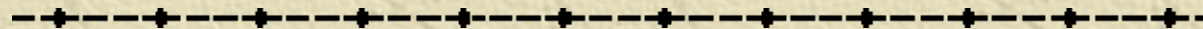




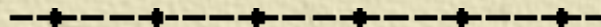
Modeling & Simulation: Finance & Economics

M&S Caucus Leadership Summit
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Topics

-
- ✦ M&S Use
 - ✦ How M&S Enhances Progress
 - ✦ Key Challenges
 - ✦ Key Elements for Education
 - ✦ Suggestions for Furthering Progress

M&S Use

-
- ✦ Pricing and Costing
 - ✦ Capital
 - ✦ Risk Management
 - ✦ Scenario Analysis (What if?)
 - ✦ Product Design
 - ✦ Research and Development

How M&S Enhances Progress

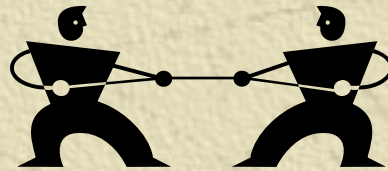
- ✦ Increase ability to reduce and manage risk
- ✦ Increase product offerings and reduce costs to benefit consumers
- ✦ Increased the ability of corporations and policy makers to anticipate economic changes and adjust

Key Challenges

- ✦ Layering Models and Judgment
- ✦ Past vs. Future
- ✦ Shocks (Oil, Terrorism, etc.)
- ✦ Human Intervention (policy)
- ✦ Faster, Cheaper, Better Technology
- ✦ Complexity of Interactions

Modeling Tension

Judgment

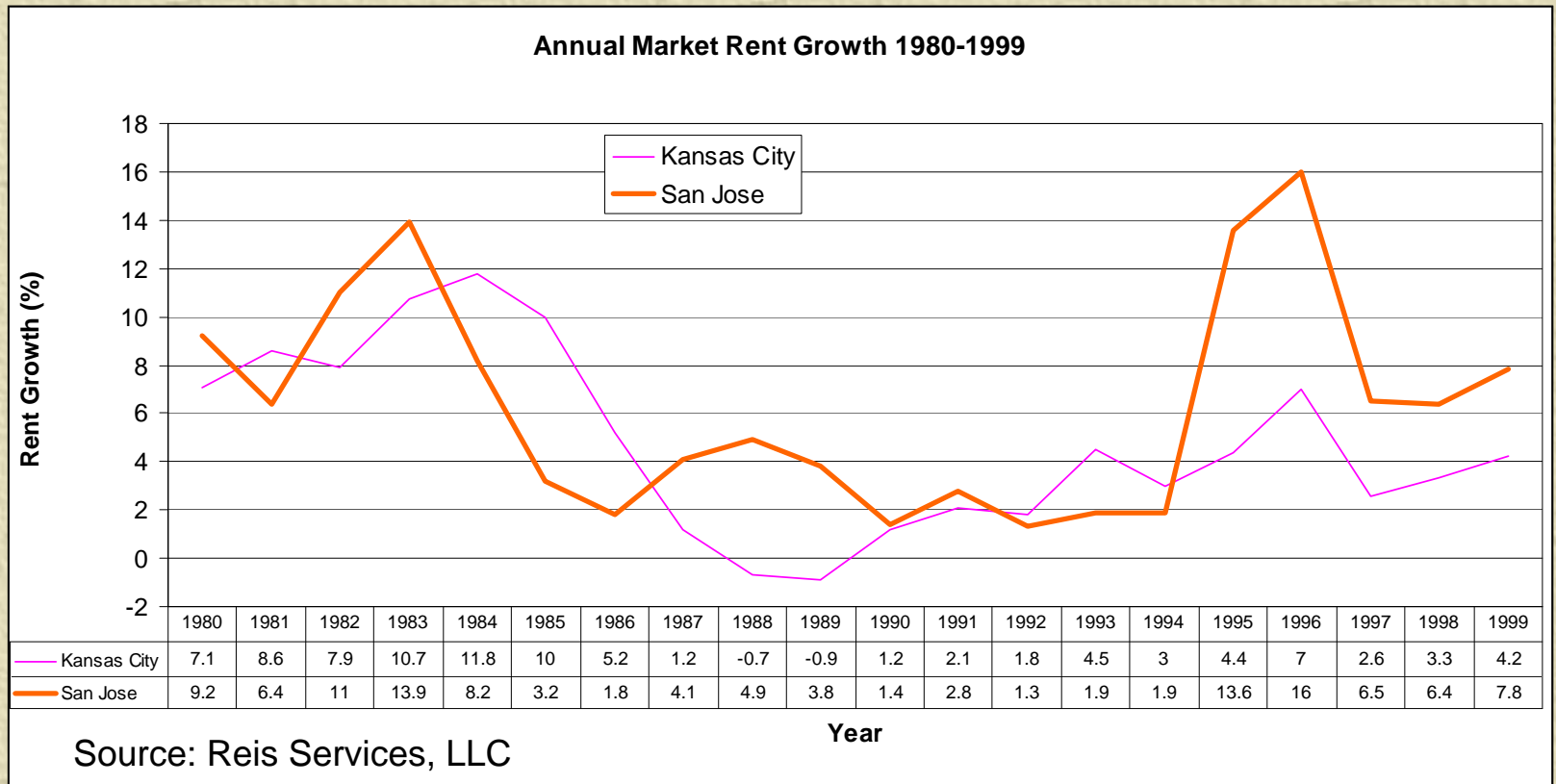


Statistical Model

- Uses “intangibles”
- Cognitive Awareness
- Experience
- Hidden biases
- Imprecise
- Use current market info

- Measurable
- Future is similar to past
- Dispassionate
- Discover hidden relationships
- Data reporting lag
- Measurement error
- Statistical biases

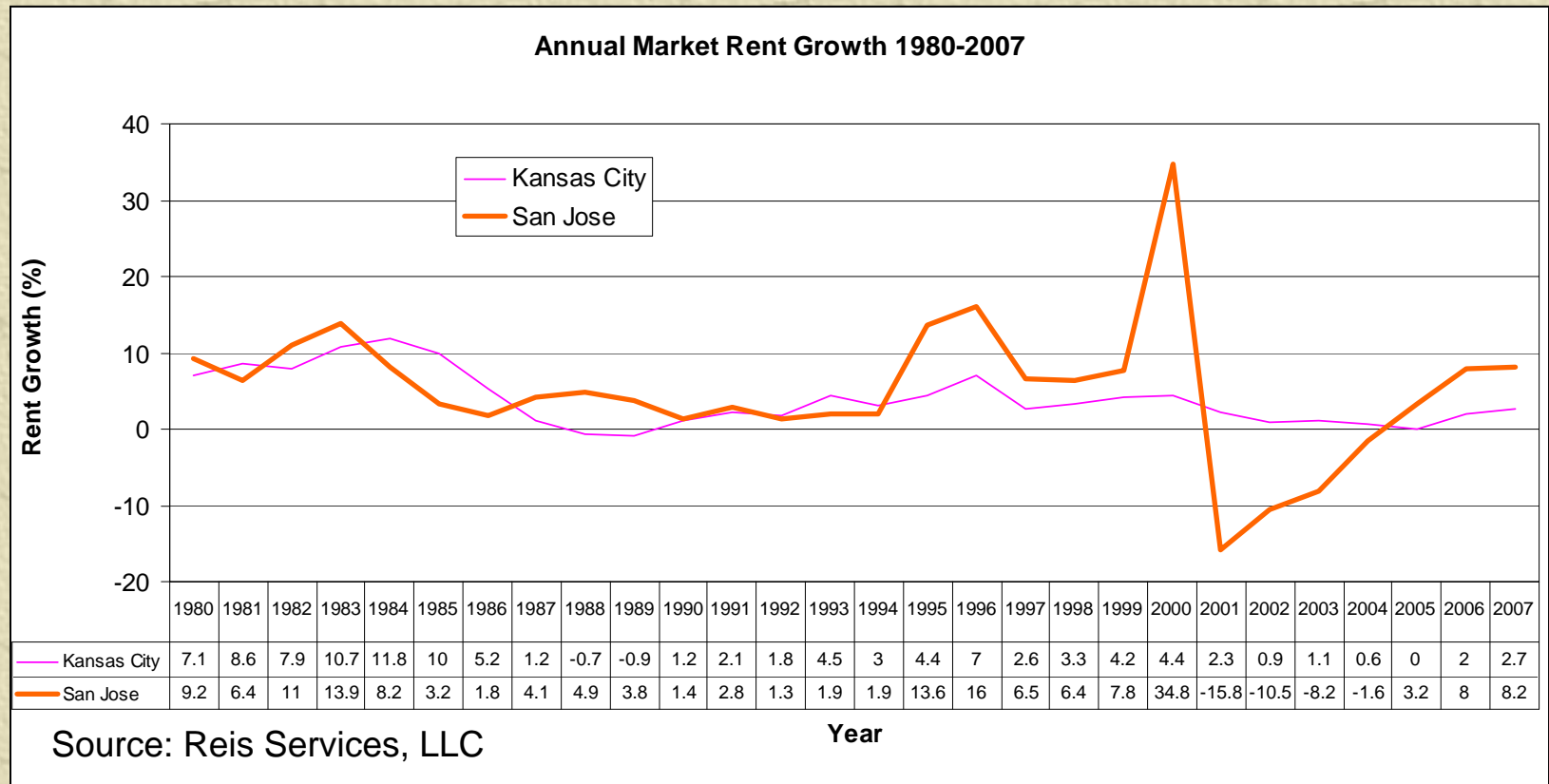
Example Part 1



What is the expected rent growth going forward 2000–2007?

Will these 2 metro areas perform similarly?

Example Part 2



San Jose became more volatile. Was it possible to foresee this change? Would an econometric model have successfully forecast?

Key Elements for Education

- ✦ Improve Math and Science Education from pre-K through high school
- ✦ Add more sophisticated, applied simulation study to undergraduate coursework
- ✦ Create interdisciplinary coursework, with applied research and problem solving as the core work
- ✦ Develop students to have both business and mathematical acumen

Suggestions for Furthering Progress

- ✦ Bring Theory and Practice together more
- ✦ More Interdisciplinary Cooperation
 - Related Disciplines (Economics & Finance)
 - Other Disciplines (Science & Engineer & Finance)
- ✦ Research to address Key Challenges
 - Past vs. Future
 - Shocks
 - Layering Models & Judgment