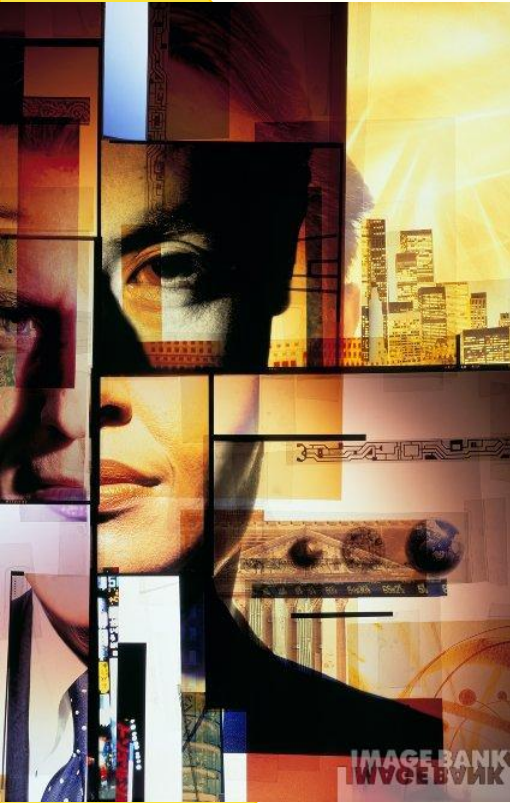


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# Supply Chain Integration (SCI) measured from an information sharing perspective: examining its impact on business success

**Dimitrios Chatzoudes**  
Democritus University of Thrace

**Prodromos Chatzoglou**  
Democritus University of Thrace





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# Significance of SCI

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- The competition in the 21st century is no longer conducted between companies, but between supply chains.
- SCI appears as an essential facilitator of material and information flows across the supply chain.
- SCI is the ultimate core capability of every company.

*Chong and Bai, 2014; Han et al., 2013; Zhao et al., 2008; Sanders, 2007 ...*



# Limitations of the field

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- The field is still on its infancy (seminal studies > Frohlich and Westbrook, 2001; Rosenzweig *et al.*, 2003).
- Various methodological issues exist, since most studies vary in scope and approach.
- There are no commonly accepted sub-dimensions of SCI, and construct measurement is confusing.

*Alfalla-Luque et al., 2013; Yu et al., 2013; Chen et al., 2013; Prajogo and Olhager, 2012 ...*



# Aim of the study

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- (a) Offer a critical review of the SCI literature regarding the measurement of the SCI construct.
- (b) Propose a scale of SCI measurement (*based on 'information sharing'*).
- (c) Examine the effect of SCI on customer satisfaction, supply chain performance and financial performance.



# Methodology

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- **'Scopus' database**
- **Minus: (a) conference papers, (b) papers published in open-access journals.**
- 2010-2014: 45 studies were identified (based on their proximity with the area).
- 2000 to 2009: 19 studies were identified (based on the number of their citations).



# SCI definition

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The present study defines SCI as a bundle of formalised strategic organisational practices that ensure the seamless transition of resources, information and materials across the various entities of the supply chain (both internally and externally), and assist in achieving mutual benefits through the enhancement of synergistic values.



# SCI measurement

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- SCI measurement has been conducted in various different ways.
  - Different authors use different dimensions in order to capture SCI, causing a general confusion in the field.
- >> Poor SCI measurement: **lack of research consensus between studies**, **difficulty in comparing results**, **weak theoretical and empirical development**.





# SCI measurement

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- The present study attempts to bridge the gap in the existing literature, proposing (and testing) a SCI measurement scale based on the two approaches that have been mostly used:
  1. **Firstly**, SCI is measured via three dimensions: internal, customer and supplier integration.
  2. **Secondly**, the items (questions) used to measure each of the three dimensions are based on the concept of information sharing.



# Conceptual framework

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- Independent factor:
- Supply Chain Integration (*measured from an 'information sharing' perspective*)
- Dependent factors:
  - (a) Customer satisfaction,
  - (b) Supply chain performance,
  - (c) Financial performance.

# Conceptual framework

Introduction

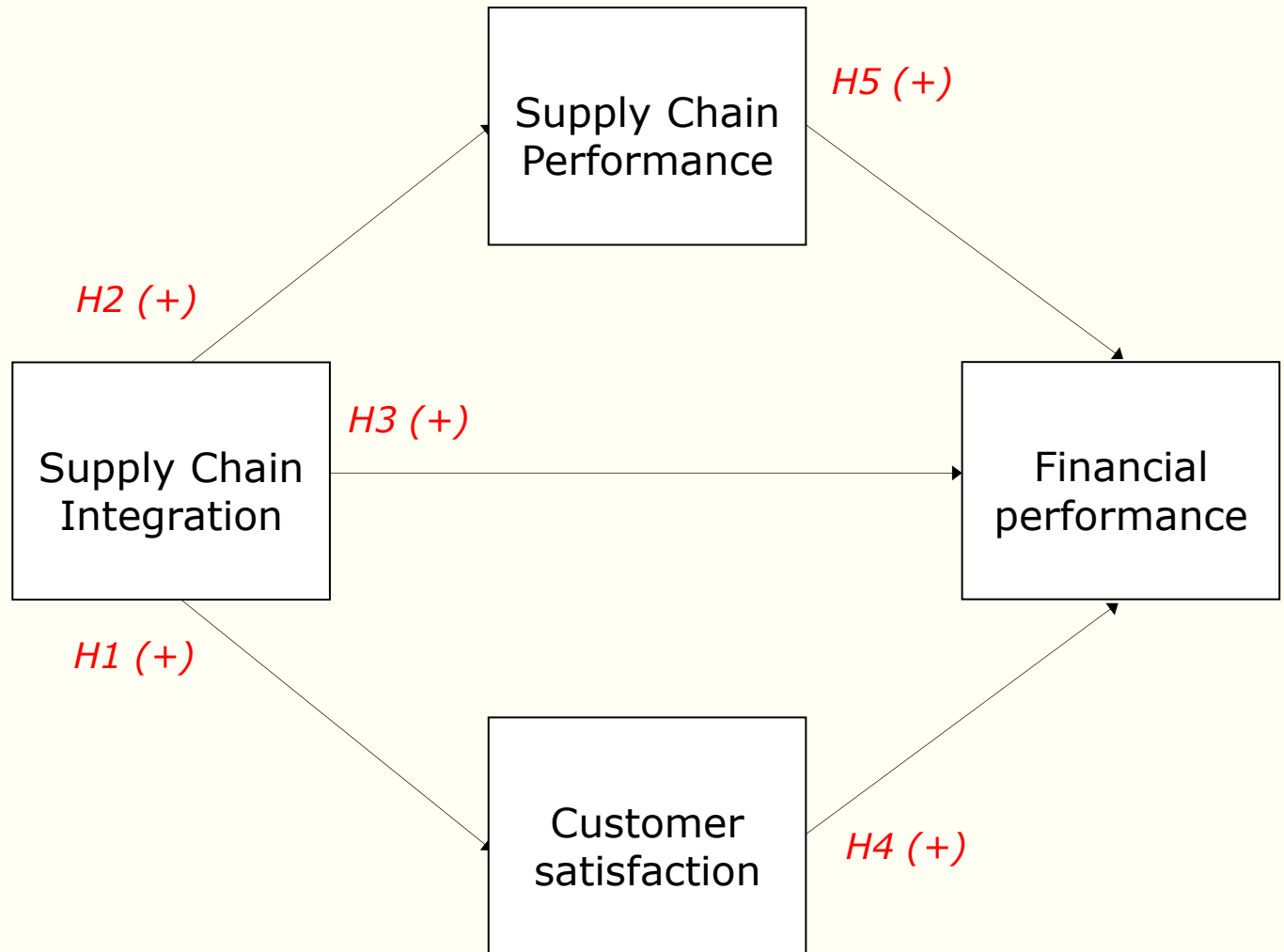
Literature review

Conceptual Framework

Research Methodology

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# The population of the study

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- **Manufacturing companies**, regardless of size, ownership, year of establishment and location.
- Based on ICAP (2013), there are 4.933 manufacturing companies currently being registered in Greece.



# Measurement

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- Newly-developed structured questionnaire.
- The measurement of the research factors was conducted with the use of multiple questions (items) that were adopted from the international literature.
- The five-point Likert scale was used.
- **SCI** > 12 items, 4 in each dimension.
- **SCP** > 8 items that correspond to eight different dimensions.



# Data collection

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- A total of 1.142 companies (*with full contact information*) were identified and included in the target population.
- After continuous phone-calls and electronic reminders, 367 companies agreed to participate in the survey.
- Only 253 (a response rate of 22%) successfully completed and returned the questionnaire.
- CEO's were selected as key respondents.
- The study was conducted in the first quarter of 2014.



# Reliability and validity

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## A. Content Validity

(a.1) Consultation with academics of the field

(a.2) Consultation with experienced practitioners

(a.3) Pilot testing

## B. Construct Validity

(b.1) Exploratory Factor Analysis

(b.2) Reliability Analysis (Cronbach Alpha)

(b.3) Confirmatory Factor Analysis



# Statistical approach

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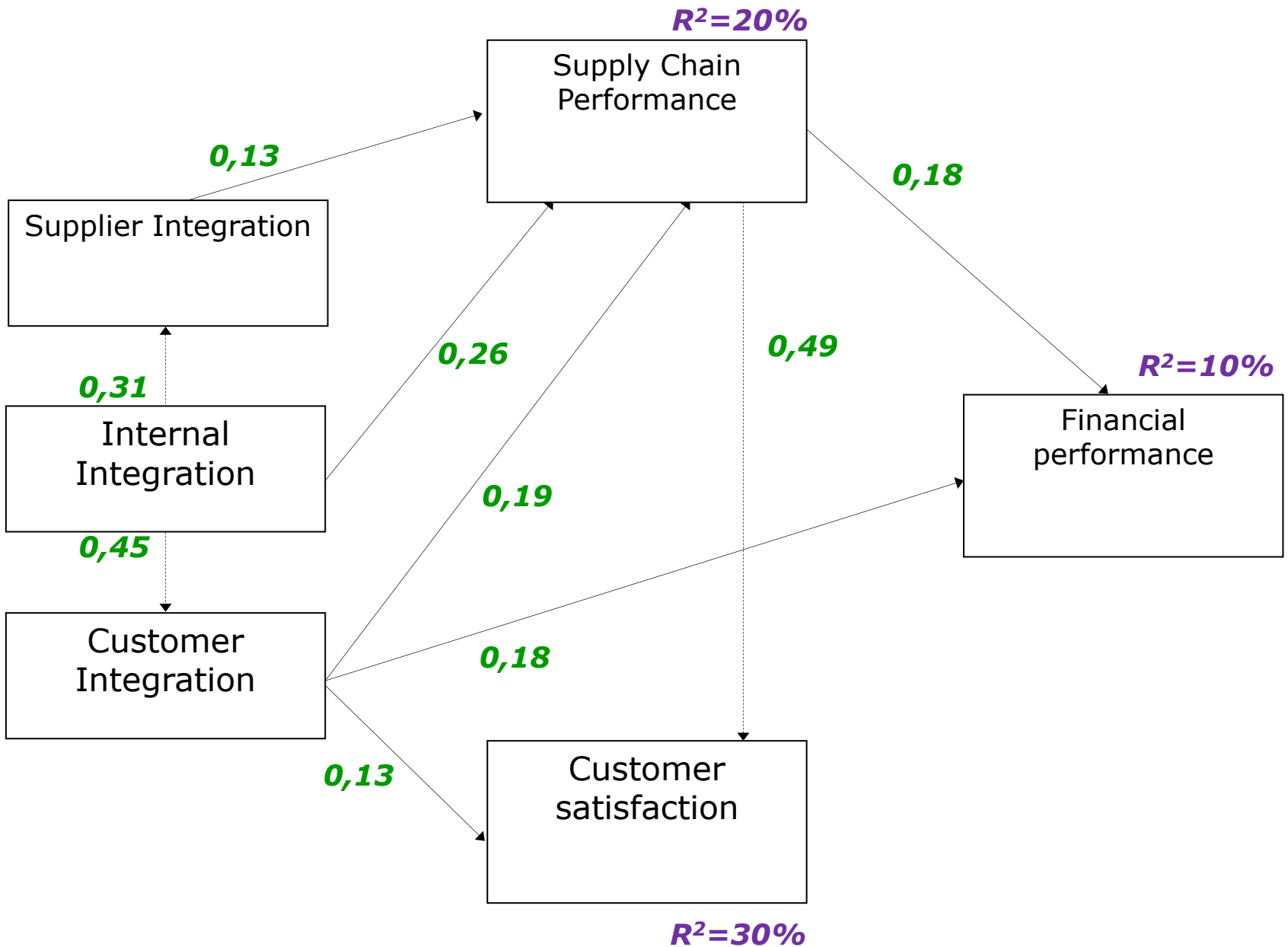
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- The examination of the proposed conceptual framework was conducted using the “Structural Equation Modeling” (SEM) technique.
- AMOS 20.0 was used for that analysis.
- Using the modification indices of AMOS, various new paths were added to the proposed model.







# Conclusions

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## On a theoretical level:

- Most studies develop their own measurement scales and avoid extending upon previous research.
- The unification of SCI measurement (operationalization) would provide a better basis for comparison between different empirical studies.



# Conclusions

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## On a conceptual level:

- The present study developed and tested a scale of SCI measurement, based on 'information sharing'.
- That scale was rigorously tested for its validity and reliability and empirical results confirmed its success in measuring the SCI construct.



# Conclusions

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## On an empirical level:

- The empirical data provided partial support for the relationship between SCI and financial performance.
- Customer integration was found to have a direct effect.
- The effect of internal integration was indirect, though supply chain performance and customer satisfaction.
- The effect of supplier integration was also indirect, but minimal.



# Conclusions

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## On an empirical level:

- Empirical data provided full support for the relationship between SCI and supply chain performance.
- Internal integration plays a central role in enhancing external integration initiatives.



# Conclusions

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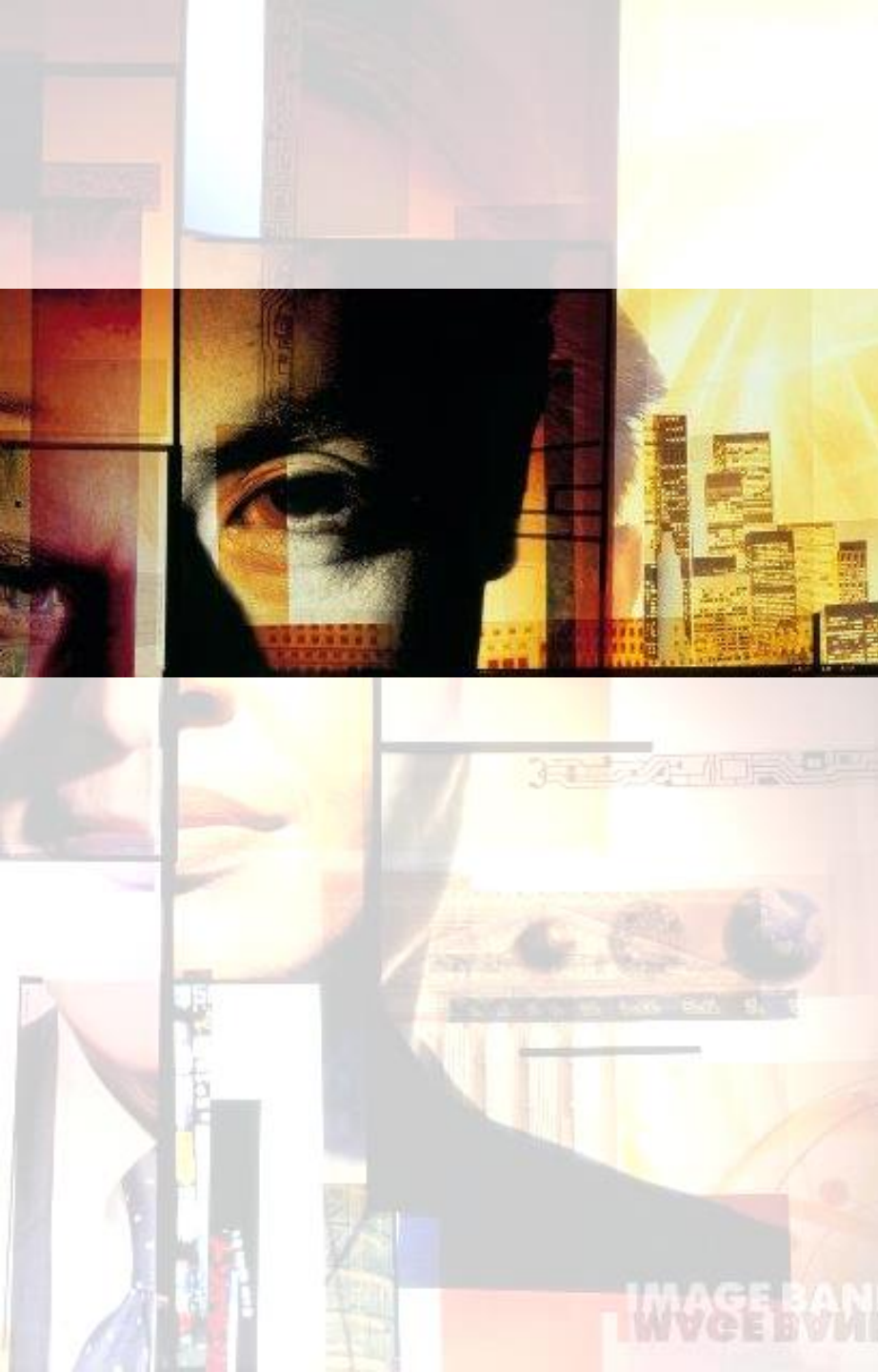
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## On an empirical level:

- Organizations should built systems that facilitate the flow of inter-organizational information, **utilize methods of information sharing** and offer inter-functional access to key employees.
- Building an internal organizational climate that allows smooth information exchange will have an impact on the degree of supplier and customer integration.



Thank you very  
much for your

attention and  
participation