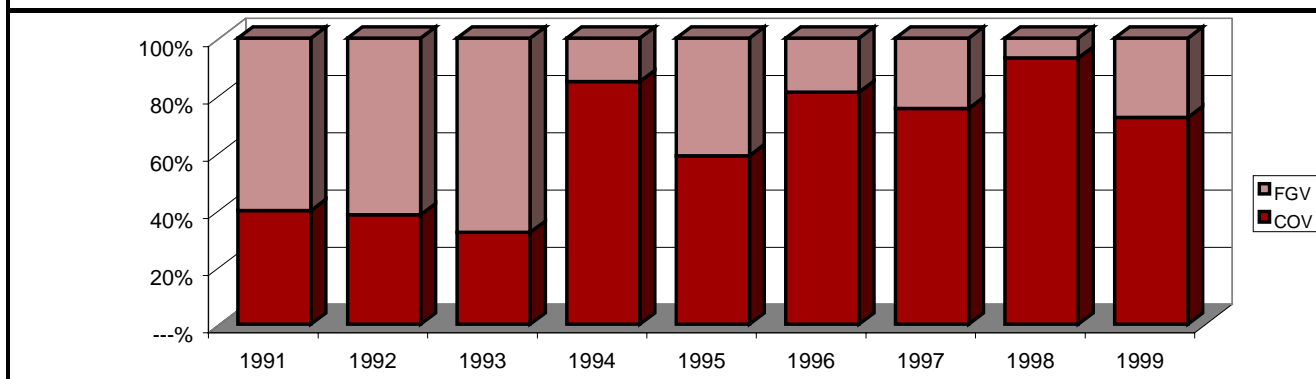
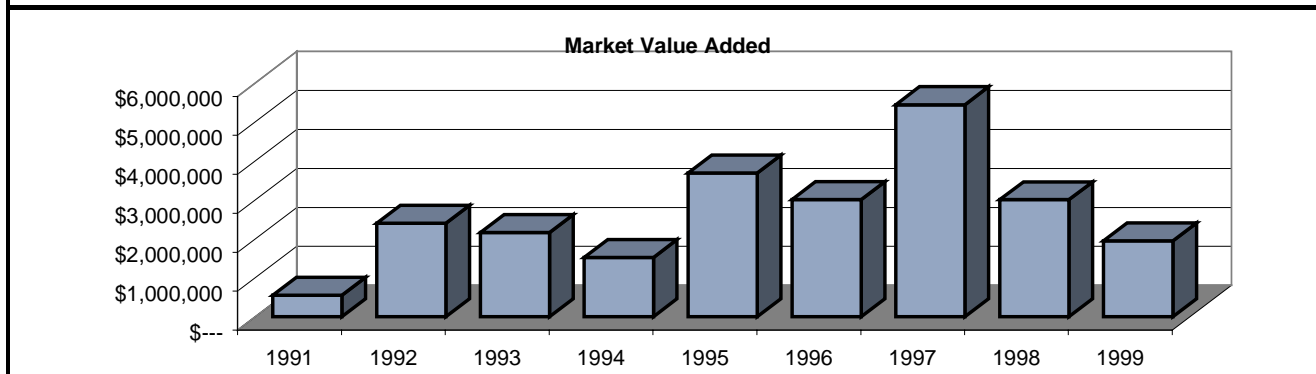
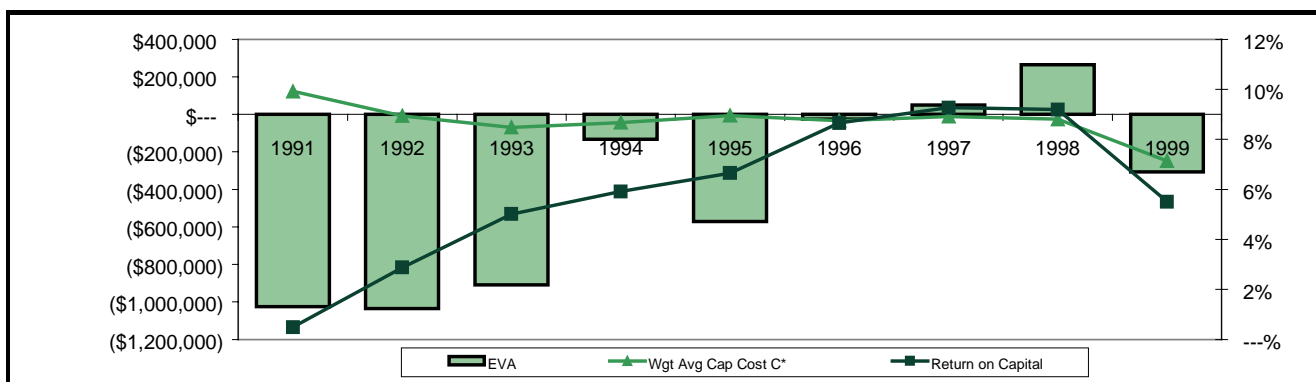




THE NEW MATH; 4 > 8

AMR (AMR) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$12,887,000	\$14,396,000	\$15,701,000	\$16,137,000	\$16,910,000	\$17,753,000	\$18,570,000	\$19,205,000	\$17,730,000
= NOPAT MARGIN	0.7%	4.1%	5.4%	8.3%	8.7%	10.7%	10.8%	11.3%	7.8%
=> NOPAT - \$	\$88,971	\$596,727	\$854,153	\$1,343,743	\$1,463,293	\$1,899,171	\$2,006,285	\$2,171,015	\$1,379,600
NWC / Sales	(13.0%)	(14.1%)	(12.6%)	(11.8%)	(10.7%)	(11.3%)	(12.2%)	(12.3%)	(14.2%)
+ Net PP&E	89.2%	125.4%	136.6%	110.3%	136.7%	124.8%	122.7%	117.8%	135.1%
+ Other Assets	10.9%	15.5%	8.2%	7.0%	8.3%	10.4%	7.6%	7.2%	12.3%
= Total Capital	87.1%	126.8%	132.3%	105.5%	134.3%	123.9%	118.1%	112.7%	133.2%
=> Total Capital - \$	\$11,224,718	\$18,256,765	\$20,765,084	\$17,022,285	\$22,703,175	\$21,998,737	\$21,936,238	\$21,634,952	\$23,620,429
Wgt Avg Cap Cost C*	9.9%	8.9%	8.5%	8.7%	9.0%	8.7%	8.9%	8.8%	7.1%
Capital Charge / Sales	8.6%	11.3%	11.2%	9.2%	12.0%	10.8%	10.5%	9.9%	9.5%
Capital Charge - \$	\$1,114,366	\$1,632,506	\$1,762,520	\$1,476,539	\$2,034,478	\$1,924,459	\$1,955,299	\$1,906,739	\$1,686,499
EVA Margin	(8.0%)	(7.2%)	(5.8%)	(0.8%)	(3.4%)	(0.1%)	0.3%	1.4%	(1.7%)
x Net Revenue	\$12,887,000	\$14,396,000	\$15,701,000	\$16,137,000	\$16,910,000	\$17,753,000	\$18,570,000	\$19,205,000	\$17,730,000
=> EVA	(\$1,025,395)	(\$1,035,780)	(\$908,367)	(\$132,795)	(\$571,185)	(\$25,289)	\$50,986	\$264,277	(\$306,898)

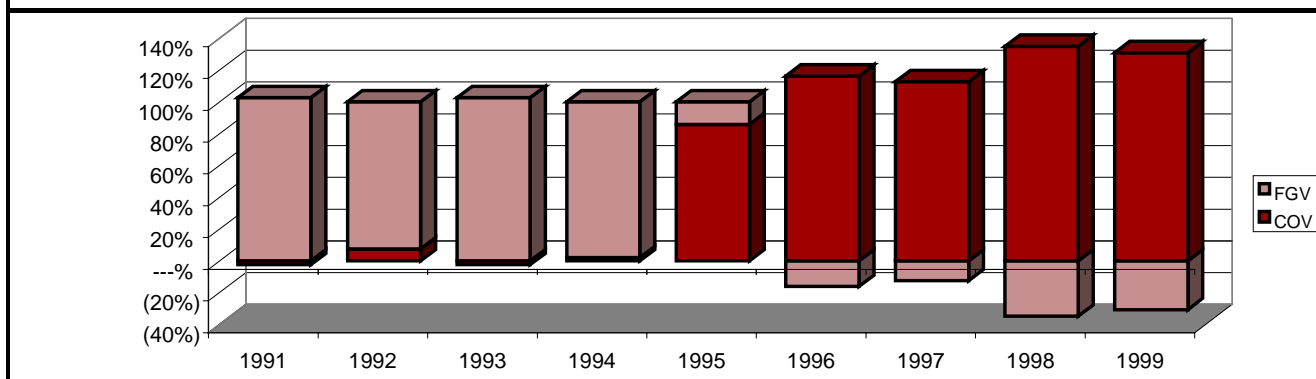
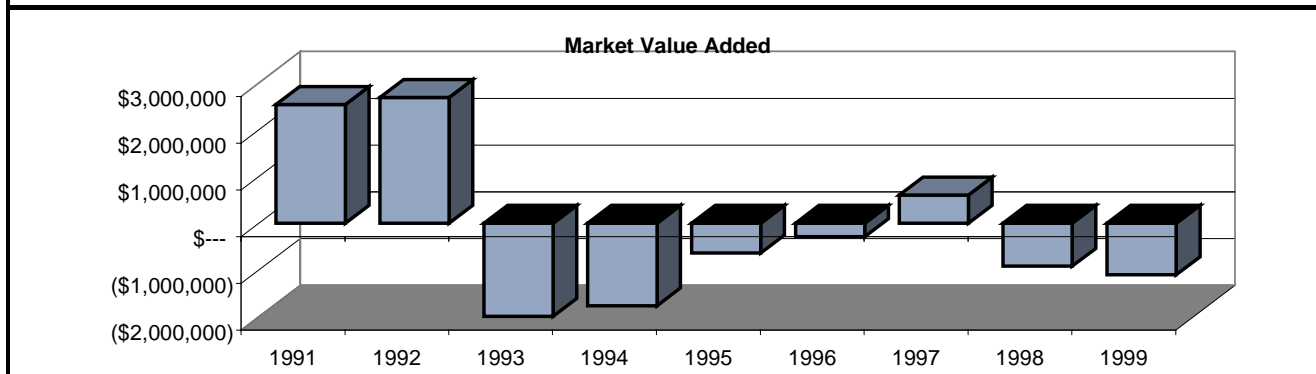
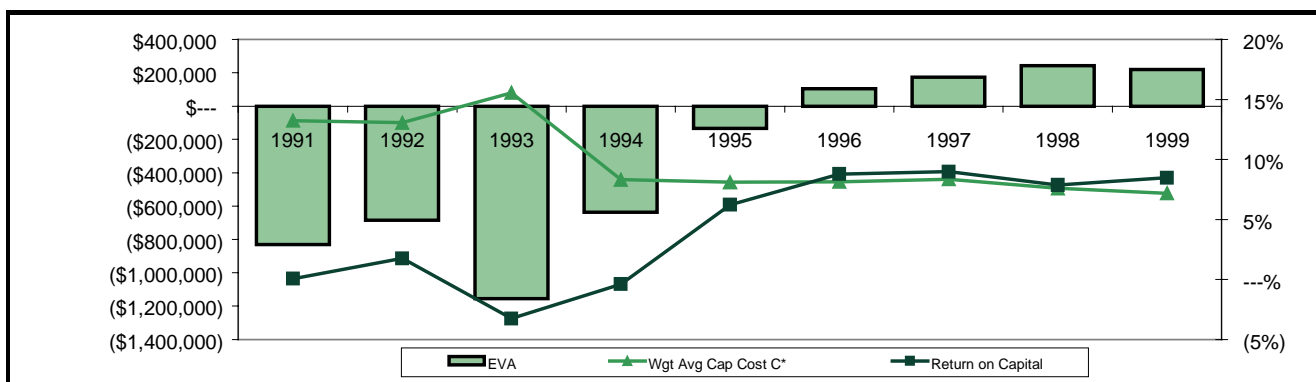




THE NEW MATH; 4 > 8

**Continental (CAL) - \$000s**

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$5,550,990	\$5,575,239	\$5,775,310	\$5,669,931	\$5,825,000	\$6,360,000	\$7,213,000	\$7,951,000	\$8,639,000
= NOPAT MARGIN	0.1%	1.9%	(4.1%)	(0.5%)	8.5%	11.6%	12.0%	12.1%	12.7%
=> NOPAT - \$	\$3,660	\$103,424	(\$237,630)	(\$30,626)	\$494,347	\$738,675	\$862,649	\$959,588	\$1,096,084
NWC / Sales	0.2%	(1.6%)	(6.3%)	(7.3%)	(12.7%)	(6.4%)	(3.6%)	(3.3%)	1.8%
+ Net PP&E	89.5%	86.8%	86.8%	71.1%	80.0%	71.2%	66.6%	76.3%	96.6%
+ Other Assets	23.7%	23.3%	21.6%	64.7%	66.1%	60.3%	53.6%	47.8%	42.7%
= Total Capital	113.4%	108.5%	102.1%	128.6%	133.5%	125.2%	116.6%	120.7%	141.1%
=> Total Capital - \$	\$6,297,401	\$6,046,881	\$5,899,346	\$7,290,258	\$7,777,256	\$7,961,978	\$8,412,778	\$9,600,154	\$12,188,675
Wgt Avg Cap Cost C*	13.2%	13.1%	15.5%	8.3%	8.1%	8.1%	8.4%	7.6%	7.2%
Capital Charge / Sales	15.0%	14.2%	15.9%	10.7%	10.8%	10.2%	9.8%	9.2%	10.1%
Capital Charge - \$	\$833,669	\$789,420	\$917,171	\$606,778	\$629,914	\$648,008	\$703,389	\$729,792	\$876,366
<b>EVA Margin</b>	<b>(15.0%)</b>	<b>(12.3%)</b>	<b>(20.0%)</b>	<b>(11.2%)</b>	<b>(2.3%)</b>	<b>1.4%</b>	<b>2.2%</b>	<b>2.9%</b>	<b>2.5%</b>
x Net Revenue	\$5,550,990	\$5,575,239	\$5,775,310	\$5,669,931	\$5,825,000	\$6,360,000	\$7,213,000	\$7,951,000	\$8,639,000
=> <b>EVA</b>	<b>(\$830,009)</b>	<b>(\$685,997)</b>	<b>(\$1,154,801)</b>	<b>(\$637,404)</b>	<b>(\$135,567)</b>	<b>\$90,667</b>	<b>\$159,259</b>	<b>\$229,796</b>	<b>\$219,718</b>

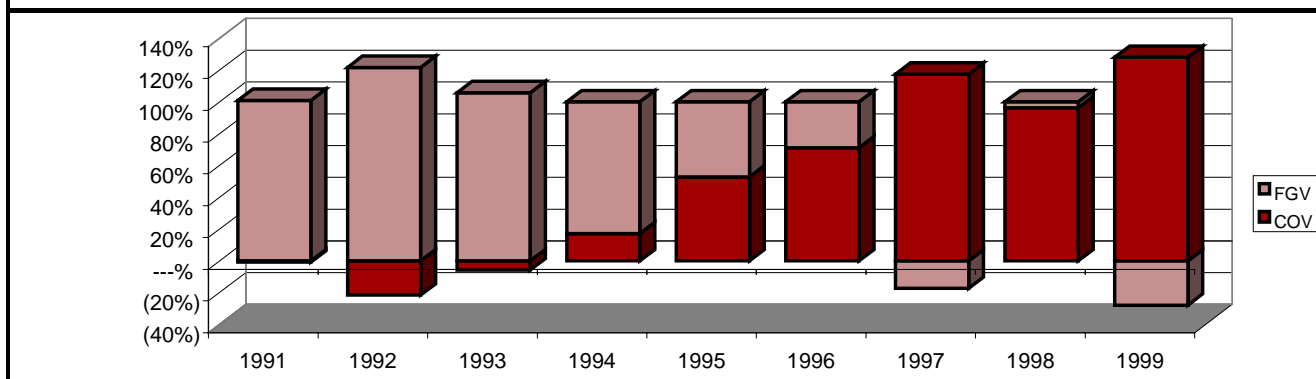
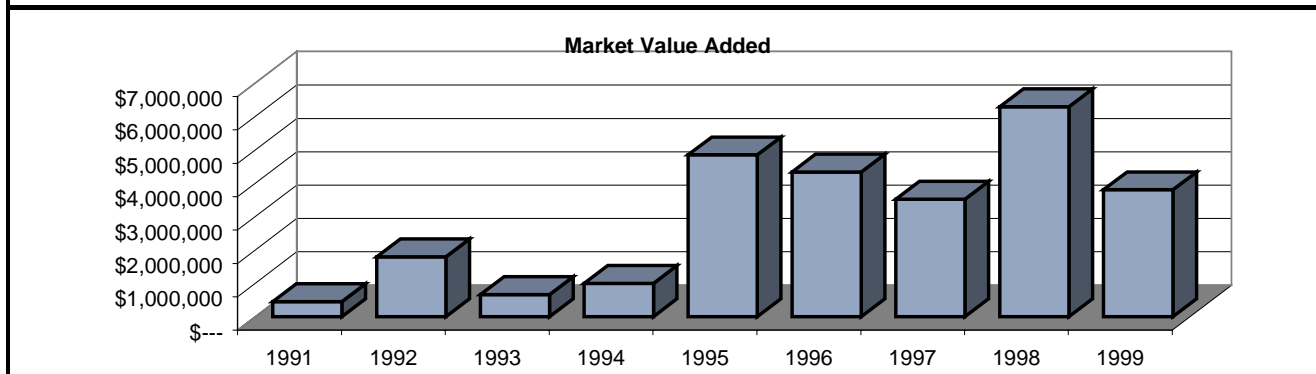
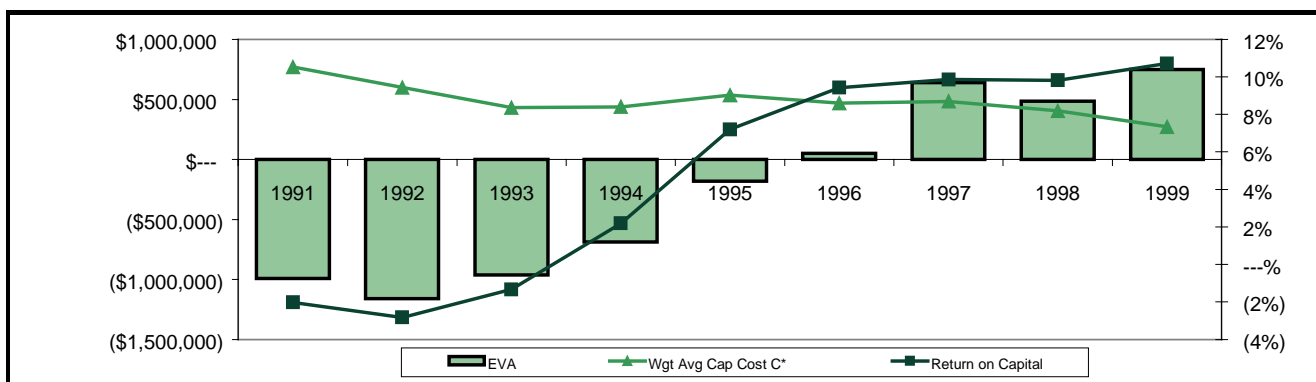




THE NEW MATH; 4 > 8

Delta (DAL) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$9,170,613	\$10,836,785	\$11,996,650	\$12,359,000	\$12,194,000	\$12,455,000	\$13,590,000	\$14,138,000	\$14,711,000
= NOPAT MARGIN	(2.1%)	(2.6%)	(1.2%)	1.8%	6.1%	7.5%	11.0%	12.2%	13.9%
=> NOPAT - \$	(\$189,097)	(\$276,582)	(\$144,885)	\$222,592	\$737,876	\$931,456	\$1,499,113	\$1,729,640	\$2,044,220
NWC / Sales	(7.0%)	(1.0%)	(8.0%)	(0.2%)	(3.6%)	(5.7%)	(5.3%)	(9.7%)	(10.9%)
+ Net PP&E	81.6%	78.9%	88.8%	87.5%	85.3%	84.4%	75.0%	111.9%	124.8%
+ Other Assets	8.6%	8.3%	0.5%	0.4%	1.8%	3.6%	3.0%	5.4%	5.9%
= Total Capital	83.2%	86.2%	81.4%	87.7%	83.5%	82.3%	72.7%	107.5%	119.8%
=> Total Capital - \$	\$7,631,769	\$9,340,343	\$9,765,601	\$10,840,059	\$10,180,226	\$10,249,701	\$9,879,129	\$15,200,039	\$17,626,302
Wgt Avg Cap Cost C*	10.5%	9.4%	8.4%	8.4%	9.0%	8.6%	8.7%	8.2%	7.3%
Capital Charge / Sales	8.8%	8.1%	6.8%	7.4%	7.5%	7.1%	6.3%	8.8%	8.8%
Capital Charge - \$	\$803,796	\$881,734	\$816,370	\$911,100	\$918,346	\$881,090	\$858,595	\$1,244,068	\$1,293,771
EVA Margin	(10.8%)	(10.7%)	(8.0%)	(5.6%)	(1.5%)	0.4%	4.7%	3.4%	5.1%
x Net Revenue	\$9,170,613	\$10,836,785	\$11,996,650	\$12,359,000	\$12,194,000	\$12,455,000	\$13,590,000	\$14,138,000	\$14,711,000
=> EVA	(\$992,893)	(\$1,158,316)	(\$961,255)	(\$688,508)	(\$180,470)	\$50,366	\$640,518	\$485,573	\$750,449

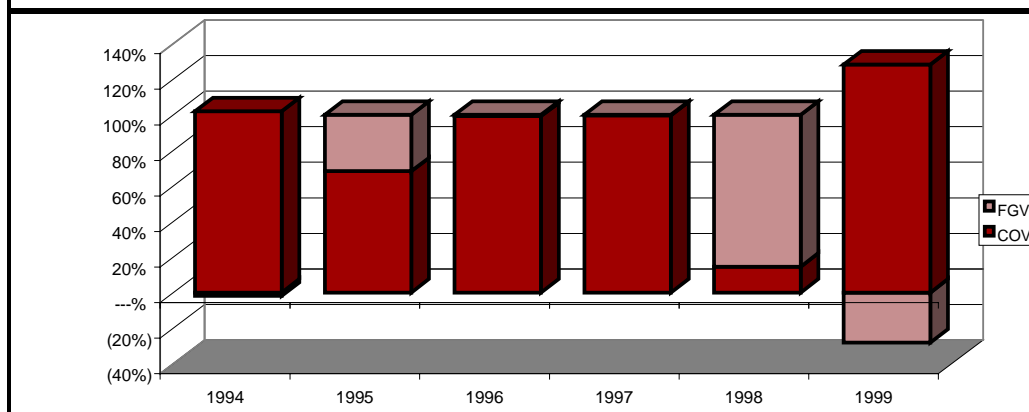
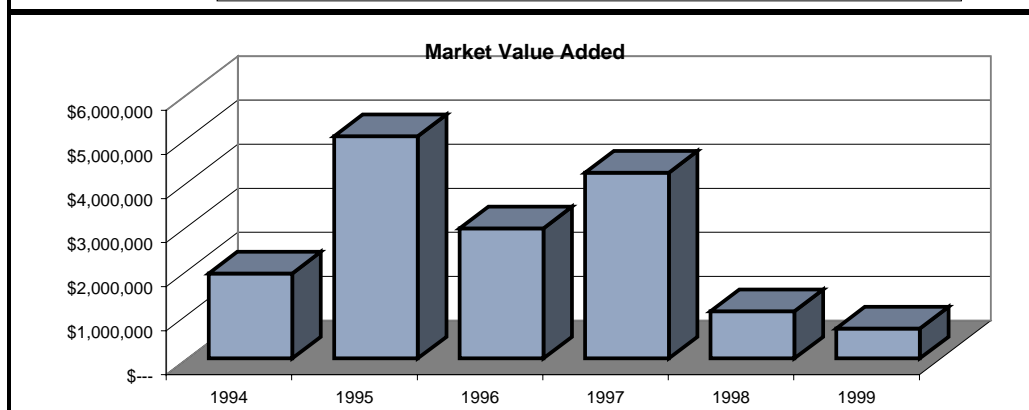
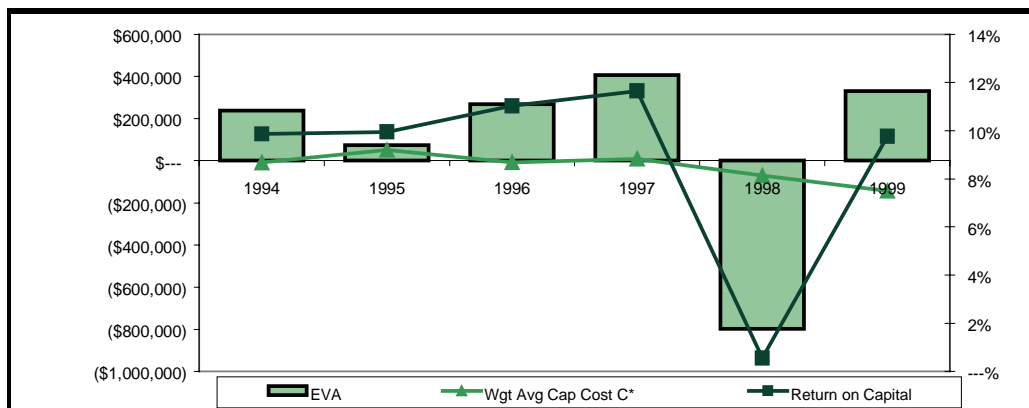




THE NEW MATH; 4 > 8

**Northwest (NWAC) - \$000s**

	1994	1995	1996	1997	1998	1999
Sales - \$	\$9,142,900	\$9,084,900	\$9,880,500	\$10,225,800	\$9,044,800	\$10,276,000
= NOPAT MARGIN	9.4%	9.7%	10.5%	12.1%	0.7%	11.7%
=> NOPAT - \$	\$859,295	\$877,418	\$1,034,691	\$1,235,540	\$64,288	\$1,207,249
NWC / Sales	(5.6%)	(5.9%)	(3.3%)	(7.6%)	(8.3%)	(12.0%)
+ Net PP&E	70.8%	88.5%	83.3%	87.7%	108.1%	101.2%
+ Other Assets	13.1%	13.3%	9.3%	11.7%	17.5%	24.5%
= Total Capital	78.3%	95.9%	89.3%	91.8%	117.3%	113.7%
=> Total Capital - \$	\$7,155,316	\$8,715,022	\$8,818,564	\$9,384,730	\$10,608,999	\$11,686,805
Wgt Avg Cap Cost C*	8.7%	9.2%	8.7%	8.8%	8.1%	7.5%
Capital Charge / Sales	6.8%	8.8%	7.8%	8.1%	9.5%	8.5%
Capital Charge - \$	\$620,808	\$802,235	\$765,779	\$828,422	\$862,474	\$876,510
EVA Margin	2.6%	0.8%	2.7%	4.0%	(8.8%)	3.2%
x Net Revenue	\$9,142,900	\$9,084,900	\$9,880,500	\$10,225,800	\$9,044,800	\$10,276,000
=> EVA	\$238,487	\$75,183	\$268,911	\$407,118	(\$798,186)	\$330,738

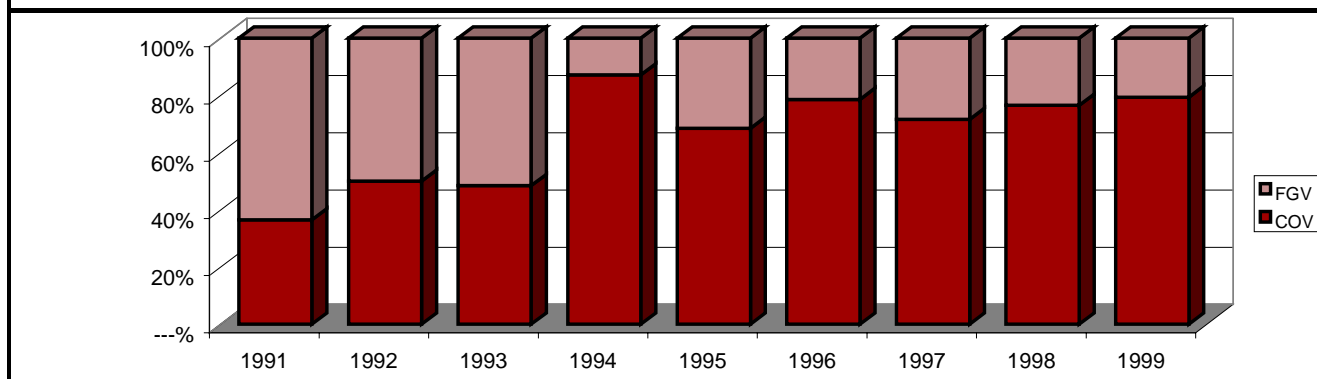
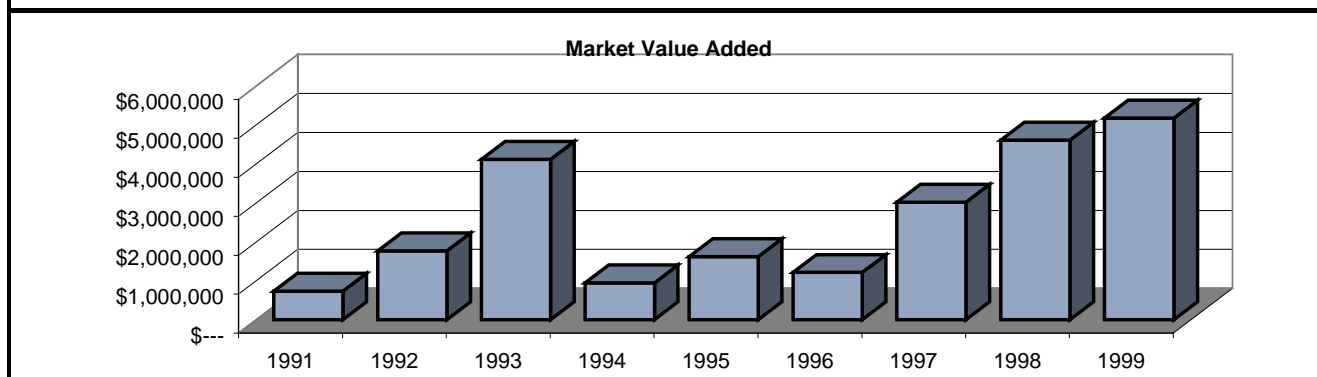
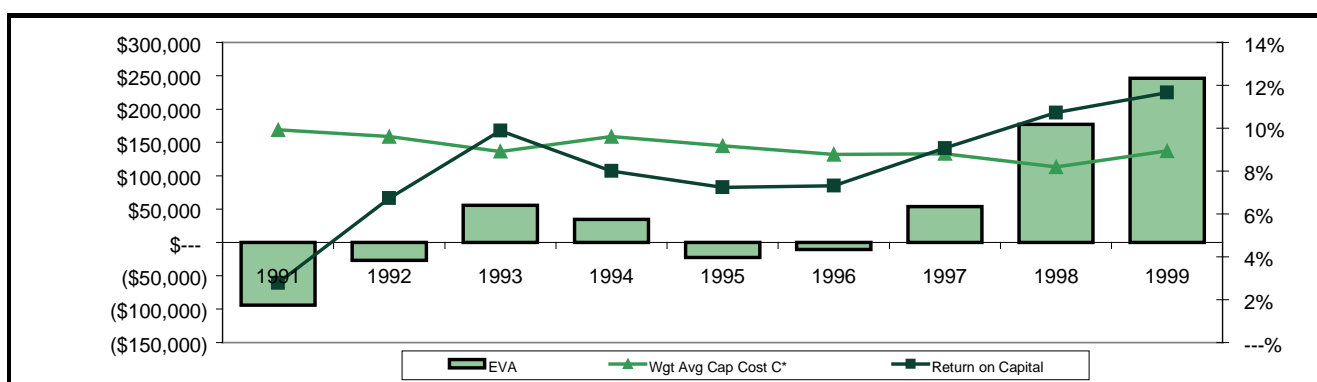




THE NEW MATH; 4 > 8

Southwest (LUV) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$1,313,605	\$1,685,178	\$2,296,673	\$2,591,933	\$2,872,751	\$3,406,170	\$3,816,821	\$4,163,980	\$4,735,587
= NOPAT MARGIN	4.0%	9.3%	11.5%	11.2%	10.8%	10.7%	13.0%	15.0%	16.2%
=> NOPAT - \$	\$53,120	\$156,656	\$263,132	\$290,366	\$310,489	\$365,902	\$494,314	\$623,160	\$764,938
NWC / Sales	(3.4%)	5.2%	6.8%	(0.9%)	(6.9%)	(3.6%)	(0.1%)	1.4%	(5.6%)
+ Net PP&E	118.6%	109.5%	95.8%	104.5%	133.7%	130.0%	131.5%	129.8%	128.5%
+ Other Assets	(2.4%)	(1.3%)	(1.2%)	(0.8%)	(0.5%)	(0.4%)	(0.4%)	(0.3%)	(0.3%)
= Total Capital	112.9%	113.4%	101.3%	102.8%	126.3%	125.9%	131.1%	130.9%	122.7%
=> Total Capital - \$	\$1,482,501	\$1,910,356	\$2,326,523	\$2,663,507	\$3,629,519	\$4,289,802	\$5,002,405	\$5,451,345	\$5,810,060
Wgt Avg Cap Cost C*	9.9%	9.6%	8.9%	9.6%	9.2%	8.8%	8.8%	8.2%	8.9%
Capital Charge / Sales	11.2%	10.9%	9.0%	9.9%	11.6%	11.1%	11.5%	10.7%	11.0%
Capital Charge - \$	\$147,127	\$183,643	\$207,514	\$256,024	\$333,006	\$376,551	\$440,471	\$446,324	\$518,938
EVA Margin	(7.2%)	(1.6%)	2.4%	1.3%	(0.8%)	(0.3%)	1.4%	4.2%	5.2%
x Net Revenue	\$1,313,605	\$1,685,178	\$2,296,673	\$2,591,933	\$2,872,751	\$3,406,170	\$3,816,821	\$4,163,980	\$4,735,587
=> EVA	(\$94,007)	(\$26,987)	\$55,618	\$34,343	(\$22,517)	(\$10,650)	\$53,843	\$176,836	\$246,100

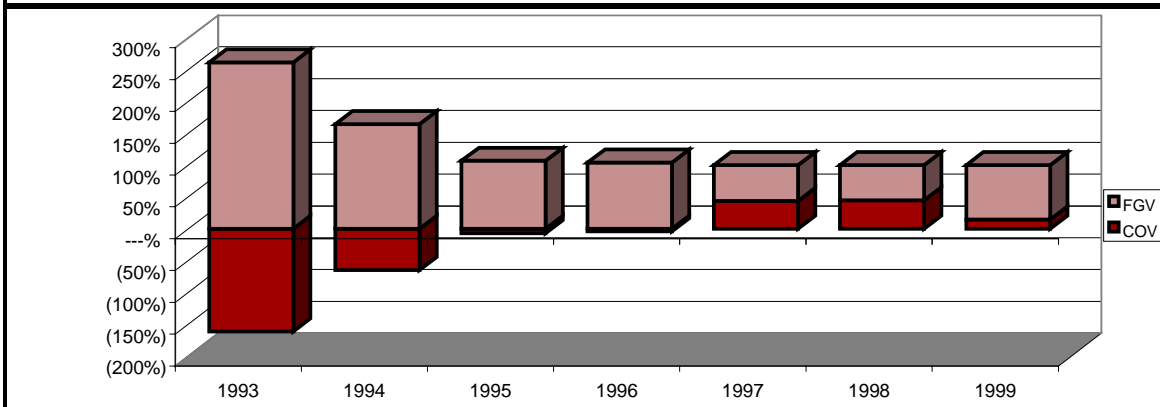
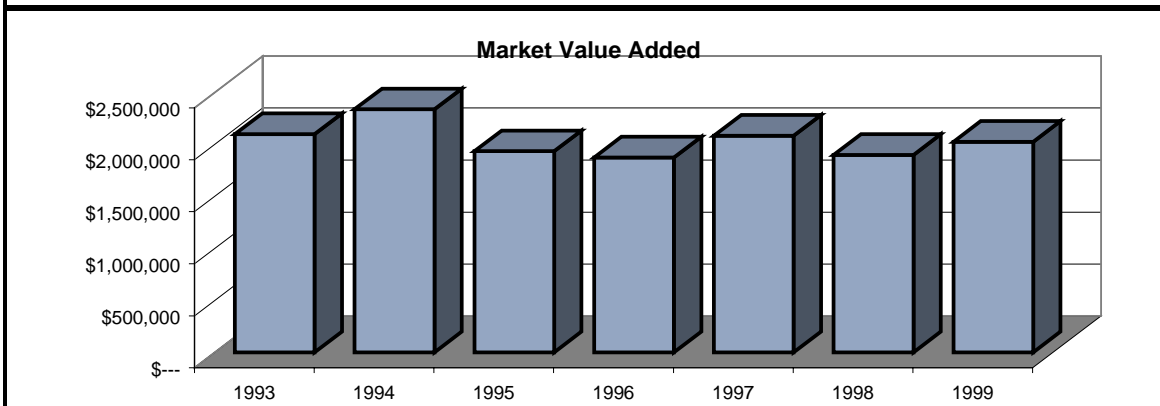
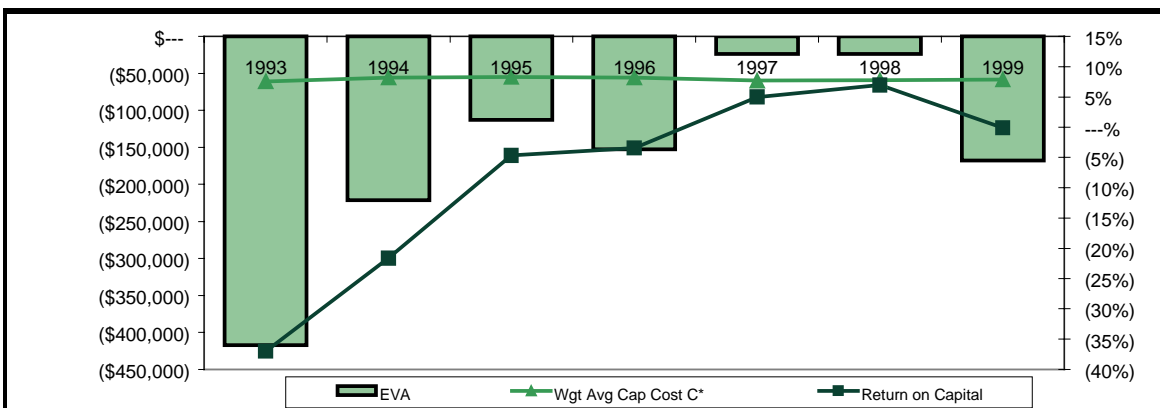




THE NEW MATH; 4 > 8

**TWA (TWA) - \$000s**

	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$3,154,441	\$3,407,702	\$3,316,829	\$3,554,407	\$3,327,952	\$3,259,147	\$3,308,712
= NOPAT MARGIN	(9.5%)	(4.6%)	(1.6%)	(1.7%)	3.3%	4.5%	(0.1%)
=> NOPAT - \$	(\$298,747)	(\$155,190)	(\$53,206)	(\$59,242)	\$108,911	\$145,219	(\$3,085)
NWC / Sales	1.2%	0.0%	(3.0%)	0.8%	(7.1%)	(5.9%)	(6.7%)
+ Net PP&E	52.6%	44.7%	45.6%	41.6%	70.5%	86.8%	84.9%
+ Other Assets	(4.4%)	(21.1%)	(21.1%)	(10.2%)	(11.7%)	(14.1%)	(15.0%)
= Total Capital	49.4%	23.7%	21.6%	32.2%	51.8%	66.8%	63.1%
=> Total Capital - \$	\$1,558,543	\$806,733	\$716,534	\$1,142,852	\$1,722,710	\$2,178,138	\$2,088,493
Wgt Avg Cap Cost C*	7.6%	8.2%	8.3%	8.2%	7.7%	7.8%	7.9%
Capital Charge / Sales	3.8%	1.9%	1.8%	2.6%	4.0%	5.2%	5.0%
Capital Charge - \$	\$118,293	\$66,233	\$59,616	\$93,485	\$132,649	\$169,024	\$164,364
EVA Margin	(13.2%)	(6.5%)	(3.4%)	(4.3%)	(0.7%)	(0.7%)	(5.1%)
x Net Revenue	\$3,154,441	\$3,407,702	\$3,316,829	\$3,554,407	\$3,327,952	\$3,259,147	\$3,308,712
=> EVA	(\$417,041)	(\$221,423)	(\$112,822)	(\$152,727)	(\$23,737)	(\$23,805)	(\$167,449)

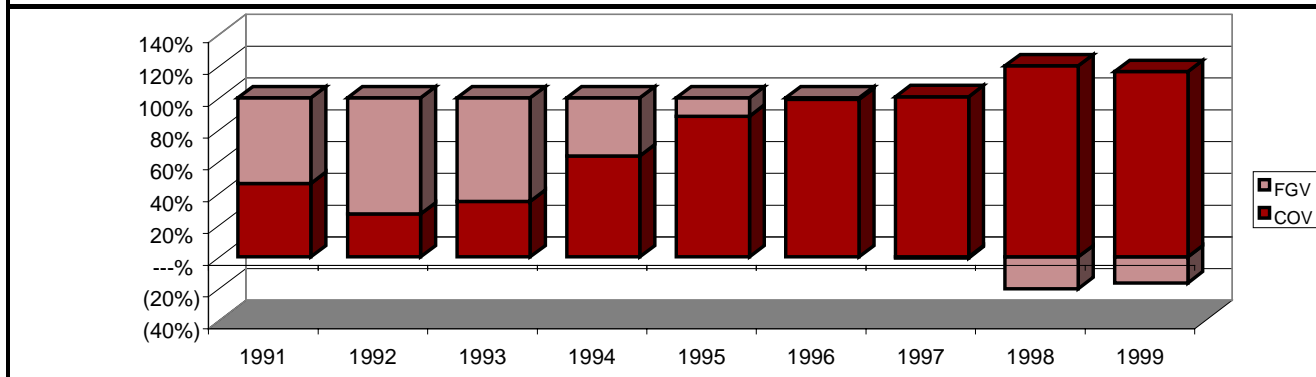
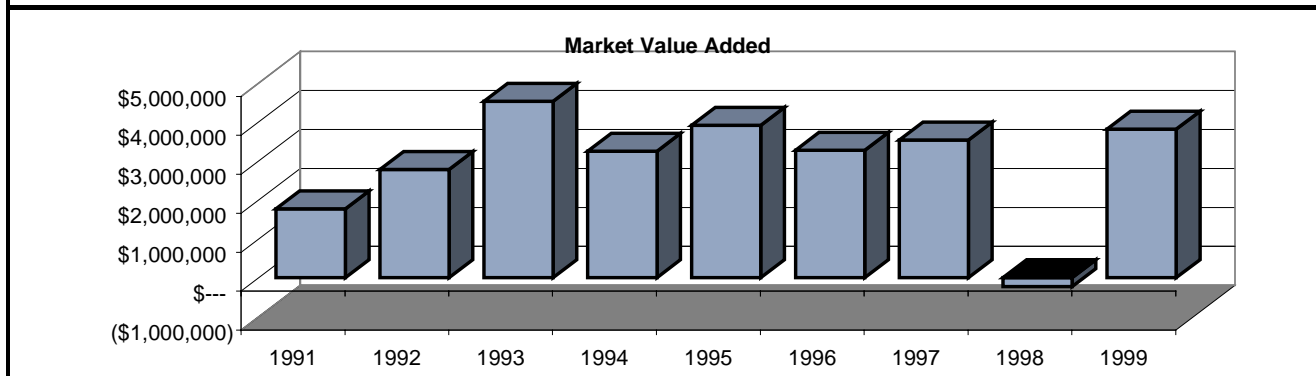
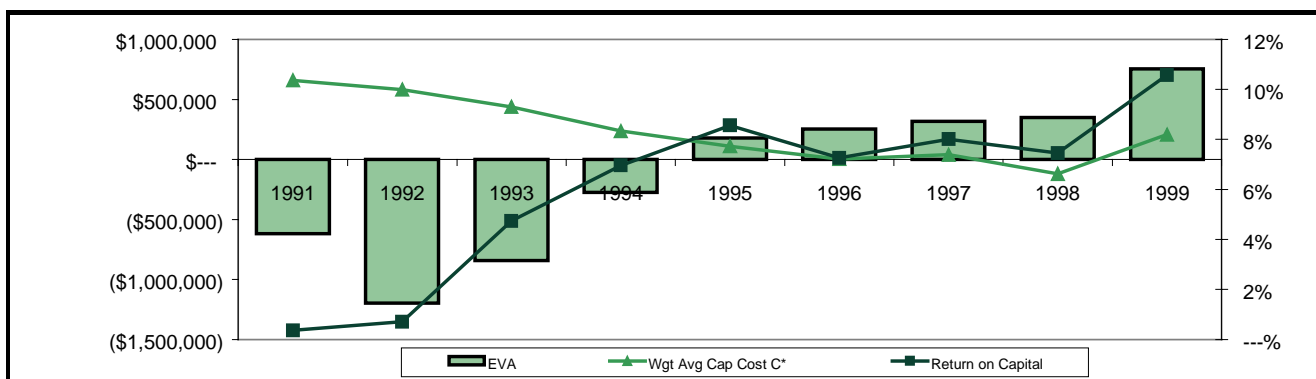




THE NEW MATH; 4 > 8

UAL (UAL) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$11,662,576	\$12,889,700	\$14,511,000	\$13,950,000	\$14,943,000	\$16,362,000	\$17,378,000	\$17,561,000	\$18,027,000
= NOPAT MARGIN	0.4%	1.0%	5.6%	8.2%	9.7%	9.0%	10.5%	10.6%	15.5%
=> NOPAT - \$	\$47,699	\$125,145	\$807,981	\$1,146,918	\$1,454,000	\$1,479,863	\$1,822,958	\$1,855,440	\$2,796,394
NWC / Sales	(12.5%)	(10.5%)	(12.9%)	(14.6%)	(13.4%)	(13.0%)	(14.2%)	(13.8%)	(15.0%)
+ Net PP&E	63.6%	104.7%	125.4%	138.3%	123.7%	116.3%	125.9%	138.3%	144.7%
+ Other Assets	4.0%	8.4%	9.7%	(1.5%)	(0.1%)	0.6%	5.6%	5.1%	8.4%
= Total Capital	55.2%	102.6%	122.2%	122.2%	110.2%	103.8%	117.3%	129.6%	138.2%
=> Total Capital - \$	\$6,432,397	\$13,220,202	\$17,726,047	\$17,049,290	\$16,472,340	\$16,988,217	\$20,379,340	\$22,753,618	\$24,909,567
Wgt Avg Cap Cost C*	10.4%	10.0%	9.3%	8.3%	7.7%	7.2%	7.4%	6.6%	8.2%
Capital Charge / Sales	5.7%	10.3%	11.4%	10.2%	8.5%	7.5%	8.7%	8.6%	11.3%
Capital Charge - \$	\$666,827	\$1,321,197	\$1,648,751	\$1,421,151	\$1,273,497	\$1,227,067	\$1,506,819	\$1,507,157	\$2,040,094
EVA Margin	(5.3%)	(9.3%)	(5.8%)	(2.0%)	1.2%	1.5%	1.8%	2.0%	4.2%
x Net Revenue	\$11,662,576	\$12,889,700	\$14,511,000	\$13,950,000	\$14,943,000	\$16,362,000	\$17,378,000	\$17,561,000	\$18,027,000
=> EVA	(\$619,129)	(\$1,196,052)	(\$840,770)	(\$274,233)	\$180,503	\$252,796	\$316,139	\$348,283	\$756,300

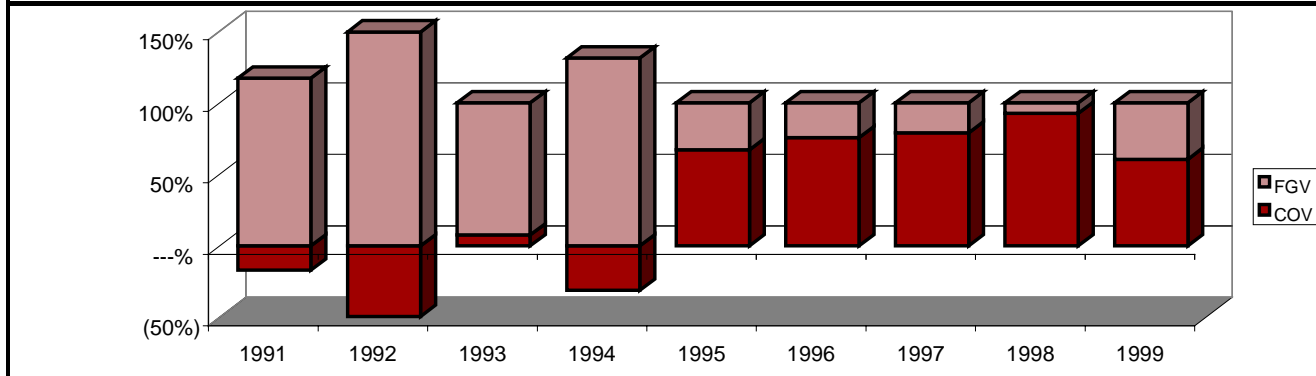
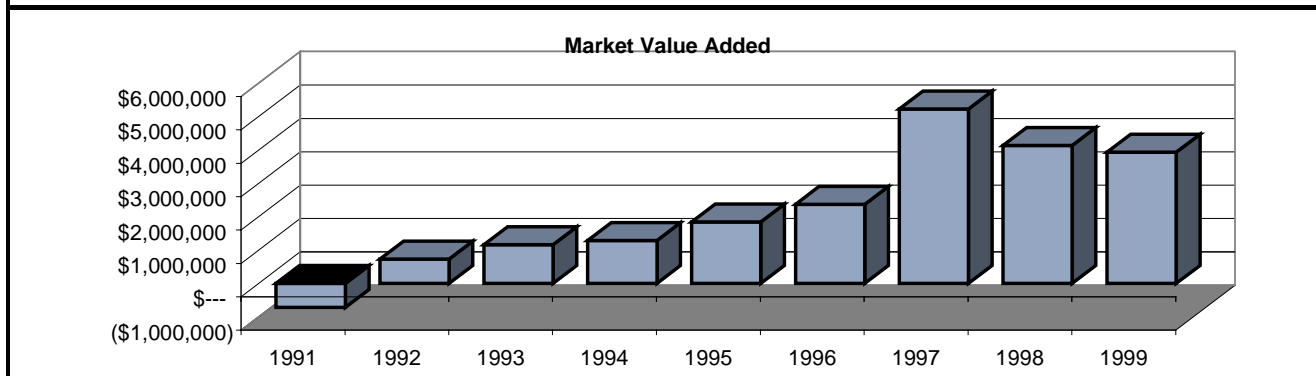
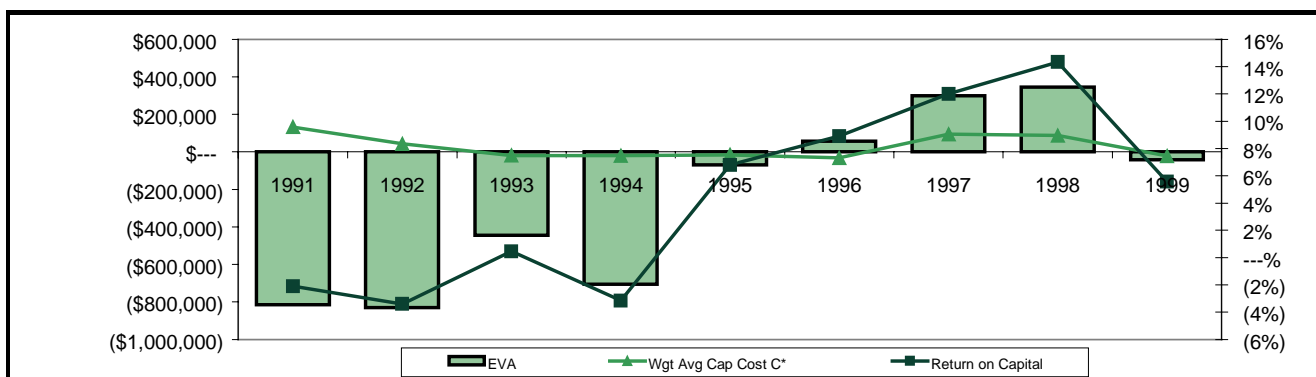




THE NEW MATH; 4 > 8

USAir (U) - \$000s

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sales - \$	\$6,514,071	\$6,686,412	\$7,083,208	\$6,997,194	\$7,474,348	\$8,142,413	\$8,513,824	\$8,688,000	\$8,595,000
= NOPAT MARGIN	(2.4%)	(3.2%)	0.4%	(3.1%)	6.0%	6.6%	10.0%	11.3%	5.4%
=> NOPAT - \$	(\$154,524)	(\$214,713)	\$30,004	(\$217,922)	\$449,393	\$540,419	\$849,070	\$979,875	\$466,604
NWC / Sales	(7.8%)	(11.9%)	(20.9%)	(19.0%)	(14.3%)	(10.2%)	(12.7%)	(4.8%)	(4.8%)
+ Net PP&E	98.8%	105.6%	101.3%	105.1%	98.0%	85.3%	79.1%	76.8%	77.1%
+ Other Assets	15.1%	16.7%	8.8%	7.3%	8.5%	6.1%	4.8%	9.4%	7.2%
= Total Capital	106.0%	110.4%	89.3%	93.4%	92.2%	81.3%	71.2%	81.4%	79.5%
=> Total Capital - \$	\$6,906,483	\$7,379,981	\$6,323,881	\$6,531,929	\$6,894,102	\$6,616,937	\$6,062,729	\$7,071,577	\$6,834,006
Wgt Avg Cap Cost C*	9.6%	8.3%	7.5%	7.5%	7.5%	7.3%	9.1%	9.0%	7.5%
Capital Charge / Sales	10.1%	9.2%	6.7%	7.0%	6.9%	5.9%	6.4%	7.3%	5.9%
Capital Charge - \$	\$660,844	\$615,067	\$473,843	\$487,961	\$519,347	\$483,964	\$549,022	\$633,798	\$509,133
EVA Margin	(12.5%)	(12.4%)	(6.3%)	(10.1%)	(0.9%)	0.7%	3.5%	4.0%	(0.5%)
x Net Revenue	\$6,514,071	\$6,686,412	\$7,083,208	\$6,997,194	\$7,474,348	\$8,142,413	\$8,513,824	\$8,688,000	\$8,595,000
=> EVA	(\$815,368)	(\$829,780)	(\$443,839)	(\$705,883)	(\$69,954)	\$56,455	\$300,048	\$346,077	(\$42,529)



# EVALuation

## Past Issues

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## **Stern Stewart & Co.**

**NEW YORK**  
1345 Avenue of the Americas  
New York, NY 10105  
212/261-0600

---

**LOS ANGELES**  
1901 Avenue of the Stars  
Suite 1245  
Los Angeles, CA 90067  
310/407-0930

**LONDON**  
13 Saint George Street  
Mayfair, London W1R 9DE  
44-171/399-3600

**TOKYO**  
3F, Toranomon 45 Mori Building  
5-1-5, Toranomon, Minato-Ku  
Tokyo, Japan 105-0001  
81-3/3431-3310

**PARIS**  
264 Rue de Faubourg  
Saint Honore, 75008 Paris  
33-1/56 33 17 70

**SINGAPORE**  
80 Raffles Place  
UOB Plaza 1, #28-02  
Singapore, 048624  
65/538-3532

**MUNICH**  
Salvatorplatz 4  
D-80333 München  
Tel.: +49 (0)89/24 20 71-0  
Fax: +49 (0)89/24 20 71-11  
eva@sternstewart.de

**SYDNEY**  
Grosvenor Place  
225 George Street, Level 23  
Sydney, NSW 2000  
61-2/9251-3055

**MILAN**  
Ambrosetti Stern Stewart Italia  
Galleria Pattari, 2  
20122 Milano  
39-02/725-6501

**JOHANNESBURG**  
Suite 316, South Tower  
Sandton Square  
Sandton 2196  
27-11/883-5894

**SÃO PAULO**  
Rua do Rócio, 291 - cj. 91  
Vila Olímpia  
São Paulo, SP, Brasil 04552-000  
55-11/3040-0851