Capital Market Expectations: Part 1

Inf = inflation
emp.= employment

1. INTRODUCTION

Capital market expectations (CME) represent the investors' expectations regarding the risk and return prospects of broad asset classes.

2. FRAMEWORK AND CHALLENGES

2.1 A Framework for Developing Capital Market Expectations

1. Specify the set of expectations needed

2. Research the historical record:

Specify the method(s) and/or model(s) to be used and their information requirements.

4. Determine the best sources for information needs.

5. Interpret the current investment environment using the selected data, methods and judgement.

6. Provide the set of expectations needed, documenting conclusions.

7. Monitor actual outcomes and compare them with expectations, providing feed-back to improve the expectations-setting process.

Three Characteristics of Good Forecasts

i) unbiased, objective and well researched;
ii) efficient
iii) internally consistent (

2.2 Challenges in Forecasting

2.2.1 Limitations of Economic Data

i) Time lag
ii) Official revisions
iii) Definitions and calculation methods may change overtime.
iv) Changes in the construction method of data

2.2.2 Data Measurement Errors and Biases

The errors and biases in data measurement include:
i) Transcription errors:
ii) Survivorship bias:
iii) Appraisal (smoothed) data.

2.2.3 The Limitations of Historical Estimates

Problems with historical data may include:
- Changes in regime
- Frequency of data
- Data are not normally distributed

2.2.4 Ex Post Risk Can Be a Biased Measure of Ex Ante Risk

2.2.5 Biases in Analysts' Methods

v) Data mining bias
vi) Time-period bias

2.2.6 The Failure to account for Conditioning Information

Risk & return estimates based on unconditional forecasts (which dilute info by averaging) may generate erroneous outcomes.

2.2.7 Interpretation of Correlations

A significant correlation b/w variable A & B implies at least four possible explanations:
i) A predicts B
ii) B predicts A
iii) C predicts A & B
iv) The relation b/w A & B is spurious

2.2.8 Psychological Biases

1. Anchoring bias
2. Status quo bias
3. Confirmation bias
4. Overconfidence bias
5. Prudence bias
6. Availability bias

2.2.9 Model Uncertainty

Three uncertainties in investment analysis are:
1. Model uncertainty
2. Parameter uncertainty
3. Input uncertainty

3. ECONOMIC AND MARKET ANALYSIS

3.1 The Role of Economic Analysis

Two major components of Economic Output:

- **Trend Growth:** relevant for setting long-term return expectations for asset classes.
- **Cyclical Variation:** measures short-term fluctuations in an economy.

3.2 Analysis of Economic Growth

3.2.1 Exogenous Shocks to Growth

- Policy change:
- New products & technologies:
- Geopolitics:
- Natural disasters:
- Natural resources & critical inputs:
- Financial crises:

3.2.2 Application of Growth Analysis to Capital Market Expectations

Key input in DCF models

- higher trend rate of economic growth indicates attractive equity returns and faster economic growth without any unsustainable ↑ in inflation.
- Level of real Govt. bond yields & trend growth rate are interrelated.

3.2.2.1 A Decomposition of GDP Growth and its use in Forecasting

Trend growth in GDP:

i) Growth from labor inputs
   - growth in potential labor force size
   - growth in actual labor force participation

ii) Growth from labor productivity
   - growth from increasing capital inputs
   - growth in total factor productivity (TFP).

3.2.2.2 Anchoring Asset Returns to Trend Growth

Trend growth rate provides a baseline value for estimating:

- Bond yield over long horizons
- Long-run equity appreciation, which is a measured as: Aggregate market value of equity= $V_t^e = GDP_t \times S_t^k \times PE_t$

3.3 Approaches to Economic Forecasting

3.3.1 Econometric Modeling

Econometric Modeling

Strengths:

- Robust models
- forecasts close to reality.
- can be modified
- imposes discipline to analysis
- quantitatively measure effects of exogenous changes

Weaknesses:

- complex & time consuming
- inputs not easy to forecast
- model may be mis-specified
- may give false sense of precision
- rarely forecast turning points

3.3.2 Economic Indicators

Economic Indicators

Strengths:

- intuitive
- simple in construction
- focuses primarily on identifying turning points
- may be available from 3rd parties
- easy to track

Weaknesses:

- History subject to frequent revision
- Current data not reliable as input for historical analysis
- Overfitted in-sample
- Can provide false signals
- May provide little more than binary guidance

3.3.3 Checklist Approach

Checklist Approach

Strengths:

- limited complexity
- flexible
  - to incorporate structural changes
  - to add/drop items
  - to draw information from various sources
- breadth

Weaknesses:

- subjective
- time-consuming
- manual process limits depth of analysis
- may allow inconsistent &/or biased views, theories, assumptions.

Reference: CFA Institute's Program Curriculum, Reading 3, Exhibit 4.

3.4 Business Cycle Analysis

3.5 Analysis of Monetary & Fiscal Policy

3.6 International Interactions

On the next pages

3.4 Business Cycle Analysis

The *business cycle* ***arises*** *due to* uncertainties in the economy, expectational errors and incompetence to adjust rapidly to unexpected events; hence, they are difficult to forecast.

Sources of uncertainties may be exogenous or endogenous to the system.

The business cycle can be **monitored** using the following **variables**:

- GDP growth
- Industrial production
- Employment/unemployment
- Purchasing manager indexes
- Orders for Durable goods
- Output gap
- Leading indicator indexes

3.4.1 Phases of Business Cycles

Five phase business cycle:

i) Initial recovery – large output gap, decelerating inf., rates continue to ↓, stock market may ↑, attractive stocks → cyclical, riskier assets

ii) Early expansion – emp. may ↑, business production & consumer demand ↑, profits ↑, short-term rates and stock market trend ↑,

iii) Late expansion– Narrow output gap, ↑ profits, ↑ inf., interest rates & stock markets tend to ↑, cyclical assets underperform, inf. Hedge outperform.

iv) Slow down – economy & business confidence stars to ↓, inf. ↑ at slow rate, short-term rates rise and then starts to fall, credit spreads widen, stock market ↓

v) Contraction – business production and consumer spending ↓, credit tightens, emp. ↓, stock markets ↓ then starts to improve.

3.4.2 Market Expectations & the Business Cycle

It is quite difficult to correctly predict the next phase of business cycle because:

- the phases vary substantially in length and amplitude
- it is difficult to distinguish between cyclical forces and secular forces playing on the economy and the markets.
- the connection between real economy and capital market returns is quite uncertain

3.4.3 Inflation & Deflation: Trends & Relation to the Business Cycle

Deflation tends to:

- ↓ the value of debt-financed investments
- undermine central bank's ability to affect monetary policy to control the economy.

Inflation is procyclical and tends to:

- ↑ during late stages of a business cycle
- ↓ during recessions and the early stages of recovery.

Similar to inflation, **inflation expectations** are also procyclical.

- *very long-term* inflation expectations are unaffected by periodic fluctuations.
- short-term inflation expectations turn up with actual inflation.
- intermediate-term inflation expectations interweave with different phases of cycles.

Effects of Inflation in Asset Classes:

Cash:

- is attractive(unattractive) in rising(declining) rate environment.
- is attractive investment in deflationary environment.

Bonds:

- When inflation ↑ (↓), nominal bond price ↓ (↑); holding bonds incur capital losses(gains).

Stocks:

- If inf. is within expected range – neutral effect on stocks
- Unexpected rise in inf. –ve effect on stocks

Real Estate:

- Rental income ↑ with expected inflation & asset values remain stable.
- Unexpected ↑ in inf., ↑ demand for real estate, resulting in faster ↑ in rental income and asset values.
- Unexpected ↓ in inf. (or deflation) puts ↓ pressure on expected rental income and asset prices.

3.5 Analysis of Monetary & Fiscal Policy

3.5.1 Monetary Policy

Taylor Rule relates a central bank's target short-term interest rate to the rate of growth of the economy and inflation.

Taylor Rule Equation:

$$i^* = r_{neutral} + \pi_e + 0.5 \times (\hat{Y}_e - \hat{Y}_{trend}) + 0.5 \times (\pi_e - \pi_{target})$$

Real inflation adjusted target rate =

$$i^* - \pi_e = r_{neutral} + 0.5 \times (\hat{Y}_e - \hat{Y}_{trend}) + 0.5 \times (\pi_e - \pi_{target})$$

3.5.2 What Happens when interest rates are 0 or negative

Individuals' preference to hold currency (when facing negative interest rates) would lower bank's reserves and deposits causing credit contraction.

The contraction of credit would further put upward pressure on interest rates leading to slowdown in economic growth which would in turn require additional stimulative policies.

QE (quantitative easing) - Central banks purchase high-quality government securities at a large scale. This action boost banks' excess reserves and lower sovereign bond yields

3.5.3 Implications of Negative Interest Rates for CME

When interest rates are negative, in forming capital market expectations for:

- Longer time horizons: 'long-term equilibrium short-term rate' is used as a baseline rate in models.
- Short-term horizons: 'expected path of interest rates' (should be considered.

Key considerations when forming CMEs in a negative interest rate environment

- Historical Data are less likely to be reliable
- Effects of other monetary policy measures appear simultaneously

3.5.4 The Monetary & Fiscal Policy Mix

The mix of fiscal and monetary policies affect the:

- level of interest rates
- shape of the yield curve
- relative supply of government bonds of various maturities

Effect of Persistent Policy Mix on the Average Level of Rates

Fiscal Policy		Monetary Policy		Nominal Rates
Loose ⇒ ↑ Real Rates	+	Loose⇒ ↑ Expected Inflation	=	↑
Tight ⇒ ↓ Real Rates	+	Tight ⇒ ↓ Expected Inflation	=	↓
Loose ⇒ ↑ Real Rates	+	Tight ⇒ ↓ Expected Inflation	=	Mid
Tight ⇒ ↓ Real Rates	+	Loose⇒ ↑ Expected Inflation	=	Mid

3.5.5 The Shape of the Yield Curve and the Business Cycle

Yield curve flattens during the expansion phase, at the peak it is completely flat or even inverted and then steepens at the bottom of the cycle.

The curvature of the yield curve is primarily determined by the expected future path of the short-term rates.

	Initial Recovery	Early Expansion	Late Expansion	Slowdown	Contraction
Monetary Policy & Automatic Stabilizers	• stimulative stance • moving towards tightening	• dropping stimulus	• becoming restrictive	• tight • tax revenue may ↑	• increasingly more stimulative
Money Market Rates	• low/ bottoming • expected to rise over progressively shorter horizons	• rise and speed up	• above average & rising • expectations may be moderated by eventual peak / decline	• approaching peak	• declining
Bond Yields & the Yield Curve	• long rates bottoming • shortest rates start to ↑. • Curve is steep	• yields ↑ • stable at longer maturities • yield curve's 1st half ⇒steepening, last half ⇒flattening	• yields rise at slow pace • curve flattening from longest maturities inward	• yields peak, then may decline sharply • curve flat to inverted	• yields declining • curve steepening. • steepest at the tip of initial recovery phase

3.5.6 International Interactions

A country's international interactions depend on the country's:
- relative size
- degree of specialization

3.5.6.1 Macroeconomic Linkages

Current and capital account levels signify the macroeconomic linkages between two countries.

i) Current account represents:
- Net exports of goods and services
- Net investment income flows
- Unilateral transfers

ii) Capital account (financial account) represents:
- Net investment flows for foreign direct investment (FDI) - buying/selling of productive assets across borders
- Portfolio Investment flows (PI) involving transactions in financial assets

Four primary tools used to balance the current and capital accounts are:

i) changes in income (GDP)
ii) Relative prices
iii) Interest rates
iv) Asset prices

3.5.6.2 Interest rate/Exchange rate Linkages

The link between interest rates and exchange rates is crucial for investors. A country can achieve at maximum ***only two*** of the following:
- free movement of capital
- fixed exchange rate
- independent monetary policy

Two countries share a yield curve when:
- There is perfect capital mobility
- Exchange rates are credibly fixed