The purpose of DGAP analysis is to provide a measure of the impact of unexpected interest rate changes on the market value of owners' equity, i.e. net worth.
A duration gap measures the cash flow timing characteristics of assets and liabilities. The duration gap considers both reinvestment and price risk. It has an advantage of measuring potential change in the value of institutions equity as interest rates change. Because it is based on duration measures for assets and liabilities, the duration gap captures the joint effects of maturity, coupon (or stated interest rate) and required market yields on changes in market value.

Central to DGAP Analysis

I. Market yields and market prices move in opposite directions.

A rise in market rates of interest will cause the market value of both fixed-rate assets and liabilities to decline.

II. The longer the maturity of a fixed rate financial instrument, the greater will be the change in market value for a given change in market interest rates. The longer the duration of a bank's assets and liabilities, the more they will decline in market value when market interest rates rise.

Strategic Investments can use duration gap to stabilise portfolios net worth.

For Strategic Investments to calculate their Duration Gap, they will need estimates of expected cash flows, maturities, and current market yield for all assets and liabilities

The Duration Gap

DGAP = DA - {DL (TL\TA)}

DGAP = Duration Gap

DA = Dollar Weighted Duration of Asset Portfolio

DL = Dollar Weighted Duration of Liabilities

TL = Total Market Value of Liabilities

TA = Total Market Value of Assets

DGAP is measured in years and is a measure of the mismatch in the average duration of the assets and the liabilities. The larger the mismatch, the greater the impact of unexpected interest rate changes on the market value of the net worth of the bank.

Positive Duration GAP

Interest Rates Increase
Assets have a higher duration so they will decrease more in value than liabilities. This causes the Net Worth to decrease.

Interest Rates Fall
Assets have a higher duration so they will increase more in value than liabilities. This causes the Net Worth to increase.

Negative Duration GAP

Interest Rates Increase
Assets have a lower duration so they will decrease less in value than liabilities. This causes the Net Worth to increase.

Interest Rates Fall
Assets have a lower duration so they will increase less in value than liabilities. This causes the Net Worth to decrease.

Zero Duration GAP

If the DGAP = 0 over the planning period, the bank is immunized against changes in the value of its net worth.

Strategic investments would have to calculate their duration gap and then decide wether the durations on each of their bonds would have to be lengthened or shortened. Because if duration gap is positive and concerns that interest may rise, then Strategic Investments would have to either, reduce durations of assets to match durations of liabilities or reduce duration of assets and increase duration of liabilities until they are matched or increase leverage and duration of liabilities.

However Duration Gap has its limitations as well. Some of the most practical problems with duration gaps are:

- Requires complete data set for each item ob the balance sheet. Examples: Interest rates and maturity
- Requires to forecast interest rates especially variable rate items
- Duration on deposits accounts which have no specific maturity dates
- Need to change the duration whenever there is a change in interest rates