

Bringing the „STW Thesaurus for Economics“ on to the Web of Linked Data

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Linked Data on the Web
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ZBW and STW Thesaurus for Economics



- German National Library of Economics (ZBW) / Leibniz Information Centre for Economics is the world's largest economics library
- STW Thesaurus for Economics was developed in the nineties by four economics institutions as "Standard-Thesaurus Wirtschaft", funded by German government, for the purpose of unifying the use of subject headings in economics
- now maintained by ZBW as a controlled vocabulary of about 5,800 terms in German and English

Project goals



- Bring the STW on to the Web
- Support users in subject oriented searches
- Allow easy third party reuse of the data

Assumptions:

- To publish the STW in a standard format
not easy - no standard or widely agreed upon
serialization format for thesauri exists; upcoming
ISO 25964 is still a work in progress.
SKOS was already in place and looked promising
- To publish it under an open license
we chose Creative Commons (by-nc-sa)

Conversion to SKOS



- SKOS proved to be extensible enough to cover even the non-standard features of the STW
- e.g. subclassing of `skos:Concept` for descriptors and subject categories allowed a unified `skos:narrower/skos:broader` hierarchy of concepts and the separation for output and for custom integrity checks
- all further work accomplished on a SKOS representation of the thesaurus

- Home
- Alphabetical descriptor list

- ▶ A General descriptors
- ▶ B Business economics
- ▶ G Geographic names
- ▶ N Related subject areas
- ▶ P Commodities
- ▼ V Economics
 - V.00 Economics
 - ▶ V.01 Economic Theory
 - ▶ V.02 Microeconomics
 - ▶ V.03 Macroeconomics
 - ▶ V.04 Business Cycle, Growth, and Economic Structure
 - ▼ V.05 Money and Financial Markets
 - V.05.01 Monetary Theory
 - V.05.02 Monetary Policy
 - V.05.03 Inflation
 - V.05.04 Interest Rate
 - V.05.05 Credit
 - ▼ V.05.06 Financial Markets
 - V.05.06.01 Money Market
 - ▶ V.05.06.02 Securities Markets
 - V.05.06.03 Forward Market

V.05.06 Financial Markets

V.05.06 Finanzmärkte (german)

broader

- V.05 Money and Financial Markets

narrower

- V.05.06.01 Money Market
- V.05.06.02 Securities Markets
- V.05.06.03 Forward Market
- V.05.06.04 Foreign Exchange Market

Descriptors

- Arbitrage 
- Arbitrage pricing 
- Beta Estimate 
- Bid-ask spread 
- Bubbles 
- Capital asset pricing model 
- Commodity exchange 
- Credit market 
- Effective rate 
- Efficient-market hypothesis 
- Euromarket 
- Exchange 
- Exchange listing 
- Financial crisis 
- Financial derivative 

Financial crisis

Finanzmarktkrise (german)

used for: Financial instability

Narrower Terms

- Banking crisis 
- Currency crisis 
- Stock market crash 

Broader Terms

- Economic crisis 

Related Terms

- International financial market 

Subject Categories

- V.05.06 Financial Markets
- V.07.07 International Financial Markets



search [and] ? sort by approximate search

search

search history **shortlist** title data

- FAQ
- order form
- Document delivery
- Save
- Analyse Set
- Logout

- ECONDesk
- ECONIS Select
- New publications
- Journal articles in ECONIS
- Home ZBW
- Masthead

■ **results** search [and] **(subject/regional headings [SHD]) Financial crisis**

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1. [Entwicklungen der Weltwirtschaft im Kontext der Finanzmarktkrise](#)
/ Michael Landesmann. - Wien : WIIW, 2009
2. [Eine wirtschaftsethische Kommentierung der Finanzkrise](#)
/ Lin-hi Nick. - In: Forum Wirtschaftsethik, Bd. 17 (2009), 1, S.20-27
3. [Kann der internationale Tourismusmarkt wachsen trotz globaler Kreditmarktkrise?](#)
/ Galyna Trillenbergl. - In: Berichte, Bd. 19 (2009), 182/183, S.95-108
4. [Finanzmarktkrise : Stabilität der Euro-Zone in Gefahr?](#)
/ Dirk Meyer. - In: Orientierungen zur Wirtschafts- und Gesellschaftspolitik, Bd. 119 (2009), 1, S.49-53
5. [Auswirkungen der Finanz\(markt\)krise auf die Unternehmensbewertung](#)
/ Christian Zwimer. - In: IRZ, Bd. 4 (2009), 4, S.139-141
6. [Tarifpolitischer Jahresbericht 2008 : Tarifpolitik in der Finanzmarktkrise](#)
/ Reinhard Bispinck. - In: WSI-Mitteilungen, Bd. 62 (2009), 4, S.210-217
7. [Krise der Finanzmärkte, Krise der Risikoindividualisierung](#)
/ Beat Weber. - In: Prokla, Bd. 39 (2009), 1, S.141-159
8. [Weltweite Finanz- und Konjunkturkrise treibt die deutsche Wirtschaft in eine tiefe Rezession](#)
/ Institut für Wirtschaftsforschung <Halle, Saale> / Arbeitskreis Konjunktur. - In: Wirtschaft im Wandel, Bd. 15 (2009), 1, S.12-43
9. [Profitability of technical analysis in the Singapore stock market : before and after the Asian financial crisis](#)
/ James J. Kung. - In: Journal of economic integration, Bd. 24 (2009), 1, S.135-150
10. [Optimal reserve management and sovereign debt](#)
/ Laura Alfaro. - In: Journal of international economics, Bd. 77 (2009), 1, S.23-36

Word	Type	Count
financial crisis	subject/regional headings [SHD]	5096

go to

1 - 10 of 5096



STW web services



Experimental services at <http://zbw.eu/beta/stw-ws>
targeted at retrieval support
(does not aim to cover the complete SKOS model)

/synonyms

takes any string, returns synonym terms, eg.

<http://zbw.eu/beta/stw-ws/synonyms?query=free+trade+zone>

STW Web Service Query Results

synonym
"Free trade zone" @en
"Foreign trade zone" @en
"Export processing zone" @en
"Foreign-trade zone" @en

STW web services: /suggest



/suggest
powers STW website

The screenshot shows the ZBW German National Library of Economics website. The logo is on the left, and the text 'Deutsch' is in the top right corner. A search bar contains the word 'asset', and a dropdown menu lists several suggestions. On the left side of the page, there are navigation links for 'Descriptor list', 'Download', and 'Other versions', as well as a list of subject areas: 'A General descriptors', 'B Business economics', 'G Geographic names', 'N Related subject areas', 'P Commodities', and 'V Economics'.

ZBW
German National Library
of Economics

Deutsch

asset

- Asset-backed security
- Asset
- Asset market → Financial market
- Asset market approach → Monetary model of exchange rates
- Asset pricing → Capital asset pricing model
- Asset-backed securities → Asset-backed security
- Asset-backed security
- Asset-liability management
- Asset-liability-management → Asset-liability management
- Assets
 - P Commodities
 - V Economics
 - W Economic sectors

■ Descriptor list
■ Download
■ Other versions

▶ A General descriptors
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▶ V Economics

STW web services: /suggest SPARQL query



<http://zbw.eu/beta/stw-ws/suggest?query=asset>

```
SELECT DISTINCT ?term ?concept ?prefLabel
WHERE {
  {
    ?concept rdf:type zbwext:Descriptor .
    ?concept skos:prefLabel ?term .
    ?concept skos:prefLabel ?prefLabel .
    FILTER (regex(str(?term), \'^$query$', \'i\')) .
    FILTER (langMatches(lang(?prefLabel), \'$lang\')) .
  } UNION {
    ?concept rdf:type zbwext:Descriptor .
    ?concept skos:altLabel ?term .
    ?concept skos:prefLabel ?prefLabel .
    FILTER (regex(str(?term), \'^$query$', \'i\')) .
    FILTER (langMatches(lang(?prefLabel), \'$lang\')) .
  }
}
ORDER BY ?term
LIMIT 10
```

Further directions



- To provide interfaces and widgets to select and aggregate descriptors
 - for retrieval (eg. to provide canned expressions like „*financial crisis*“ OR „*banking crisis*“ OR „*stock market crash*“)
 - to include narrower terms for searches in fields with controlled values
 - to add synonyms for full text searches
 - for indexing (eg. to support authors in tagging their uploaded papers on document servers)
- To create or make use of existing mappings to other vocabularies in economics, e.g. the classification of the „Journal of Economic Literature“ (JEL), and put them on to the web
- To enrich other library applications with semantic markup

Conclusions



- SKOSifying and publishing an existing vocabulary as RDF(a) opens it up to the web and can make it useful far beyond the scope of a single organisation
- for the field of economics and its resources, the STW provides an interlinking hub and an initial entry point into the web of the linked data
- for ZBW and other libraries, it opens up a broad range of more extensive applications, possibly in cooperation with interested people from the linked data community
- well defined technologies and practices made it possible



Thank you!

Questions?

Links:

<http://zbw.eu/stw>

<http://zbw.eu/beta/stw-ws>

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