

An overview of bankruptcy prediction for corporate firms:

A systematic literature review

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PRESENTATION OUTLINE

- Objectives
- Literature review
- Methodology
- Main findings
- Conclusions
- Future research

PURPOSE OF THE STUDY

The aim of this paper is to undertake a Systematic Literature Review (SLR) of corporate bankruptcy prediction:

- It primarily provides a comprehensive overview of literature related to corporate bankruptcy prediction.
- It also investigates the link between different authors in this area (co-authorship).

SPECIFIC OBJECTIVES

- To observe the evolution of papers published during the years 1968-2017.
- To identify the most frequently cited papers.
- To identify the main journals in relation to the studied research field.
- To show the co-authorship among the main researchers in this area.

LITERATURE REVIEW

HOW TO DEFINE BUSINESS FAILURE?

➤ According to Balcaen (2006):

1. Juridical definition: namely bankruptcy
2. Financial distress definition: failure-related events such as insolvency and default.

➤ According to Altman and Hotchikiss (2006): four genetic terms to describe unsuccessful business firms:

1. Failure
2. Insolvency
3. Default
4. Bankruptcy

LITERATURE REVIEW

MODELS APPLIED BY DIFFERENT AUTHORS

➤ WELL-KNOWN STATISTICAL METHODS:

1. Multivariate discriminant analysis (*Altman, 1968*)
2. Logit and probit analysis (*Youssfe S.B., Rebai A., 2009*)

➤ WELL-KNOWN INTELLIGENT TECHNIQUES:

1. Neural network (*Skogsvik K, Skogsvik S, 2013*)
2. Rough set (*Wang Z. J, li H.X., Deng X.L., 2007*)
3. Case-based reasoning (*Trstenjak B, Donko D, 2015*)
4. Support vector machine (*Yu W., Xiao H., 2011*)

METHODOLOGY

- Applying Systematic Literature Review (SLR) based on data collected in SCOPUS database from 1968-2017.
- Keyword identification and article sampling
- Using Nodexl for co-authorship analysis

IDENTIFICATION OF KEYWORDS AND ARTICLE SAMPLING

The identification of keywords is carried out by using 36 combinations of 12 keywords (6 primary and 6 secondary)

Bankruptcy

OR

Default Firm

OR

Early-warning

OR

Failure Prediction

OR

Financial Distress

OR

Insolvency

AND

Model

OR

Prediction

OR

Forecast

OR

Indicator

OR

Ratio

OR

Score

IDENTIFICATION OF KEYWORDS AND ARTICLE SAMPLING

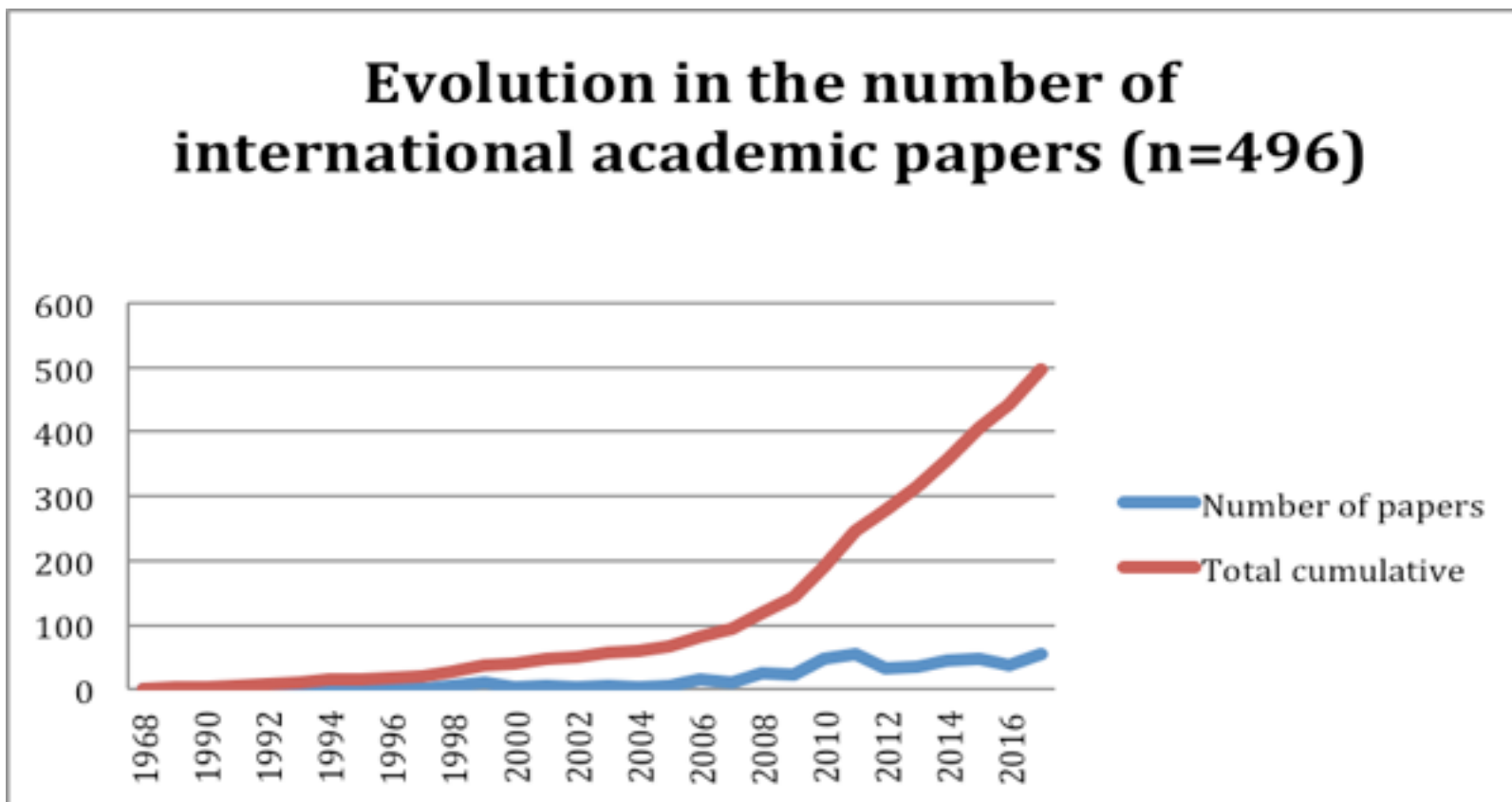
Concept	Eliminated	Number of considered paper for the SLR
Total initial search results	-	1,259
Removal of duplicates	515	744
Removal of “non-applicable” papers by each combination (title)	(68)	676
Removal of “non-applicable” papers by each combination (abstract)	(179)	495

MAIN FINDINGS

- Evolution of published papers
- Most productive journals
- Most cited papers
- Co-authorship

DESCRIPTIVE RESULTS

- EVOLUTION OF PUBLISHED PAPERS



MAIN FINDINGS

- Evolution of published papers
- **Most cited papers**
- Most productive journals
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DESCRIPTIVE RESULTS

MOST FREQUENTLY-CITED PAPERS IN SCOPUS

(up to 31 Dec 2017)

	Authors	Title	Year of publication	Total citations
1	Altman E.I.	Financial ratios, discriminant analysis and the prediction of corporate bankruptcy	1968	3,461
2	Tam K.Y., Kiang M.Y.	Managerial applications of neural networks: The case of bank failure predictions	1992	595
3	Pan W.-T.	A new Fruit Fly Optimization Algorithm: Taking the financial distress model as an example	2012	364
4	Altman E.I., Marco G., Varetto F.	Corporate distress diagnosis: Comparisons using linear discriminant analysis and neural networks (the Italian experience)	1994	360
5	Hillegeist S.A., Keating E.K., Cram D.P., Lundstedt K.G.	Assessing the probability of bankruptcy	2004	348
6	Wilson R.L., Sharda R.	Bankruptcy prediction using neural networks	1994	332
7	Fletcher D., Goss E.	Forecasting with neural networks. An application using bankruptcy data	1993	217
8	Balcaen S., Ooghe H.	35 years of studies on business failure: An overview of the classic statistical methodologies and their related problems	2006	196
9	Beynon M.J., Peel M.J.	Variable precision rough set theory and data discretization: An application to corporate failure prediction	2001	189
10	Lee K.C., Han I., Kwon Y.	Hybrid neural network models for bankruptcy predictions	1996	141

MAIN FINDINGS

- Evolution of published papers
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- **Most productive journals**
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DESCRIPTIVE RESULTS

MOST PRODUCTIVE AND CITED JOURNALS
(up to 31 Dec 2017)

Ranking	Journal name	Number of articles in this study	Number of citations	Impact factor 2016
1	The Journal of Finance	1	3,461	5.290
2	Knowledge-Based System	21	1,030	4.529
3	Decision Support Systems	12	913	3.222
4	Journal of Banking and Finance	9	780	1.776
5	Management Science	2	628	2.822
6	Omega	7	454	4.029
7	Review of Accounting Studies	5	481	1.756
8	Information and Management	2	240	3.317
9	British Accounting Review	3	234	2.135
10	Journal of International Money and Finance	2	133	1.853
Total number of articles published by top 10		64		

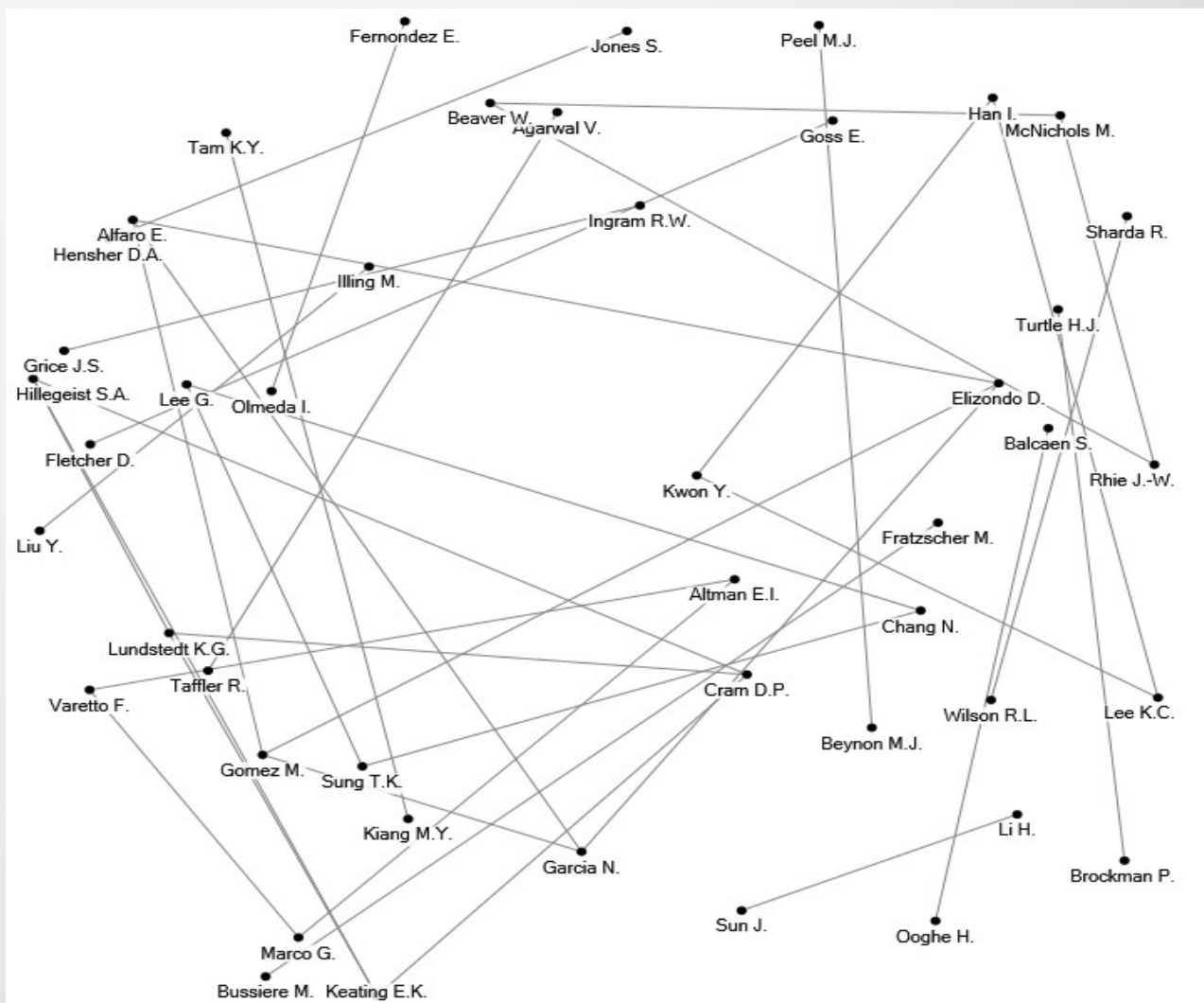
MAIN FINDINGS

- Evolution of published papers
- Most cited papers
- Most productive journals
- **Co-authorship**

DESCRIPTIVE RESULTS

RELATIONSHIP AMONG AUTHORS
(CO-AUTHORSHIP)

GRAPH DENSITY 3.6%



CONCLUSIONS

- TOPIC OF GROWING INTEREST, PAPER AMOUNT GROWING ESPECIALLY AFTER 2008.
- MOST CITED ARTICLES: **Altman E.I. (1968)** with 3,461 citations, and **Tam K.Y., Kiang M.Y. (1992)** with 595 citations.
- MOST PRODUCTIVE JOURNALS: *The Journal of Finance* with 1 paper and 3,461 citations in total, and *Knowledge-based System* with 21 papers and 1,030 citations in total.
- NO STRONG COLLABORATION RELATIONSHIP AMONG MAIN AUTHORS

FUTURE LINE OF RESEARCH

- Compare different models applied in the past bankruptcy prediction studies and draw conclusions correspondingly.
- Apply some bankruptcy prediction models to sectorial studies with empirical data in order to verify the viability of modelling.

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