FIN401 ADVANCED FINANCIAL MANAGEMENT
NOTE: MEASUREMENT

Introduction
Thomas S. Monson famously said the following:

"When performance is measured, performance improves. When performance is measured and reported, the rate of improvement accelerates."

In Financial Management, measuring performance is one of the keys to success. Besides helping to improve performance, measuring also helps analyze past performance and predict future performance. This paper will discuss the following tools used by managers to measure performance:

- Forecasts
- Budgets
- Metrics
- Variance Analysis
- Benchmarking
- Balanced Scorecards

Forecasts
Forecasts are projections of future financial results and play a key role in any business. Forecasts are used to project cash flows, manage inventory, determine hiring, value the business, support capital budgeting decisions (borrowing and investing), and many other uses. Although forecasting is not an "exact science", there is a piece of it that is "science" and a part of it that is "art". Which is to say, forecasts need to be based on data from the past as well as projections looking forward. Data from the past can best be analyzed and used in forecasting through the use of financial ratios and relationships. Although forecasting is not an exact science, it is important to make forecasts as precise as possible as they can have a significant impact on a company's decisions.

Budgets
A ***budget*** is a financial plan for a period of time. Typically budgets cover a month, quarter, or year. Budgets can also cover multiple years. Typically, budgets are made for financial statements and can include Income Statements, Balance Sheets, and Cash Flow Statements. The difference between a budget and a forecast is that a budget is the financial plan for the company, whereas a forecast is a projection of what its actual results will be. Companies generally set a budget at the beginning of the year and then have forecasts of its projected actual results throughout the year. Those budgets may be for a month, quarter, half, and year. Companies may also set multi-year budgets.

Metrics
Metrics are quantifiable measurements used to monitor and assess a business' performance. Generally, a company will have a mix of financial and non-financial metrics. Performance in different areas of the business are compared against standards. These standards may be referred to as benchmarks, targets, or goals. A company may identify metrics that are critical to the success of their business. These measurements are sometimes referred to as ***Key Performance Indicators (KPIs)***. Good KPIs are measurable and are generally numbers not pulled directly from the financial statements but rather are measurements that are indicators of financial performance.

Some typical metrics would measure the following:

Production
- Quality
- Productivity

Sales and Marketing
- Sales growth
- Customer traffic
- Search engine hits
- Revenue $ per Marketing $
- Customer survey results

Financial
- Variance measurements by unit
- Gross Margin $ or % per unit
- Other ratios used to manage the business

Each area may have more than one metric to monitor its progress. For example, Quality may include a metric that measures customer returns, and another that measures waste (products not up to par and therefore thrown away).

Balanced Scorecards

Balanced Scorecards (BSC) are used to help a company track its Key Performance Indicators. Balanced Scorecards are used to visibly communicate an organization's vision and goals to the company, help an organization prioritize its work, and measure and monitor progress on its goals. They are also a means of integrating a company's strategy with its financial objectives, with the understanding that there are many non-financial activities that contribute to the ultimate financial success of an organization.

Although a Balanced Scorecard may contain different measurements, Robert S. Kaplan and David P. Norton developed a Balanced Scorecard that many consider a standard. It contains four areas (or perspectives) of measurement:

- Financial Perspective
- Customer Perspective
- Internal Business Perspective
- Innovation and Learning Perspective

Variance Analysis

The investigation and analysis of differences between a company's actual performance and its planned performance is known as ***Variance Analysis***. Companies often analyze ***budget variances*** (actual performance vs. the budget) and ***forecast variances*** (actual performance vs. the forecast). They also measure ***year-to-year variances*** (actual performance vs. the previous year). The differences are often measured as both a $ variance and as a % variance.

Measurements are made by taking actual performance minus what the performance is being measured against. The percentage variance is then measured as that difference divided by what the performance is being measured against.

For example, if we were measuring the variance of actual revenue compared to the budget revenue for the year, we would calculate as follows:

Actual Revenue	$543,000	
Budget Revenue	$525,000	
Variance $	$18,000	(Actual $ minus Budget)
Variance %	3.4%	(Variance $ divided by Budget $)

The above example would show that actual revenue exceeded budget revenue by $18,000, or was 3.4% more revenue than budget.

One way to more deeply analyze revenue (or gross margin) variance is to use Price Volume Mix analysis. This is used to help analyze what caused a difference between the actual revenue and the budget revenue (or forecast revenue or last year's revenue). Price Volume Mix analysis helps determine if the difference was due to a higher or lower price, a higher or lower volume, or a mix of price and volume.

There are 3 formulas used in this analysis:

Price Variance = Budget Volume x (Actual Price – Budget Price)
Volume Variance = Budget Price x (Actual Volume – Budget Volume)
Mix Variance = (Actual Volume – Budget Volume) x (Actual Price - Budget Price)

Looking at the example above where revenue exceeded budget by $18,000, let's look at the components that made up the revenue numbers:

	Actual Revenue	Budget Revenue
# of sales units	1,810	2,100
Average Price per unit	$300	$250
Total Revenue	$543,000	525,000

To calculate the impact of the volume of sales and the average price of the units, we can use the Price Volume Mix analysis as follows:

Price Variance	= 2,100 x ($300 - $250) =	$105,000
Volume Variance	= $250 x (1,810 – 2,100) =	($72,500)
Mix Variance	= (1,810 – 2,100) x ($300 - $250) =	($14,500)
Total Variance	=	$18,000

Note that the Total Variance sum of the 3 pieces is equal to the original variance calculated. From this analysis, we see that revenue exceed budget primarily due to its average price being higher than budget. But that increase was somewhat offset by the lower volume sold and a mix between the price and volume.

Also note that these same formulas could be used for comparison of actual revenue to the forecast or actual revenue to last year's revenue by using those numbers in place of the budget numbers.

Benchmarking

To measure its operational efficiency and competitiveness, a company will often perform benchmarking analysis. This is done by comparing the company's results to the results of other companies in the same industry. This is generally done through ***ratios*** and ***common-size financial statements***. Common-size financial statements allow for easier comparisons between companies of different sizes. They show all items as a percentage of a common base item. For example, an income statement would reflect revenue as 100%, and then all other items on the income statement as a percentage of revenue. A balance sheet may show Total Assets as 100% and all other items as a percentage of the Total Assets.