Research Study Literature - Menggunakan Metode Meta Analysis

Zaenal Fanani
Departemen Akuntansi Fakultas Ekonomi dan Bisnis Universitas Airlangga
fanani_unair@yahoo.com

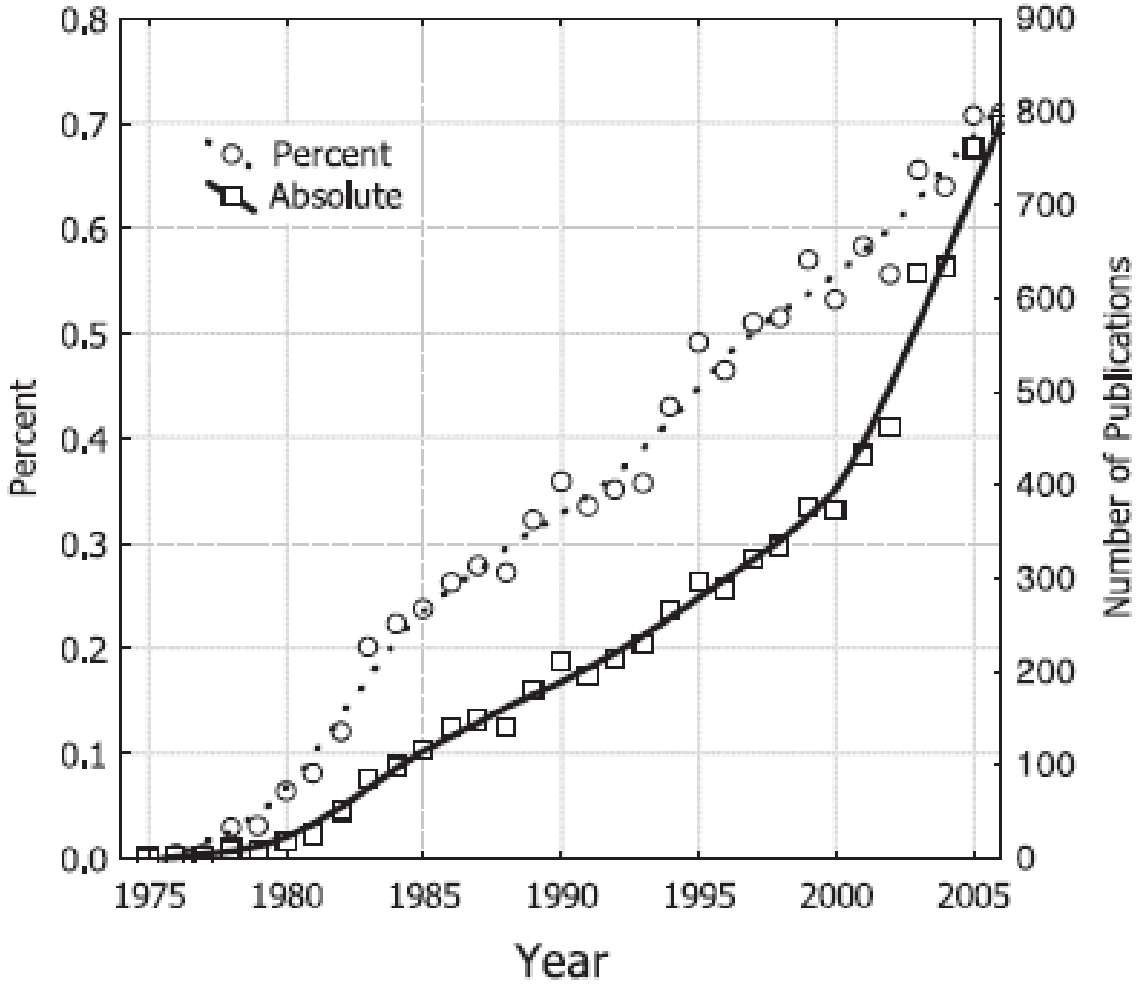
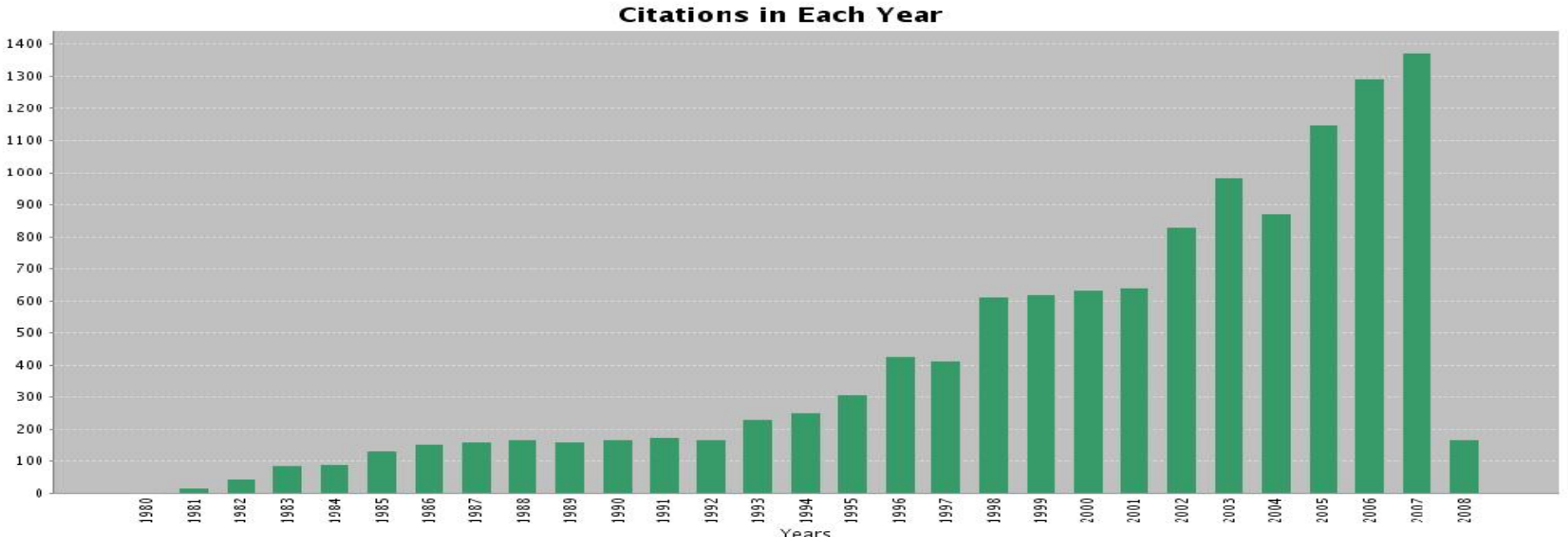
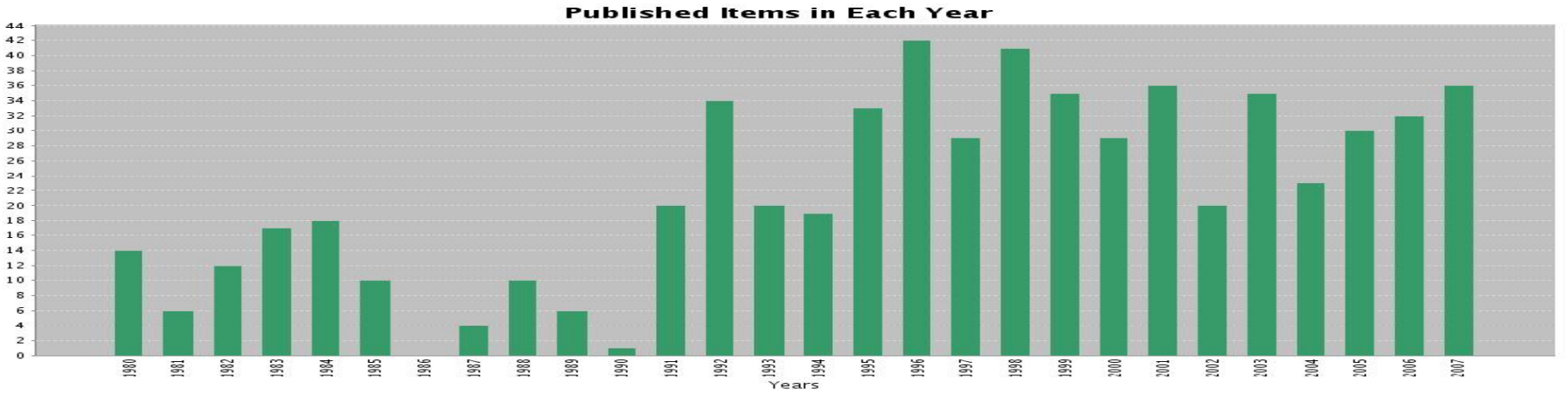


Figure 1. The absolute number and percentage of publications on meta-analysis in the database PsycINFO in the last 30 years.





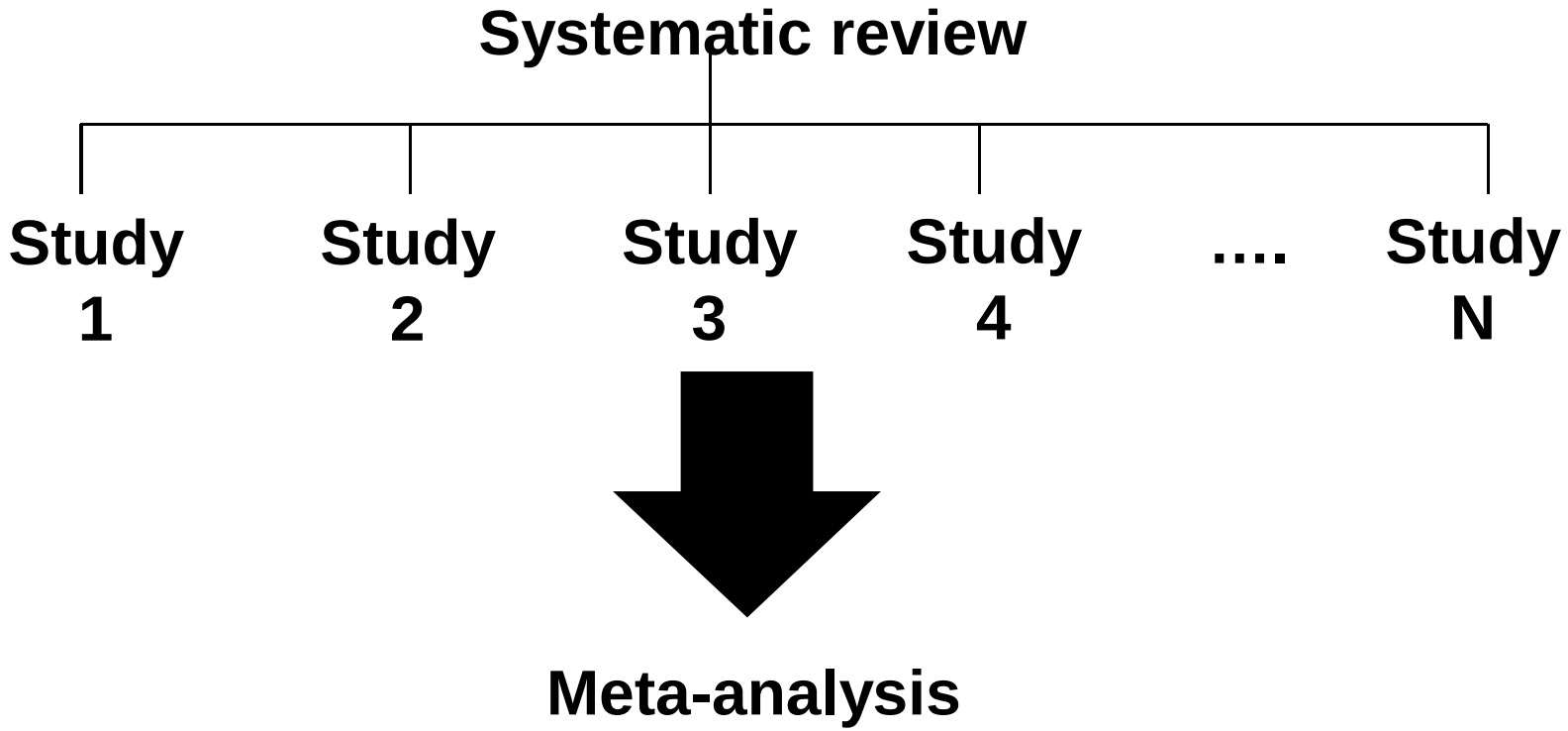
Source: Professor Herb Marsh, Oxford University, online search of ISI database, Feb. 2008.

What is a meta-analysis? (1)

Gene Glass 1976:

“Meta-analysis refers to the analysis of analyses”

Quantitative synthesis of data extracted from a systematic review



Methods of pooling study results

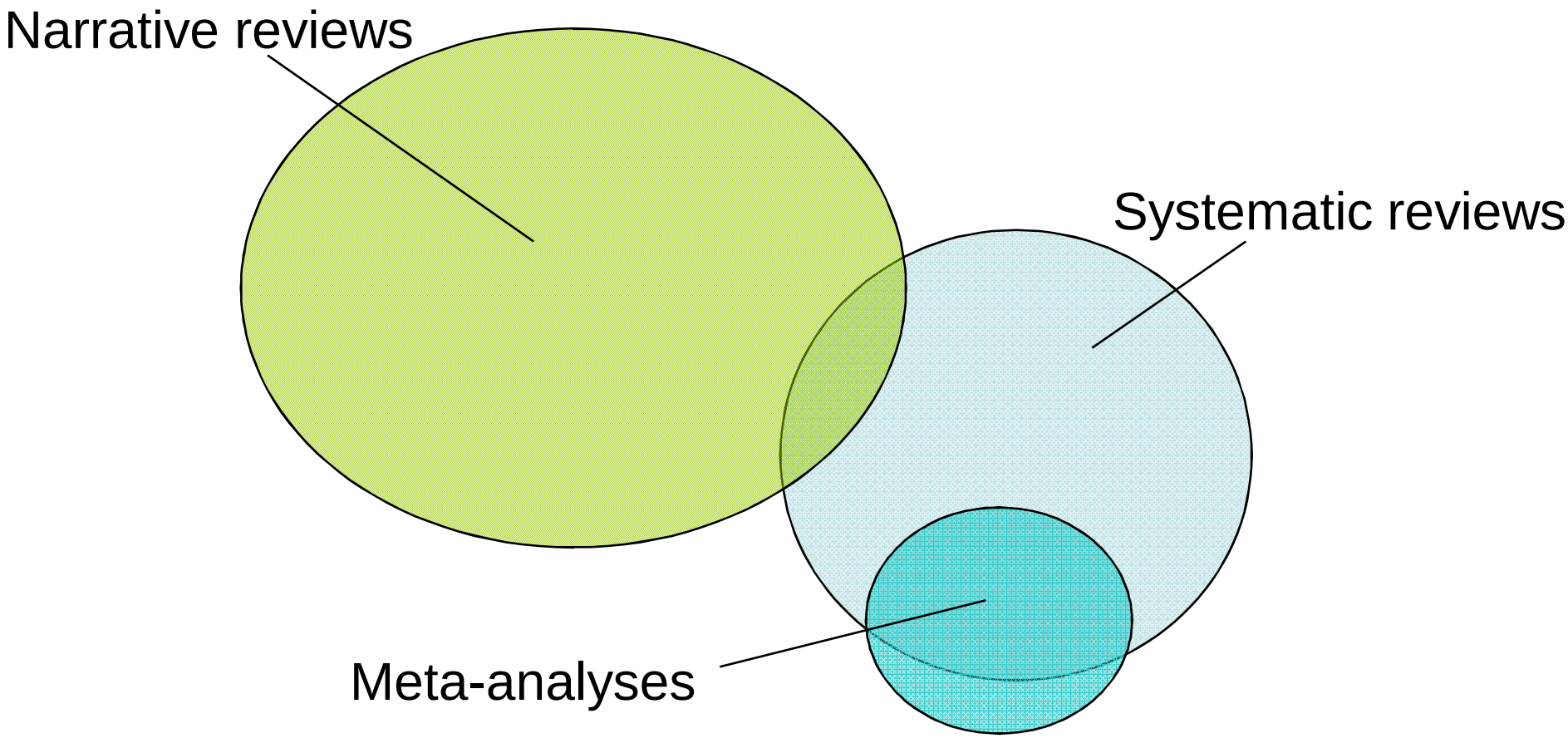
- Narrative procedure (conventional critical review method)
- Vote-counting method (significant results marked “+”, converse “–” and no significant results “neutral”)
- Combined tests (combining the probabilities obtain from two or more independent studies)

Systematic Reviews & Meta-analysis

- **Systematic review is the entire process of collecting, reviewing and presenting all available evidence**

- **Meta-analysis is the statistical technique involved in extracting and combining data to produce a summary result**

Literature reviews - conceptual relations



Aim of a meta-analysis

- To increase power
- To improve precision
- To answer questions not posed by the individual studies
- To settle controversies arising from apparently conflicting studies or
- To generate new hypothesis

Meta-Analysis Steps

- Obtain relevant studies
- Extraction of data from individual study
- Convert test statistics into effect sizes
- Compute mean effect size
- Correct effect sizes for sources of error
- Determine if effect size is significant
- Determine if effect can be generalized or if there are moderators

Data Analysis Technique

- This research use meta-analysis to test the hypotheses.
- Step to conduct meta analysis:

  1. Collect the amount of effect size (r) in every studies used as the sample.
  2. Compute the mean correlation using this formula: $\bar{r} = \frac{\sum(N_i r_i)}{\sum N_i}$
  3. Determine the 95 percent confidence interval :

$$\left[\bar{r} - S_p Z\,0.975\,, \bar{r} + S_p Z 0.975\right] \approx \left[\bar{r} - S_p(1.96), \bar{r} + S_p(1.96)\right]$$

  4. Test the heterogeneity to look for moderating variable :

$$X^2_{k-1} = \frac{N_{s_r^2}}{\left(1 - \hat{r}^2\right)^2} = K\frac{S_r^2}{S_e^2}$$

Criteria for Hypotheses Testing

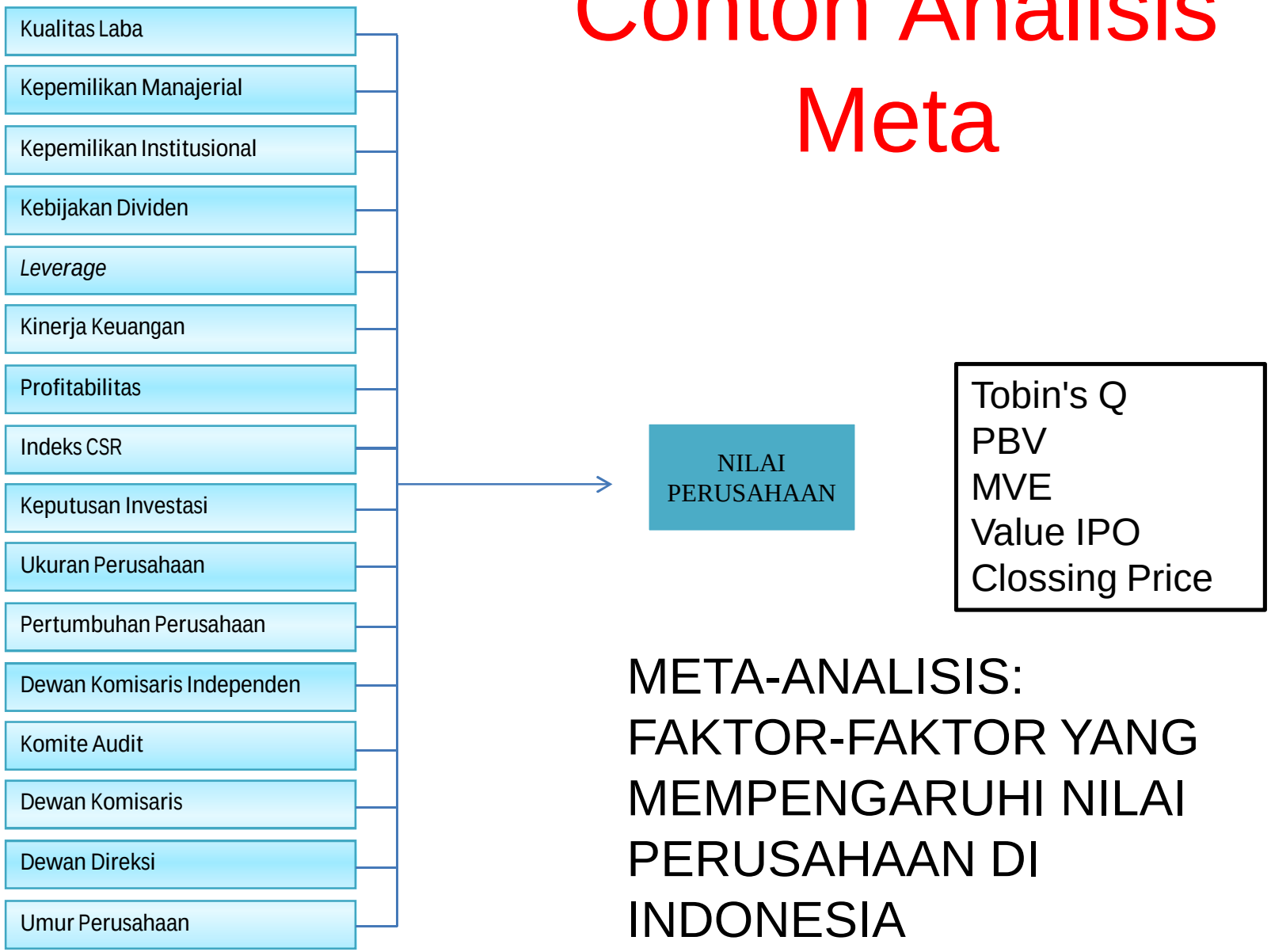
1. The magnitude between independent and dependent variable is measured using the amount of mean correlation.
2. Hypothesis is rejected when the confidential interval show insignificant result (the area of acceptance is only when the sign of min and max are the same, both positive or both negative).
3. The direction of relationship between independent variables and dependent variable is generated by the sign of mean correlation.
4. Heterogeneity is tested using chi-square. And further, sub group test is performed.

Note: Significance level (α) for this research is maximum 10% (0.01)

Contoh Analisis Meta

- Dedi, N. 2015. Faktor – Faktor Penentu Pengalokasian Belanja Modal: Studi Analisis Meta. Tesis. Universitas Airlangga.
- Eny, N. B. Subroto, Sutrisno, & G. Irianto. 2014. A Meta-Analysis: Corporate Characteristics, Information Asymmetry and Earnings Management: Empirical Evidence from Indonesia. International Journal of Business and Behavioral Sciences Vol. 4, No.9; September 2014.
- Fanani, Z. 2014. Karakteristik Perusahaan dan Corporate Governance terhadap Manajemen Laba: Studi Analisis Meta. Jurnal Keuanga dan perbankan, Vol 18, No.2 Mei 2014, hlm. 181-200.
- Handayani, C. 2015. Meta-analisis: Faktor-faktor Yang Mempengaruhi Nilai Perusahaan Di Indonesia. Skripsi. Universitas Airlangga
- Inas, M. and Z. Fanani, 2014. Meta-Analysis Approach: A Broader Evidence Study About The Determinants Of Earnings Management In Indonesia, SNA 17 Mataram
- Pranandari, F. Z. Fanani. K. Prasetyo, and A. W. Mardijuwono. 2013. Meta-Analysis: A Decade Study About The Determinants of Earnings Response Coefficient (ERC) In Indonesia. SNA16 Manado

Contoh Analisis Meta



META-ANALISIS: FAKTOR-FAKTOR YANG MEMPENGARUHI NILAI PERUSAHAAN DI INDONESIA

Peluang riset menggunakan analisis meta di Indonesia

- kinerja perusahaan
- kepercayaan investor
- pengungkapan perusahaan
- kepuasan kerja akuntan
- kualitas pelaporan keuangan
- Relevansi nilai

Comprehensive meta analysis - [Data]

File Edit Format View Insert Identify Tools Computational options Analyses Help

Run analyses

Start

EN 22:43 13/09/2015

Practical Meta-Analysis Effect Size Calculator

David B. Wilson, Ph.D.

Practical Meta-Analysis Effect Size Calculator

This is a web-based effect-size calculator. It is designed to facilitate the computation of effect-sizes for meta-analysis. Four effect-size types can be computed from various input data: the standardized mean difference, the correlation coefficient, the odds-ratio, and the risk-ratio.

This calculator is a companion to the 2001 book by Mark W. Lipsey and David B. Wilson, Practical Meta-analysis, published by Sage. An older Excel based version of the calculator can be found at http://mason.gmu.edu/~dwilsonb/ma.html. Additional tools for performing meta-analysis can also be found at that web address.

Contact CEBCP

Dr. David Weisburd
Executive Director and Distinguished Professor

Dr. Cynthia Lum
Director and Associate Professor

Mailing Address:
Center for Evidence-Based Crime Policy
George Mason University
4400 University Drive, MS 6D12
Fairfax, VA 22030

Physical Address (UPS & FedEx):
Center for Evidence-Based Crime Policy
George Mason University
310 Research Hall, 3rd Floor
Fairfax, VA 22030

Phone: 703.993.4901
Fax: 703.246.9301
Email: cebcp@gmu.edu

NOTE: Documents in PDF format require Adobe Acrobat Reader 5.0 or higher:
Download Adobe Acrobat Reader.

Weaknesses of Meta-Analysis

- Methodologically sophisticated and expensive
- Potential ignoring of contextual effects not easily quantified; eg. historical/environmental placement of research
- Potential improper mixing of studies
- Averages hiding important subgroupings
- Improperly weighting studies with different methodological strength/rigor