



# The Finer Points: What Makes Sectors Tick?

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# Sector Analysis

- ▶ Traditionally, Sector Analysis has been viewed as part of the “Rhythm and Swing” of market movements
- ▶ We will review this Rhythm and Swing and its relationship to stocks and bonds
- ▶ Then we will show a new way to analyze historical and current sector rotation

# Rhythm and Swing

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The Rhythm of the business cycle is:

Short  
Bonds

Viewed as the market's locomotive and earliest indicator

Long  
Bonds

React somewhat later

Stock  
Market

The 3<sup>rd</sup> car in the train

- Peaks when there is no prospect of any more good news
- And interest rate hikes make stock-purchase financing a costly affair



# Rhythm and Swing

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## Commodities

*Commodities* peak after the economic cycle primarily due to something called “*the accelerator effect*”

- This effect is the situation where bottlenecks during the late phases of an upturn lead to a badly-timed expansion of capital investments
- This increase in capital investments leads to a substantial increase in commodities consumption



# Rhythm and Swing – Market Rotation and Financial Seasons

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## Slump

In a *Slump*, *The Economy* is poor, investments low and unemployment rising. Property market is depressed, earnings are bad, bankers are scared and nobody is in a business to help any body

- *Financial Liquidity* rises as savings deposits increase, broker cash accounts are high and short-term rates fall
- *Commodities* fall strongly
- *The Media* is focusing primarily on the negative elements of the economy even though stocks have started to rise
- *Bonds* are in a clear rising trend
- *Stocks* have started to rise some time after bonds.  
Consumption oriented stocks prosper
  - Building stocks, retail chains and manufacturers of short-term consumables
  - While basic materials and manufacturers of capital goods are laggards
  - Stocks price rises provoke astonishment as earnings are still falling



# Rhythm and Swing – Market Rotation and Financial Seasons

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## Economic Expansion

### *In Economic Expansion,*

- *The Economy* is rising due to an increase in customer demand
  - Industry and retail links start with relatively high inventory which is getting reduced
  - Inflation has reached bottom
  - Property prices for private homes starts to rise
  - While commercial real estate prices stagnate
- *Financial Liquidity* has stopped rising
  - Savings deposits and broker cash accounts are falling
  - Security loans are increasing
  - Short rates are nudging up
- *The Media* is still pessimistic, only turning to optimism after halfway in the upturn
- *Long Bonds* have been rising for a long time



# Rhythm and Swing – Market Rotation and Financial Seasons

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Economic  
Expansion

## *In Economic Expansion*

- *Stocks* have also been rising for some time
  - In the upturn phase, industrial stocks are rising strongly. Takeover activity contributes to the stock rises
- *Commodities* have bottomed at a low level and there is no indication of increases in the early phases of the upturn. Later on, commodity prices start to rise



# Rhythm and Swing – Market Rotation and Financial Seasons

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## Boom

### *In a Boom..*

- *The Economy* is booming and capacity utilization is high
  - Inflation and short term rates are rising
  - Industry is starting to expand capacity
  - Demand for labor and capital and commodities is increasing
- *Financial Liquidity* has long been falling . The primary source of liquidity expansion are stock price increases which can be converted into cash as stocks are traded
- *The Media* is positive and a lot of column inches are devoted to stocks.
- *Bonds* go into a falling trend



# Rhythm and Swing – Market Rotation and Financial Seasons

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Boom

*In a Boom...*

- Stocks start to drop some months before the climax of the economy
  - The drop starts with consumer stocks
  - With commodities, mining, chemical and drug firms last
  - This trend will tend to start in the leading economies first with commodity producing countries being affected last
  - This tendency is amplified because investors will start moving into commodity related stocks as a defensive move

# Rhythm and Swing – Market Rotation and Financial Seasons

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Boom

*In a Boom...*

- *Commodities* are in a clear rising trend

# Rhythm and Swing – Market Rotation and Financial Seasons

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Economic  
Decline

## *In an Economic Decline...*

- *The Economy* is experiencing drastic reductions in private consumption
  - Industry faces excess capacity
  - Inflation continues to rise but peaks in the middle of the decline
  - Interest rate sensitive sectors are hit by bankruptcies
  - And enforced sales are common in the property market
- *Financial Liquidity* stabilizes and reserves gradually start to rise
- *The Media* is pessimistic
  - Higher interest rates are prophesied
  - And capital intensive industries are caught in credit squeezes
- *Bonds* reach bottom before the end of the decline



# Rhythm and Swing – Market Rotation and Financial Seasons

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Economic  
Decline

*In an Economic Decline...*

- *Stocks* also fall, reversing later than bonds
- *Commodities* peak before inflation and have now started to drop



# Rhythm and Swing – Structure of Subordinate Markets

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## FIRST PHASE

The greatest increase in stocks is seen in those related to household consumption and investments

- Utilities, small loan institutions, consumer goods and drugs
- Food chains, foodstuffs, packaging material
- Finance companies, retail stores, banks, insurance

# Rhythm and Swing – Structure of Subordinate Markets

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## SECOND PHASE

- In the middle of the upturn, inventories are pressed down due to growing demand
- New industrial orders start rising making *industrials* the best stock sector
- Market begins to develop a penchant for companies with less financial clout and more innovative ideas

# Rhythm and Swing – Structure of Subordinate Markets

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## SECOND PHASE

- Important industrial sectors become:
  - Energy
  - Contractors
  - Paper
  - Consumer durables (e.g. automobiles)
  - Transportation

# Rhythm and Swing – Structure of Subordinate Markets

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## THIRD PHASE

- While consumer stocks dominated Phase 1
- And industrial stocks Phase 2 (*and industrial stock prices tend to peak when the total market peaks*)
- Stocks related to *fixed investment* and *commodities* are typically laggards and come to prominence in Phase 3

# Rhythm and Swing – Structure of Subordinate Markets

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## THIRD PHASE

- Examples are:
  - Machine Plants
  - Chemicals
  - Metalworking
  - Mines
- The reasons for the above are that in the final phase of economic growth, industry will suffer a dearth of capacity and make (often inadvisable) investments in new capital

# Rhythm and Swing – Market Rotation and Financial Seasons

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## Cyclicals

- The most business cycle sensitive sectors are:
  - Automobiles
  - Chemicals
  - Airlines
  - Metalworking
- The easiest way to get an overview of leaders and laggards is to study their performance at a sector level
- Or use a more sophisticated technique that can give you finer detail with less confusion



# Finer Points of Sector Rotation

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## Random Matrices

- Random Matrices allow you to keep the geometry of the space intact
- What is meant by this is that we are dealing with the price of individual sectors (and stocks) across time whose relationship with each other changes across time
- So we have at least 3 observables - stock sector, price and time – and potentially a fourth – correlation

So we are dealing with a 4-dimensional object (at a minimum) that we have traditionally attempted to display, examine and analyze using 2-D tools

- It is much better to stay in 4-space because:
  - Relationships between sectors remains intact
  - Leading sectors are easy to identify
  - “Representative” stocks are easy to assess**
  - Predictions of future sector rotation improve

# Finer Points of Sector Rotation

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To perform the random matrix calculation either:

- Subtract the market factor from all the stock returns by regressing the appropriate index on each stock's returns
- Use Principal Component analysis on the matrix of residuals in order to get the eigenvectors needed
- Ignore the 1<sup>st</sup> eigenvector – this one is related to capitalization
- And work with the 2<sup>nd</sup> eigenvector, which has the influential sectors

The other method is:

- Use Principal Component analysis on the matrix of returns
- Subtract the market factor from all the stock returns by “subtracting” the 1<sup>st</sup> eigenvector from all the other eigenvectors
- Ignore what is now the 1<sup>st</sup> eigenvector – the one related to capitalization
- And work with the 2<sup>nd</sup> eigenvector, which has the influential sectors

# Finer Points of Sector Rotation

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- Performing this analysis on the stocks in the Thomson Reuters U.S. Index using 5 years of daily returns:
  - Shows **Cyclical Consumer Goods and Services** and **Financials** have been the most influential sectors in the U.S. since 2004
    - In particular **Retailers** and **Cyclical Consumer Services** firms
    - Along with **Banks, Insurance** and **Real Estate** firms
- No surprises here

## Finer Points of Sector Rotation

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- Performing the analysis on the stocks in the Thomson Reuters U.S. Index using the last 12 months of daily returns
- Shows that the dominate sectors are **Consumer Cyclicals, Industrials** and **Financial**
- This dominant set intimates that the U.S. stock market is somewhere between Phase 1 and 2
- And similar to the last U.S. economic recovery when job recovery was very weak, not all the consumer driven sectors had a dominate phase until the recovery was well under way
- So 2 recent economic recoveries show at least a partially contra set of statements about the Rhythm and Swing of Subordinate Markets in Phase 1

# Finer Points of Sector Rotation

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In the next 6 months we would expect:

- A broader array of the business sectors, such as retailers, come to dominate the **Cyclical Consumer Goods and Services** economic sector
- Also a broader array of business sectors such **Transportation** coming to the fore amongst **Industrials**
- With potentially the **Energy** and **Basic Material** sectors starting to chime in

# Conclusions

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▶ The **Rhythm and Swing** of the market is important to understand as it can guide you in a broad way through the mass (or morass) of information that is modern markets

▶ **Sector Rotation** is very much related to the business cycle and gives insight to what phase of the market we are in

# Conclusions

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▶ **Random Matrix** calculations can quickly analyze a vast amount of data and show the most prominent sectors over the time period of interest as well as the stocks in those sectors that contribute the most to the sectors out-performance

# Conclusions

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- ▶ Predictions can now be made on what sectors are or could be coming to the fore
- ▶ And **Minimum Spanning Trees** (not discussed here) can be used as a way of gaining exposure if a bet on sector rotation is going to be placed



**QUESTIONS?**

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# THANK YOU



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