The use of valuations and transactions in measuring commercial property market cycles

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On the pulse of
the property world

IPD

Agenda

- IPD Global and European Overview

- IPD Data
    - Collection, Compilation and Reporting

- IPD Price tracking Methods
    - Valuation Based Indices ..and data
    - Transaction Based Indices

    - Transaction Linked Indices
        ..a hybrid approach

- Results to date
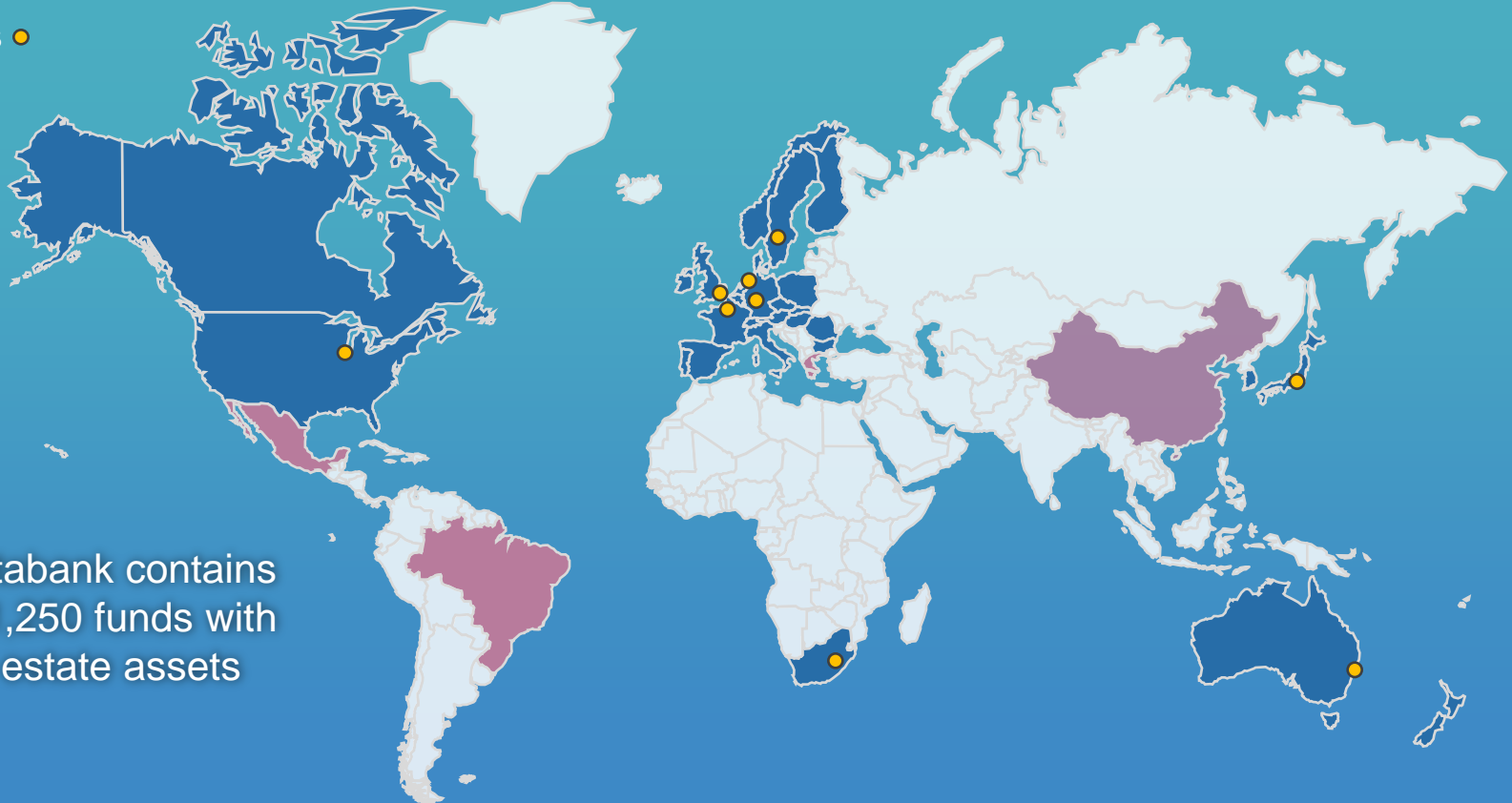
IPD Databank: Global Coverage

Countries Value (€bn)

Australia	103.8	Czech Re.	2.9	Germany	50.0	Japan	90.7	Poland	5.4	Sweden	29.3
Austria	6.7	Denmark	14.7	Hungary	2.2	Korea	9.4	Portugal	9.9	Switzerland	58.6
Belgium	8.2	Finland	21.3	Ireland	2.3	Netherlands	38.9	South Africa	19.5	UK	177.4
Canada	72.0	France	109.5	Italy	28.3	Norway	16.2	Spain	17.8	USA	104.1

IPD Offices

The IPD databank contains more than 1,250 funds with 60,000 real estate assets worldwide

IPD Databank: European Details

	No of properties	Cap. value € bn	Market size € bn	IPD coverage (%)
Austria	595	6.7	22.8	29.2
Belgium	376	8.2	47.6	17.3
Czech Republic	120	2.9	11.2	25.9
Denmark	1,033	14.7	34.4	42.6
France	6,932	109.5	236.3	46.3
Germany	4,364	50.0	270.3	18.5
Hungary	107	2.2	9.1	23.7
Ireland	328	2.3	2.5	90.1
Italy	1,998	28.3	79.5	35.6
Netherlands	4,620	38.9	117.2	33.2
Norway	569	16.2	40.2	40.2
Poland	232	5.4	16.2	33.5
Portugal	998	9.9	15.1	65.5
Spain	523	17.8	41.0	43.4
Sweden	1,401	29.3	107.3	27.3
Switzerland	4,172	58.3	140.2	41.8
UK	20,456	177.4	284.1	62.5
Pan Europe	51,096	599.3	1518.1	39.5

IPD Data Processes & Information Standards

Confidentiality and Convenience

Independence and Accuracy

Flexibility and Customisation

Asset Level Portfolio Data Collection	Validation and Aggregation	National and Cross Border Indices

Strict confidentially maintained	Audit, verification, client sign off and aggregation	Valuation and Transaction based analysis
Our data is collected from various sources from the valuations, property management, fund management and/or accounting software	Analysis in market standardised measures by over 200 analysts	Asset level granularity permits alternative computation models …from a single standardised dataset

Valuation Approach Definitions

Direct comparison / Comparable market evidence approach

Approach is based on valuation of an asset using transactions references. The capital value of an asset is set from the sale of equivalent assets with comparable design, position, leases, etc.

Income approach - Discounted Cash Flow (DCF)

Uses future cash flow projections and discounts them (most often using the weighted average cost of capital) to arrive at a present value, which is used to evaluate property value. Assumptions for future income, costs, discount rates and yields are used.

Income approach – Capitalisation

Applies a yield rate (or capitalisation rate) to an actual income or a theoretical one (such as the market rental value or net operating income).

Income approach - German (EWV)

In this approach the gross income (Rohertrag) is the most important value driver as it produces future cash flows. The EWV (Ertragswertverfahren) is a static model, with sustainable income is treated as stable in the future. The appraiser will form their opinion on the basis of the existing leases, while also considering the market rent.

European Valuation Approaches

Country	Guidelines	Method	Preferred Comparables
Austria	Ertragswertverfahren	EWV	Firm older evidence
Belgium	RICS Red Book / IVSC	DCF or Income Capitalisation	Current wider evidence
Denmark	Finanstilsynet Guidelines	DCF or Income Capitalisation	Mixture
France	Charte de L'Expertise en Evaluation Immobiliere	DCF or Income Capitalisation	Current wider evidence
Germany	Ertragswertverfahren	EWV	Firm older evidence
Ireland	RICS Red Book	DCF	Current wider evidence
Italy	RICS Red Book / IVSC	DCF	Current wider evidence
Netherlands	RICS Red Book / IVSC	DCF	Mixture
Norway	RICS Red Book / IVSC	DCF	Mixture
Poland	RICS Red Book	DCF	Mixture
Portugal	RICS Red Book / IVSC	DCF or Income Capitalisation	Mixture
Spain	RICS Red Book	DCF	Mixture
Sweden	RICS Red Book / IVSC	DCF	Mixture
Switzerland	RICS / SVS	DCF	Firm older evidence
UK	RICS Red Book	DCF	Current evidence / sentiment

Comparable market evidence given varying weight in relation to income

Valuation based measures

• Chain linked estimates of market value, based upon a blend of local transactions evidence and investment appraisal of future income

• Problems with valuation based measures:
- • Market smoothing and lagging
    ..due to reliance on frequently thin, only partially relevant and dated evidence streams
- • Lack of synchronisation
    ..due to varying reporting regimes across markets and fund types (monthly, quarterly, biannual, annual)
- • Anonymity of overall process
    ..due to multiplicity of loosely constrained human procedures which aggregate to market level results
- • Potential confusion of purposes
    ..due to multi-functional role of periodic asset valuations (year end reporting, performance monitoring, strategy formation)
- • Assimilation of differing market "cultures"
    ..stable income delivery versus exploiting global capital flows

Transaction based measures

- Model market movements
    - either by tracking repeat sales over varying periods
    - or by relating spot sale prices to asset attributes – hedonic

- Problems with transaction based measures:

    - Markets are thin and assets heterogeneous
        ..so simple averages of prices and rigid model frameworks (e.g. repeat sales) fail to cope
    - Assets are poorly documented
        ..so data hungry frameworks (eg hedonics) starved of independent variables
    - Markets demonstrate time variation in liquidity
        ..so continuity and consistency cannot be guaranteed particularly when reliable and timely reporting most needed!
    - No disaggregation below national/sector levels
        ..so all important portfolio level analysis becomes impossible

Hybrid valuation + transaction measures

A hybrid approach to modelling market movements..

..by relating sale prices to unmeasured asset attributes – quasi-hedonic

• Conventional hedonic modelling: real estate prices are seen as a function of many asset characteristics

• Valuations capture many of the differences between assets within a single measure
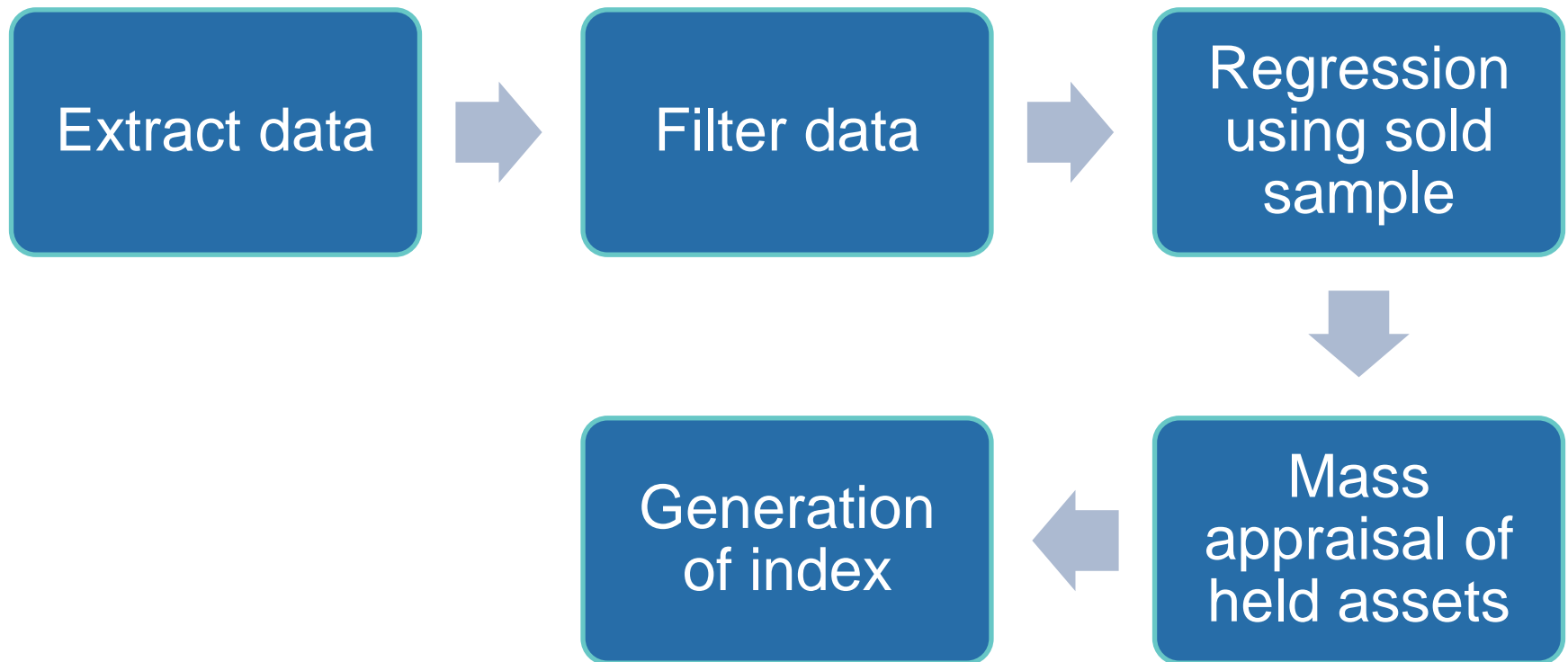
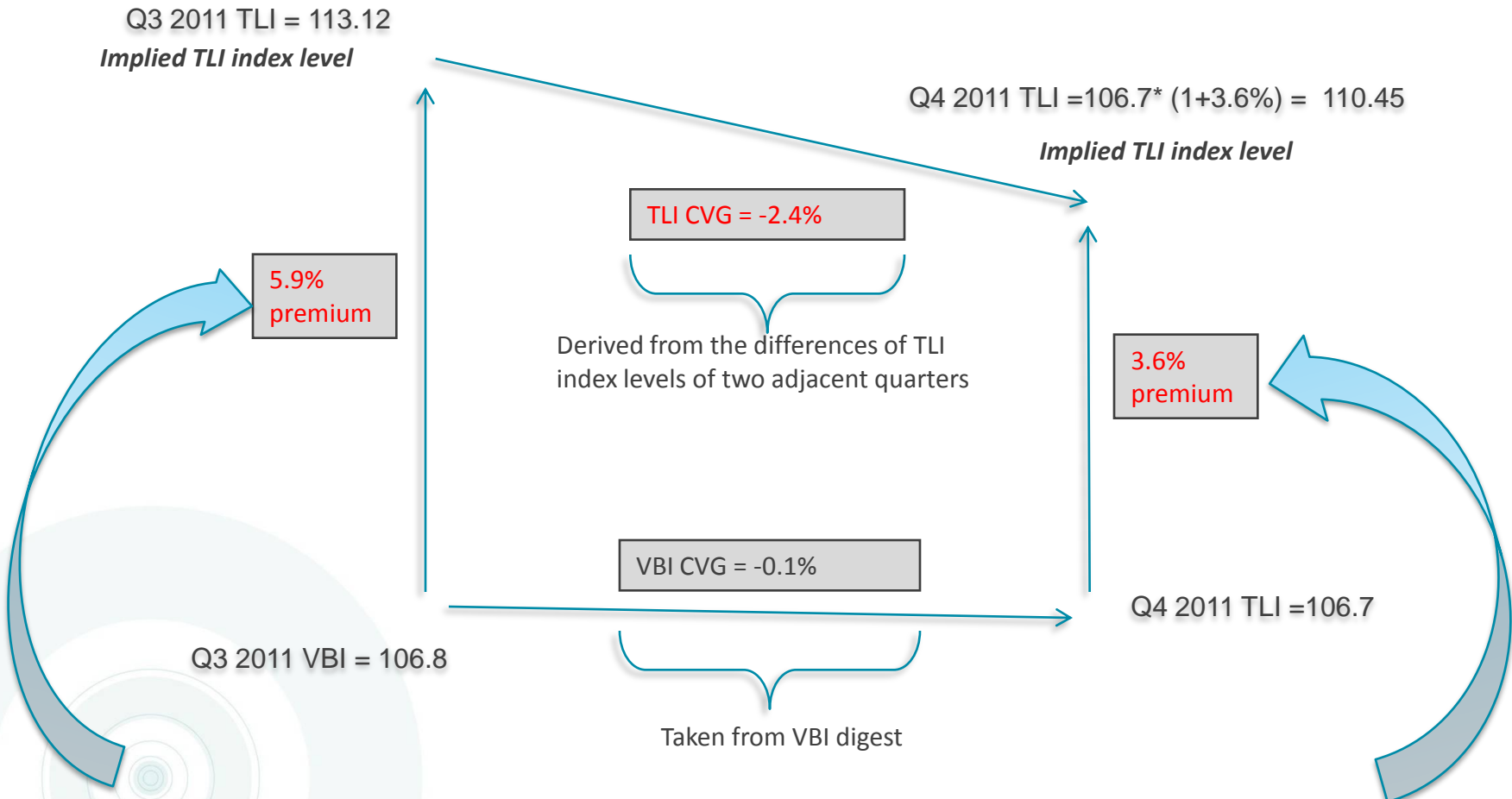• So instead of modeling:

$$Price = α + β\ age + β\ floorspace... + ε$$

• We can estimate:

$$Price = α + β\ valuation + ε$$

..and can then use coefficients to mass appraise consistent samples of non-traded assets and so generate hybrid market price series

Overview of TLI process

```
Extract data  →  Filter data  →  Regression
                                  using sold
                                  sample
                                     ↓
Generation    ←  Mass
of index         appraisal of
                 held assets
```

Constructing transaction linked indices (TLI) from sales premiums and levels of valuation based indices (VBI)

Q3 2011 TLI = 113.12
Implied TLI index level

Q4 2011 TLI =106.7* (1+3.6%) = 110.45
Implied TLI index level

TLI CVG = -2.4%

Derived from the differences of TLI index levels of two adjacent quarters

5.9% premium

3.6% premium

VBI CVG = -0.1%

Q4 2011 TLI =106.7

Q3 2011 VBI = 106.8

Taken from VBI digest

•An econometric model estimates the premium of the sale price over valuation for the sold properties in that quarter

• Assume the premium would be the same for the unsold properties had they been sold in that quarter

Review of development work to date

- **Valuation Based Indices**

  - 10 year quarterly price + return series now available across 10 main markets to end 2011 (with Southern Europe treated as composite)

  - All but UK and Ireland (plus Netherlands post 2008) using some degree of interpolation

  - Major composites – all Europe, Euro-zone, Nordic, Southern Europe

  - Longer histories available for: France (1997), Germany(1995), Ireland (1994), Netherlands (1994), Sweden (1996), UK (1981)

- **The Hybrid approach: Transaction Linked Indices**

  - Development work based on linking achieved market prices with preceding valuations via OLS regression

  - All major single markets and composites now updated to end 2011

# IPD Price tracking possibilities: European Details

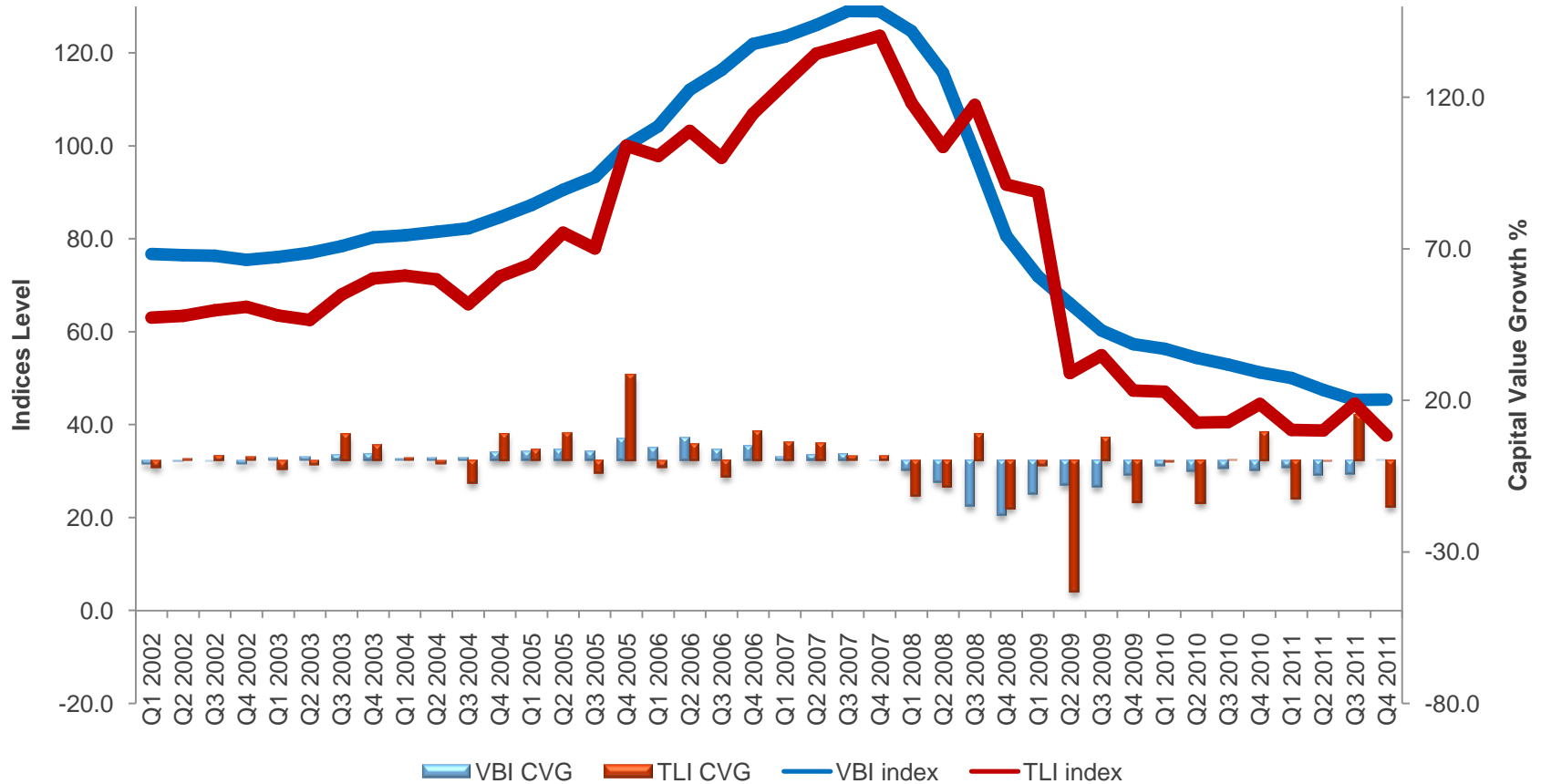|	VBI Annual	VBI Qtly	TLI Qtly
Austria	Yes	Interpolated	No
Belgium	Yes	Interpolated	No
Czech Republic	Yes	Interpolated	No
Denmark	Yes	Interpolated	Yes
France	Yes	Interpolated	Yes
Germany	Yes	Interpolated	Yes
Hungary	Yes	Interpolated	No
Ireland	Yes	Fully refreshed	Yes
Italy	Yes	Interpolated	S. Europe only
Netherlands	Yes	Fully refreshed	Yes
Norway	Yes	Interpolated	Yes
Poland	Yes	Interpolated	No
Portugal	Yes	Interpolated	S. Europe only
Spain	Yes	Interpolated	S. Europe only
Sweden	Yes	Interpolated	Yes
Switzerland	Yes	Interpolated	Yes
UK	Yes	Fully refreshed	Yes
Pan Europe	Yes	Mixture	Yes

The Netherlands

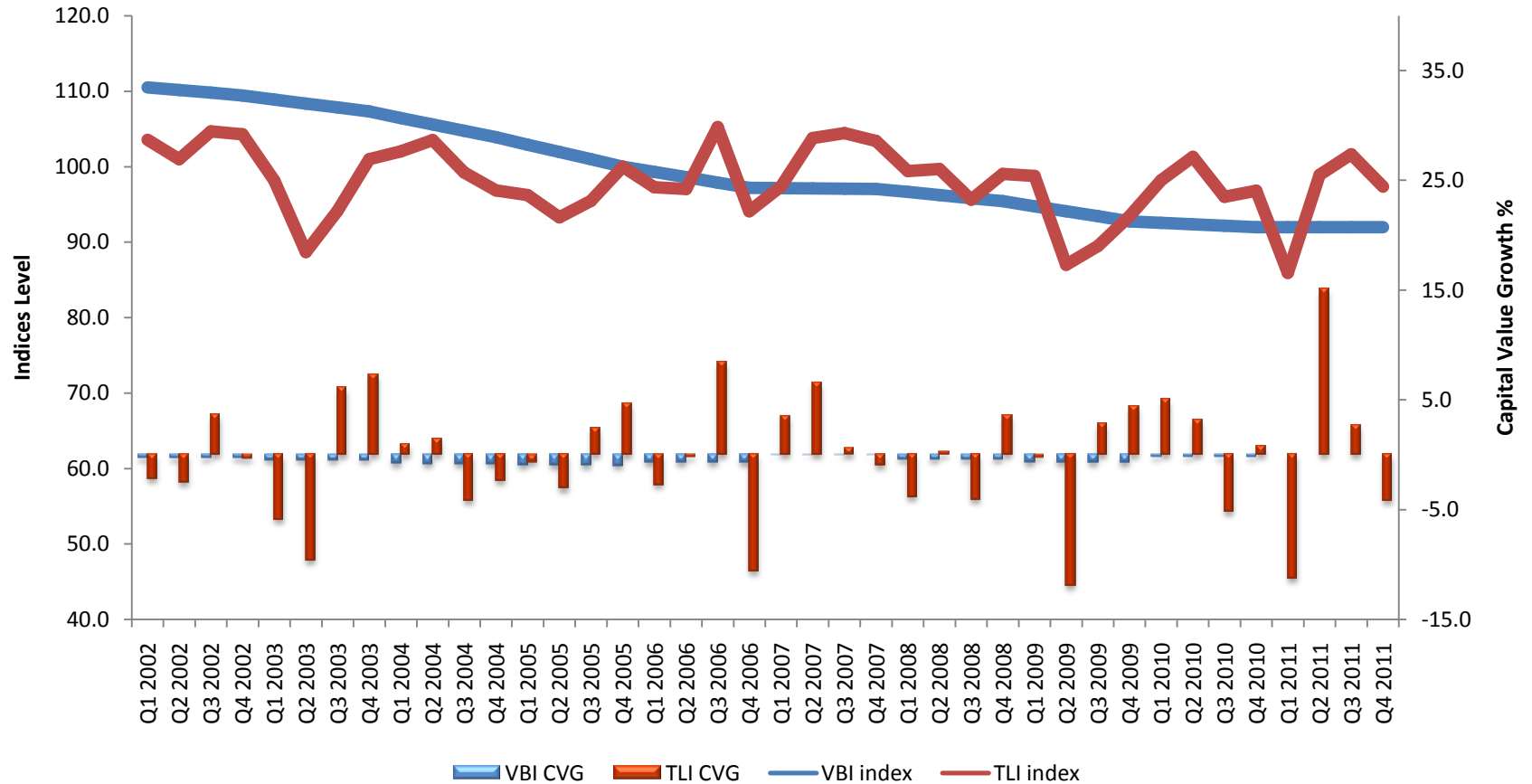On the pulse of the property world
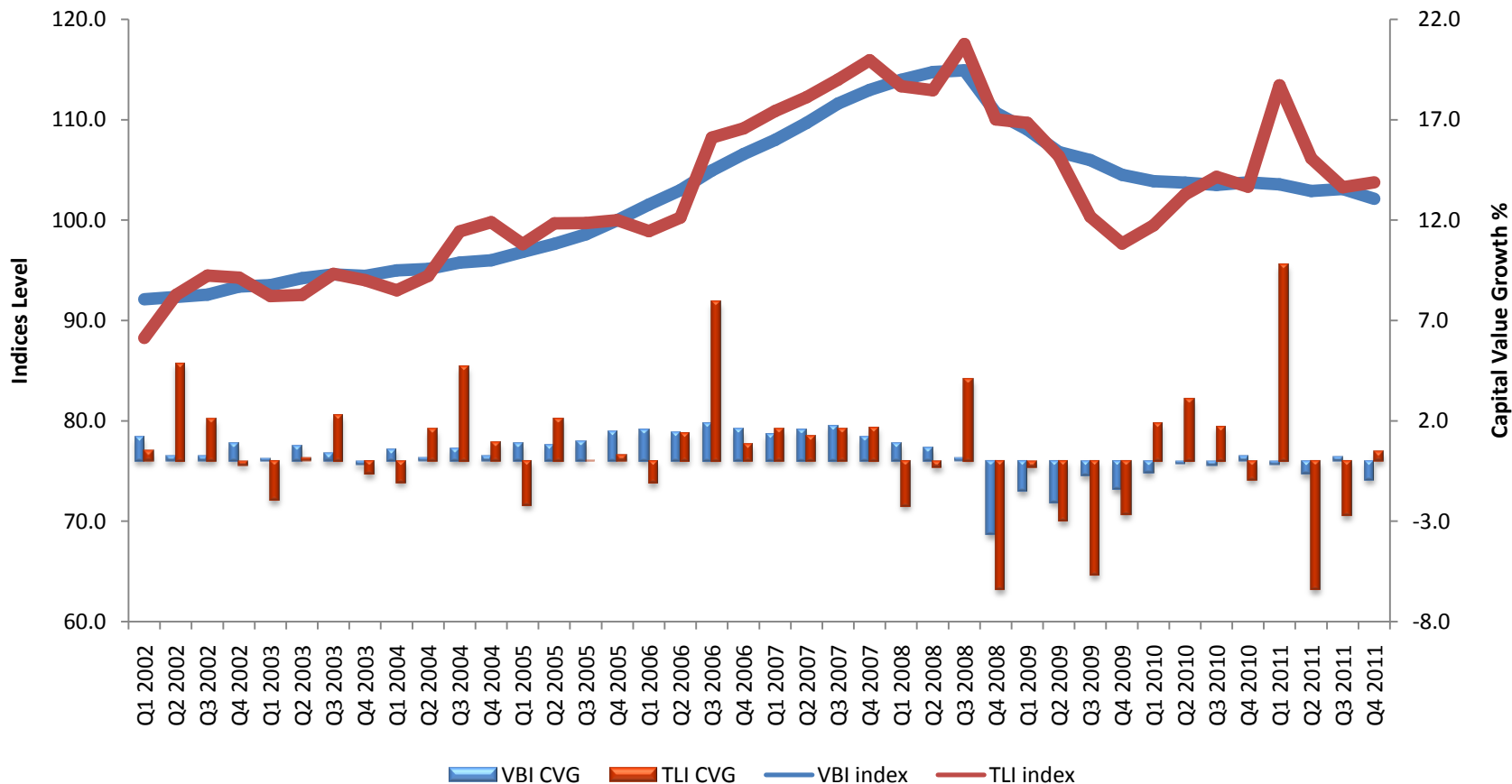
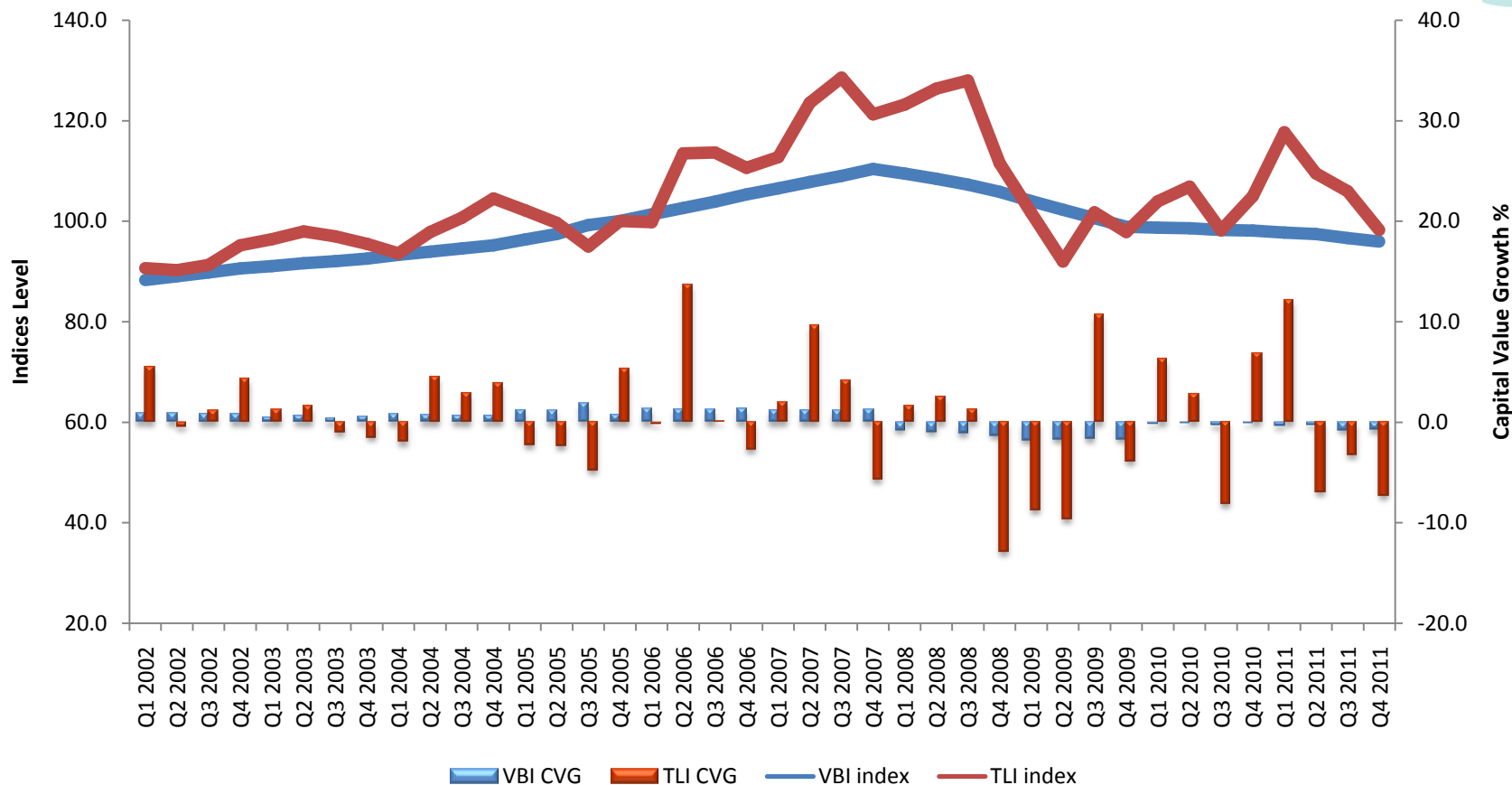|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.29%	0.29%	1.13%		0.68	-7.62%	24.7%	Q1 02-Q3 08	-11.1%	Q3 08-Q4 11
TLI	1.94%	0.47%	3.25%	2.88	-0.04	-14.03%	33.2%	Q1 02-Q3 08	-16.9%	Q3 08-Q4 09

Ireland

	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.73%	0.39%	1.55%		0.84	-9.59%	29.4%	Q4 04-Q4 07	-11.4%	Q4 07-Q4 09
TLI	3.49%	0.84%	5.92%	3.83	-0.27	-17.60%	40.8%	Q3 04-Q2 08	-15.9%	Q2 08-Q3 10

Germany

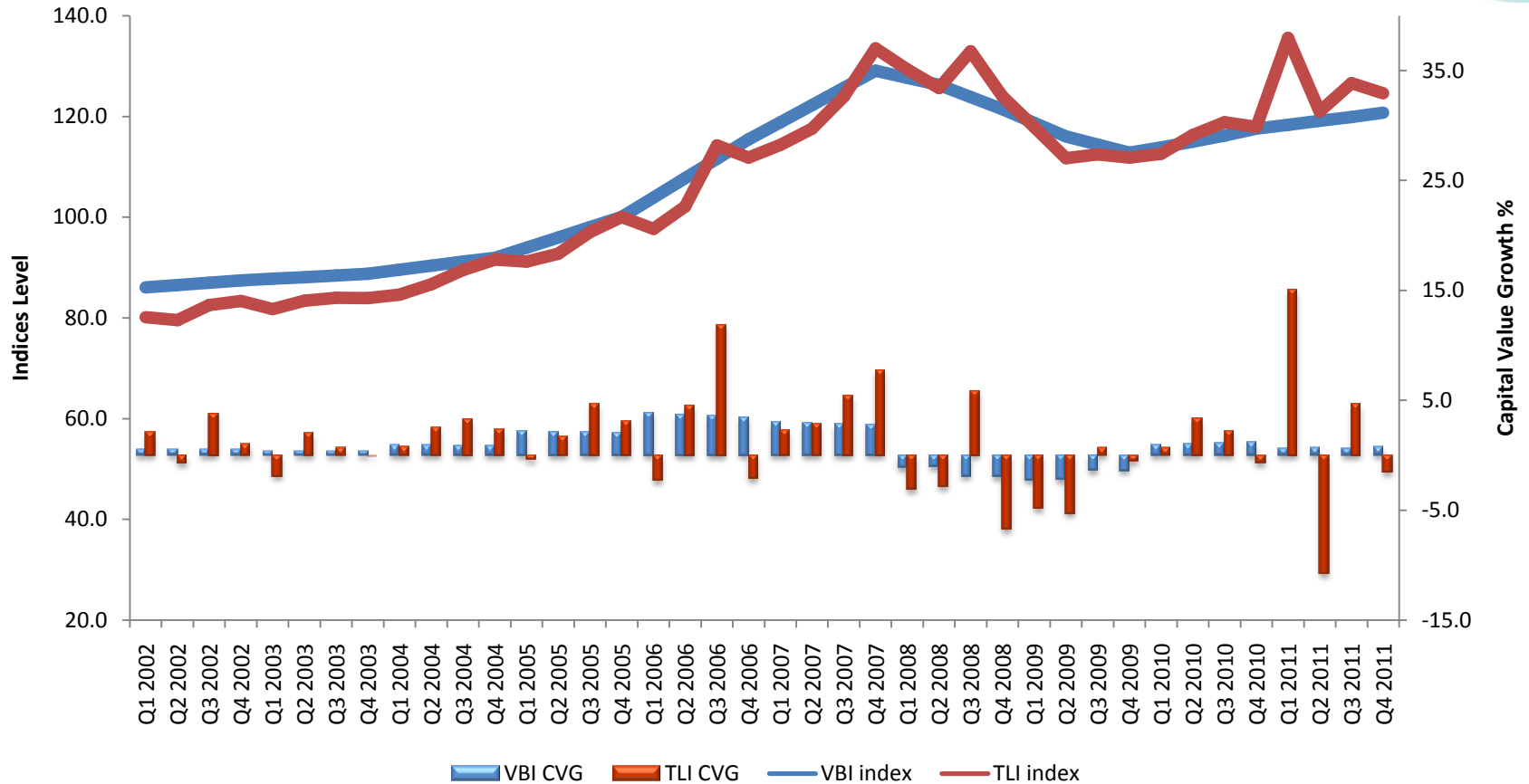|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	-1.94%	-0.47%	0.31%		0.84	-3.72%	-	-	-	-
TLI	-0.60%	-0.06%	5.58%	17.88	-0.18	-12.68%	-	-	-	-

Southern Europe: Italy, Spain, Portugal

	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.04%	0.24%	1.02%		0.88	-6.52%	25.0%	Q1 02-Q4 07	-13.1%	Q4 07-Q4 11
TLI	2.57%	0.51%	5.97%	5.86	0.02	-26.04%	42.4%	Q2 02-Q3 07	-28.5%	Q3 07-Q2 09

France

Legend: VBI CVG, TLI CVG, VBI index, TLI index
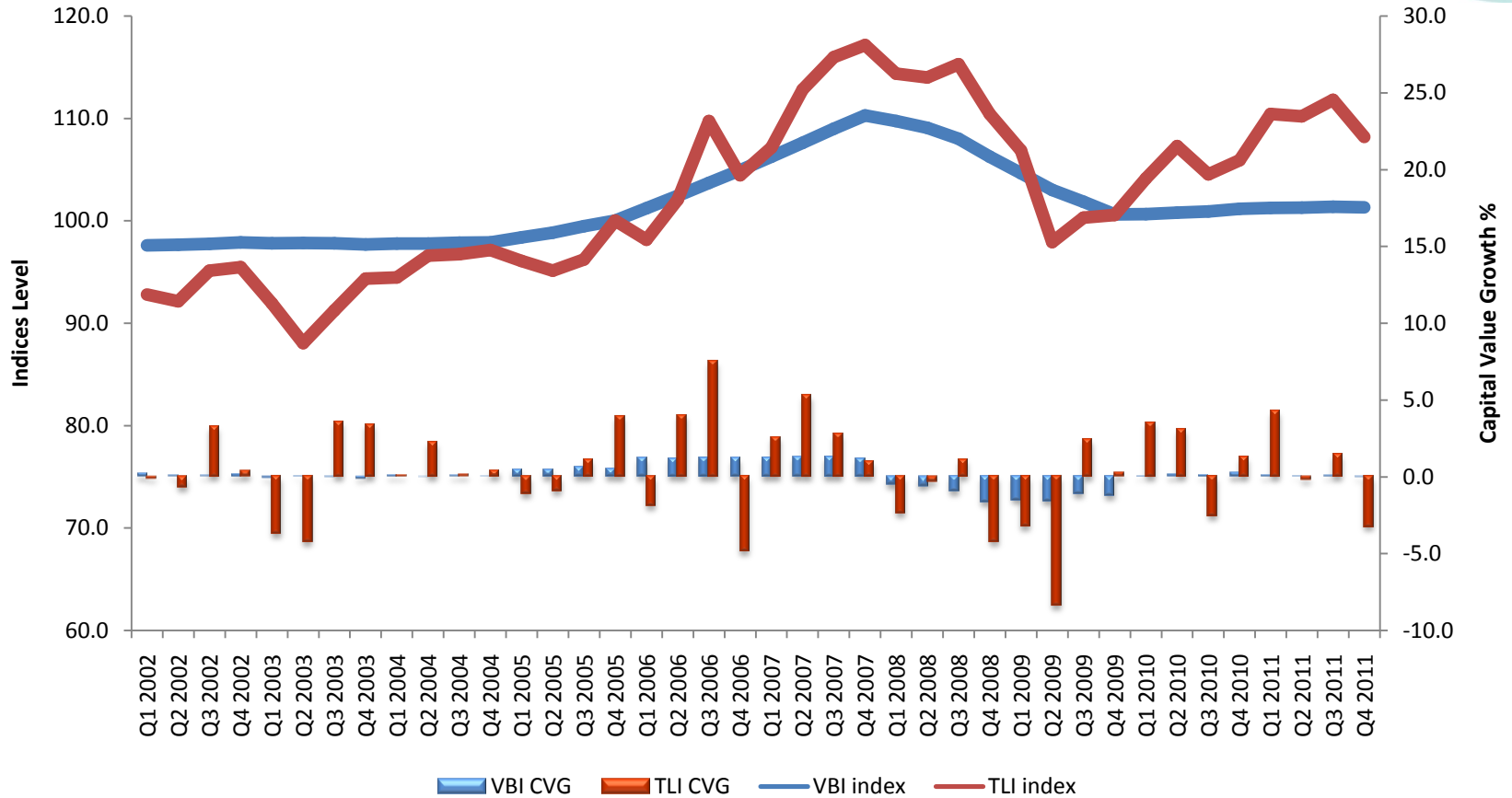
	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	3.78%	0.88%	1.66%		0.87	-8.01%	50.0%	Q1 02-Q4 07	-12.6%	Q4 07-Q4 09
TLI	5.41%	1.26%	4.60%	2.77	-0.24	-14.61%	67.9%	Q2 02-Q4 07	-16.4%	Q4 07-Q2 09

Eurozone
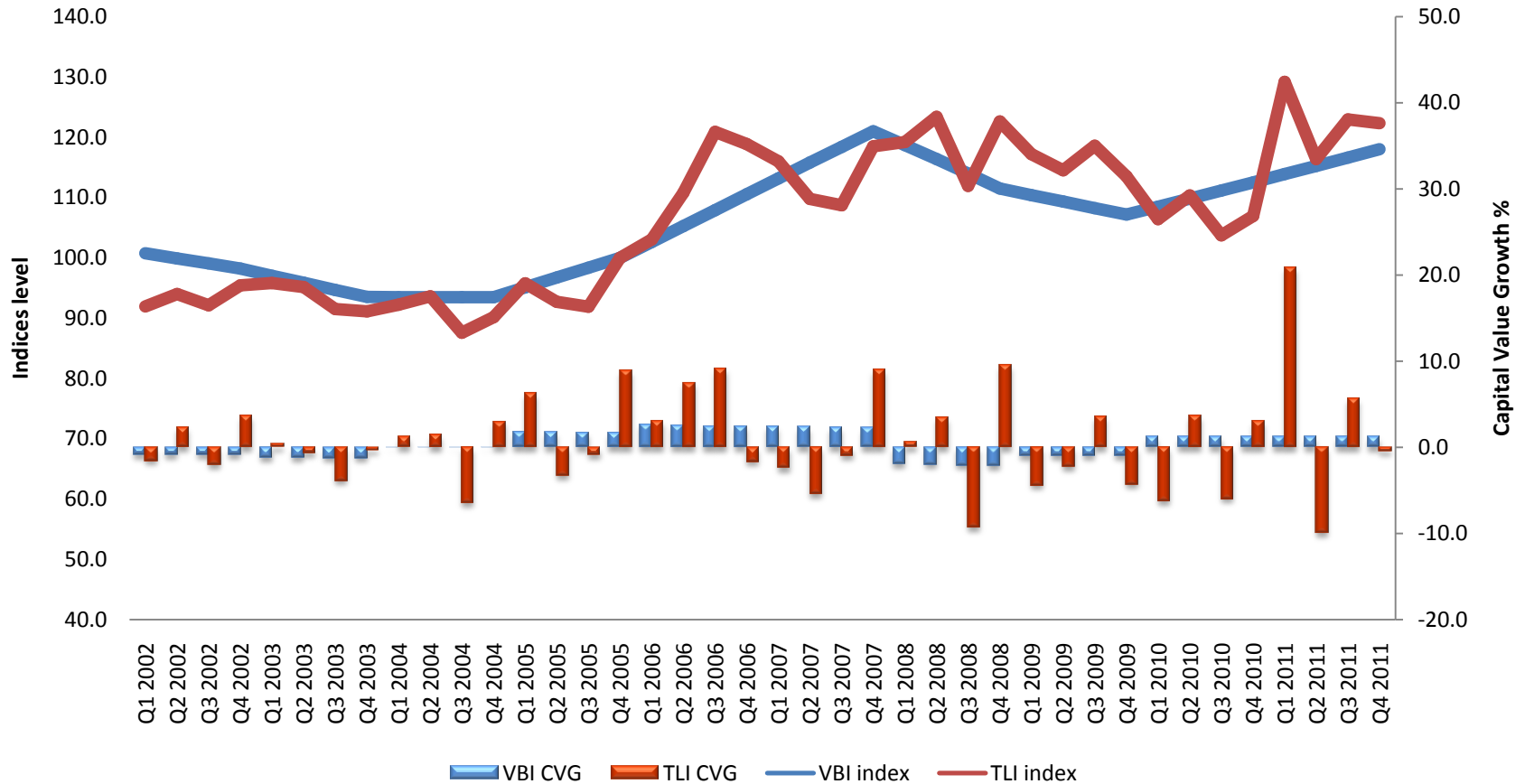
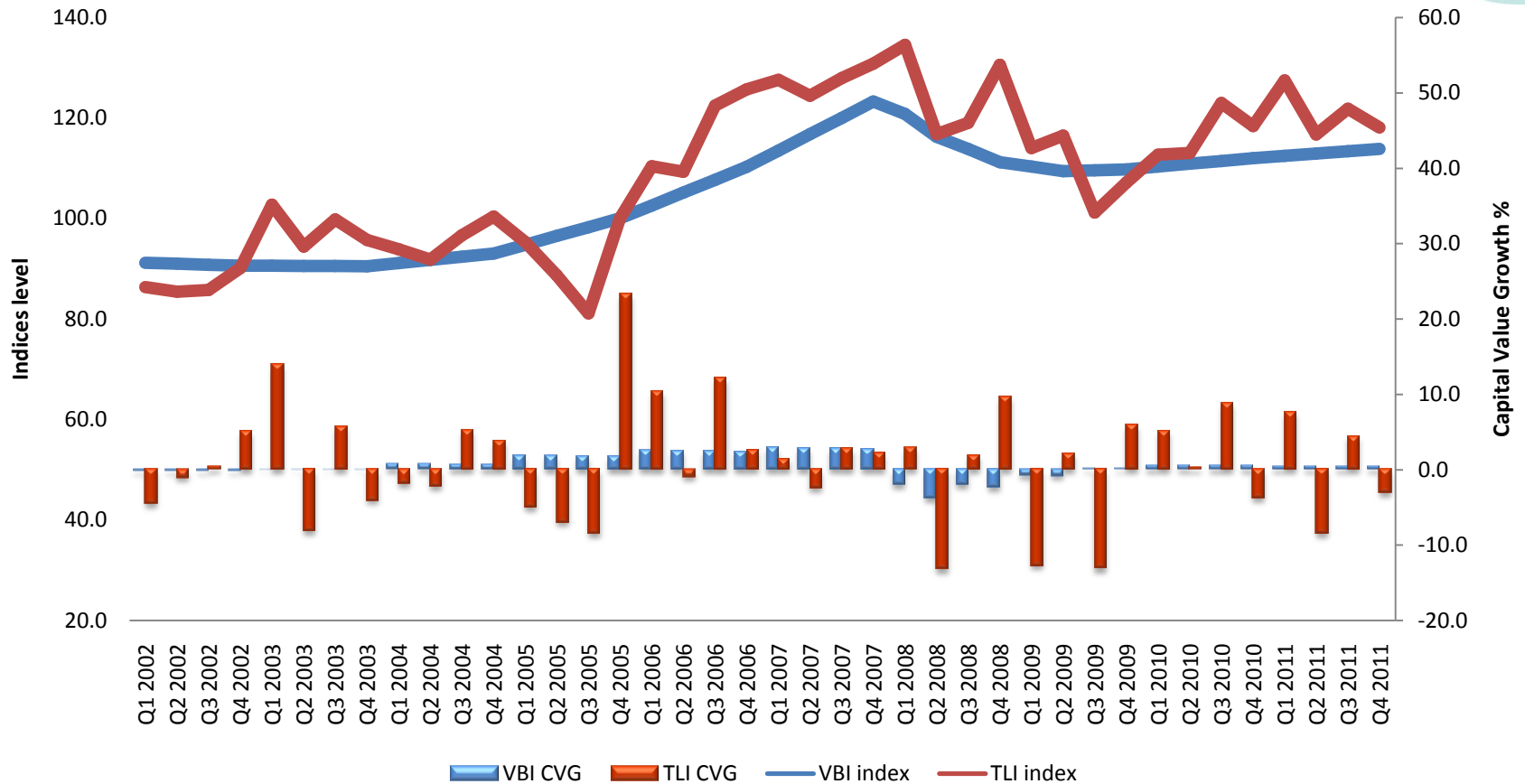|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	0.45%	0.10%	0.80%		0.87	-5.68%	13.0%	Q1 02-Q4 07	-8.8%	Q4 07-Q4 09
TLI	2.02%	0.43%	3.20%	4.01	0.05	-13.91%	33.0%	Q2 03-Q4 07	-16.4%	Q4 07-Q2 09

Sweden

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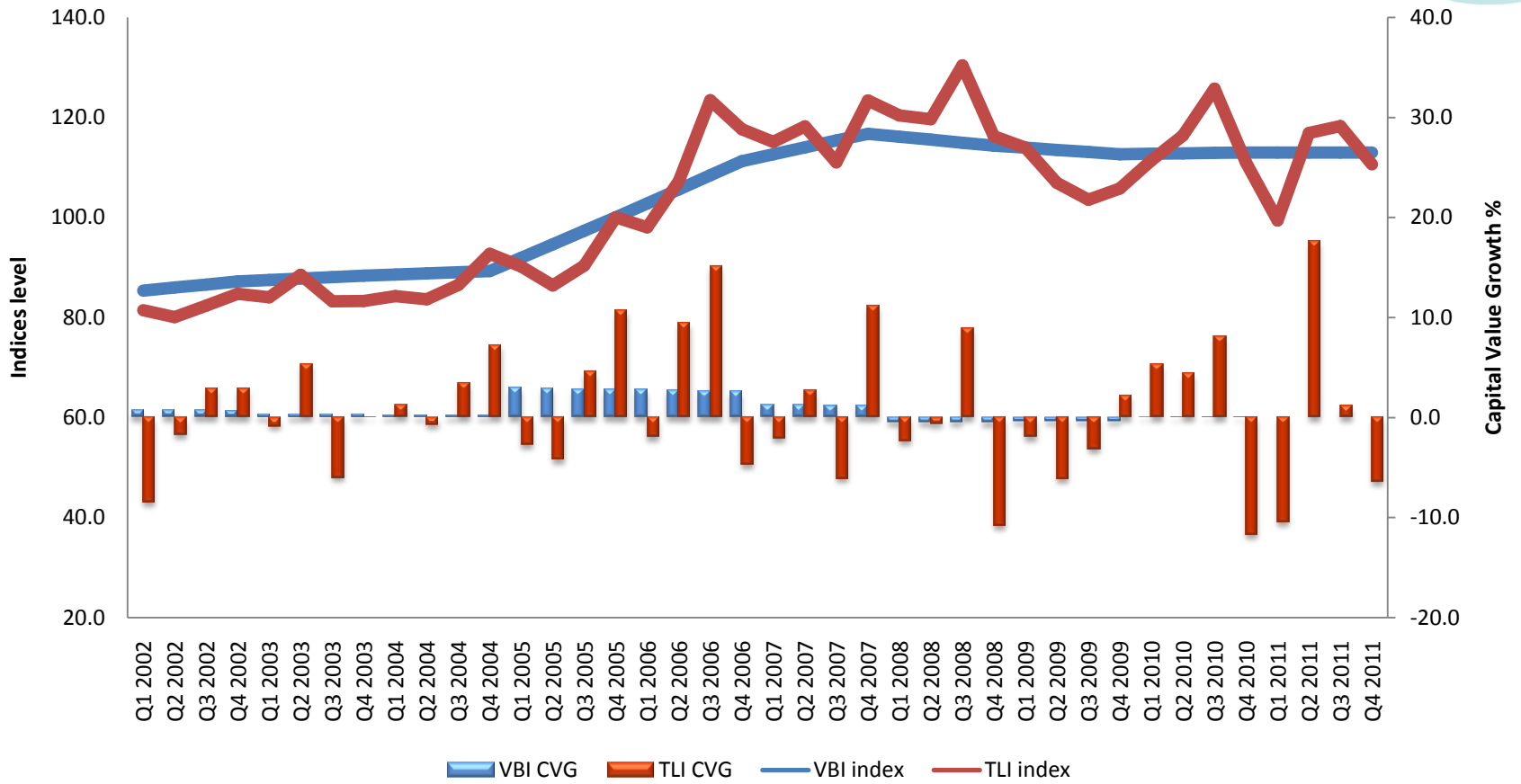|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.73%	0.39%	1.55%		0.84	-9.59%	29.4%	Q4 04-Q4 07	-11.4%	Q4 07-Q4 09
TLI	3.49%	0.84%	5.92%	3.83	-0.27	-17.60%	40.8%	Q3 04-Q2 08	-15.9%	Q2 08-Q3 10

Norway

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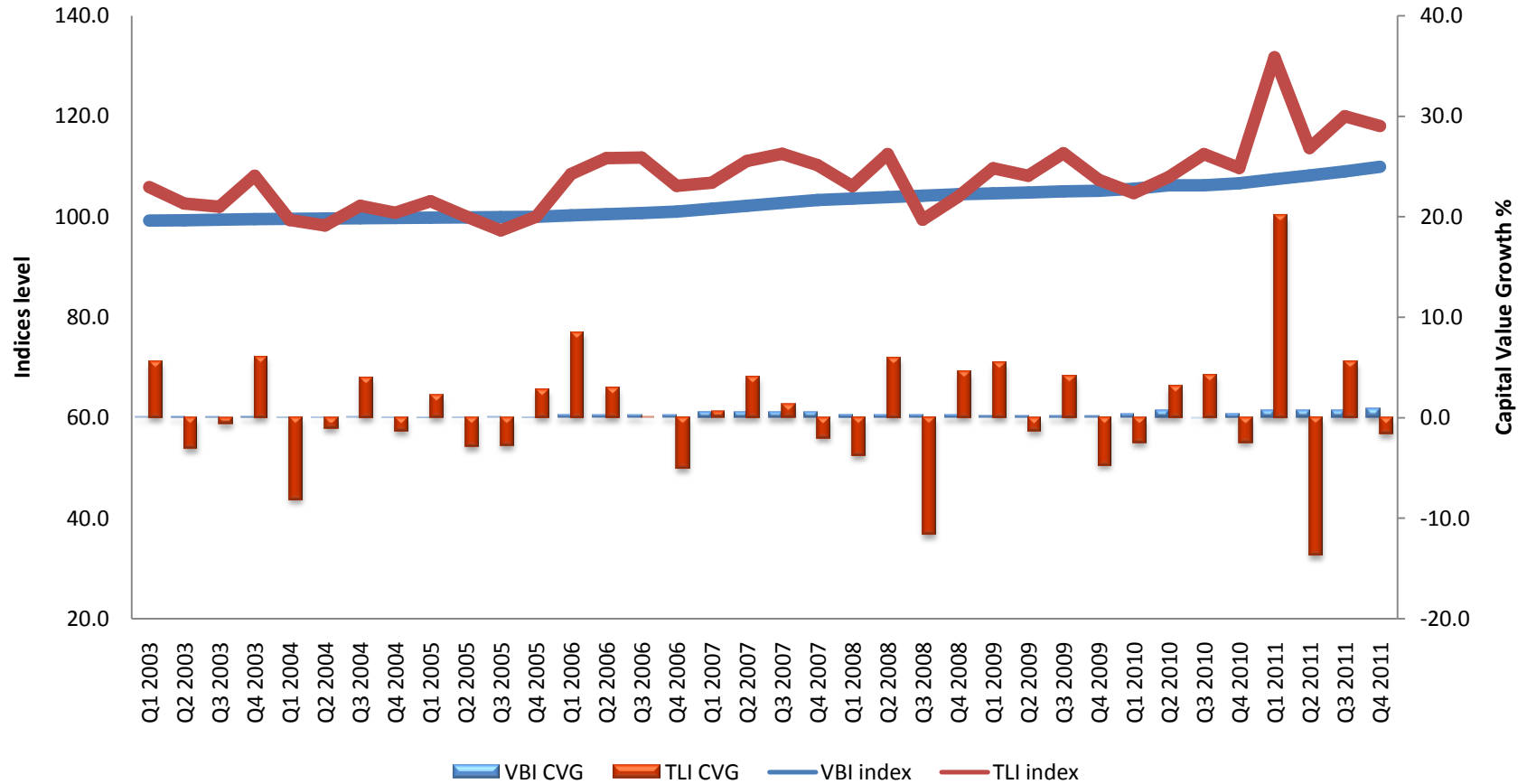|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	2.52%	0.56%	1.52%		0.81	-7.69%	36.2%	Q4 03-Q4 07	-11.2%	Q4 07-Q2 09
TLI	4.44%	0.95%	7.64%	5.02	-0.20	-17.60%	65.9%	Q3 05-Q1 08	-24.8%	Q1 08-Q3 09

Denmark

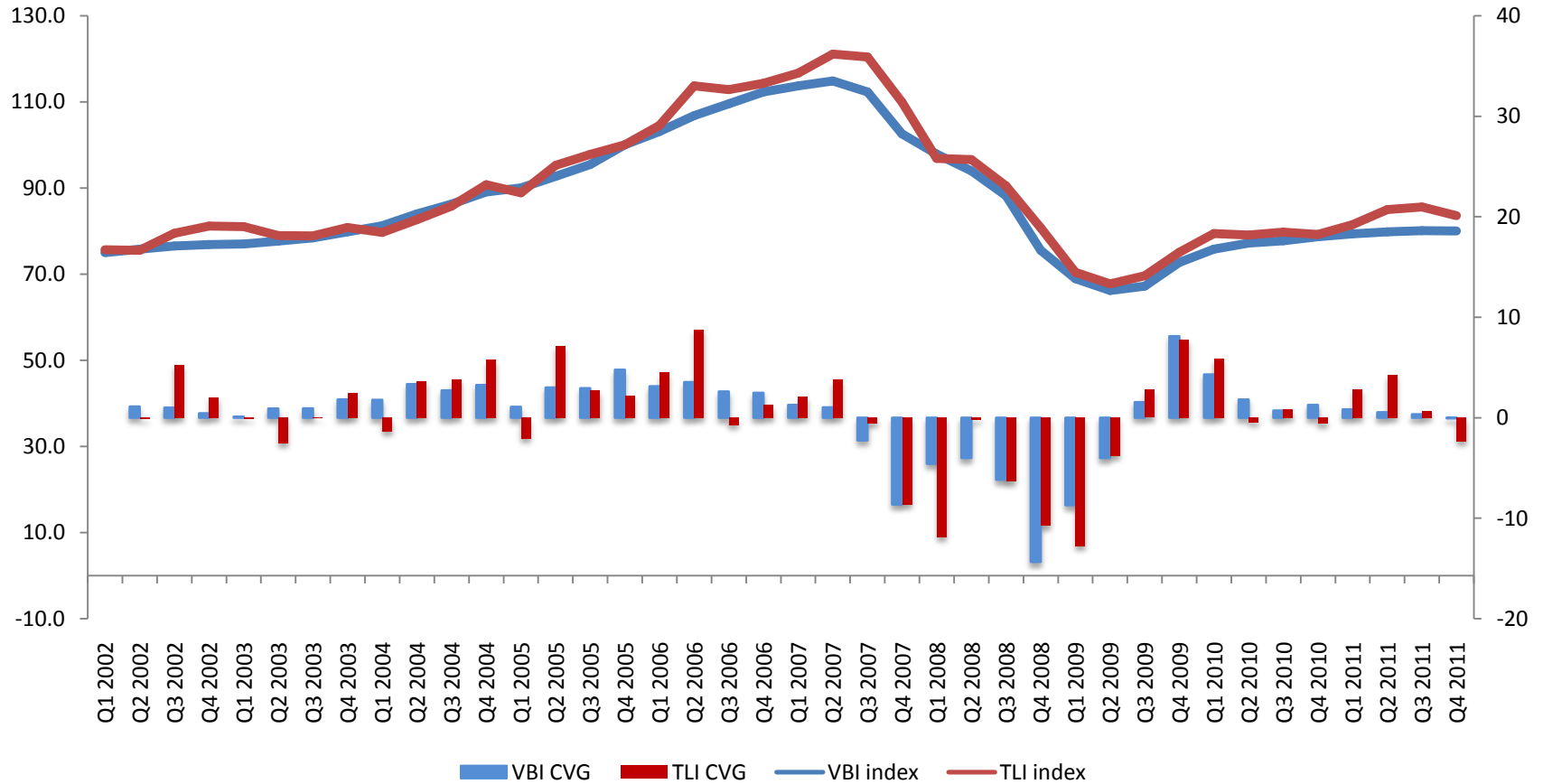|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	3.13%	0.73%	1.15%		0.88	-2.02%	36.7%	Q1 02-Q4 07	-3.5%	Q4 07-Q4 09
TLI	3.75%	0.77%	6.88%	5.99	-0.12	-18.82%	62.9%	Q2 02-Q3 08	-23.8%	Q3 08-Q1 11

Switzerland

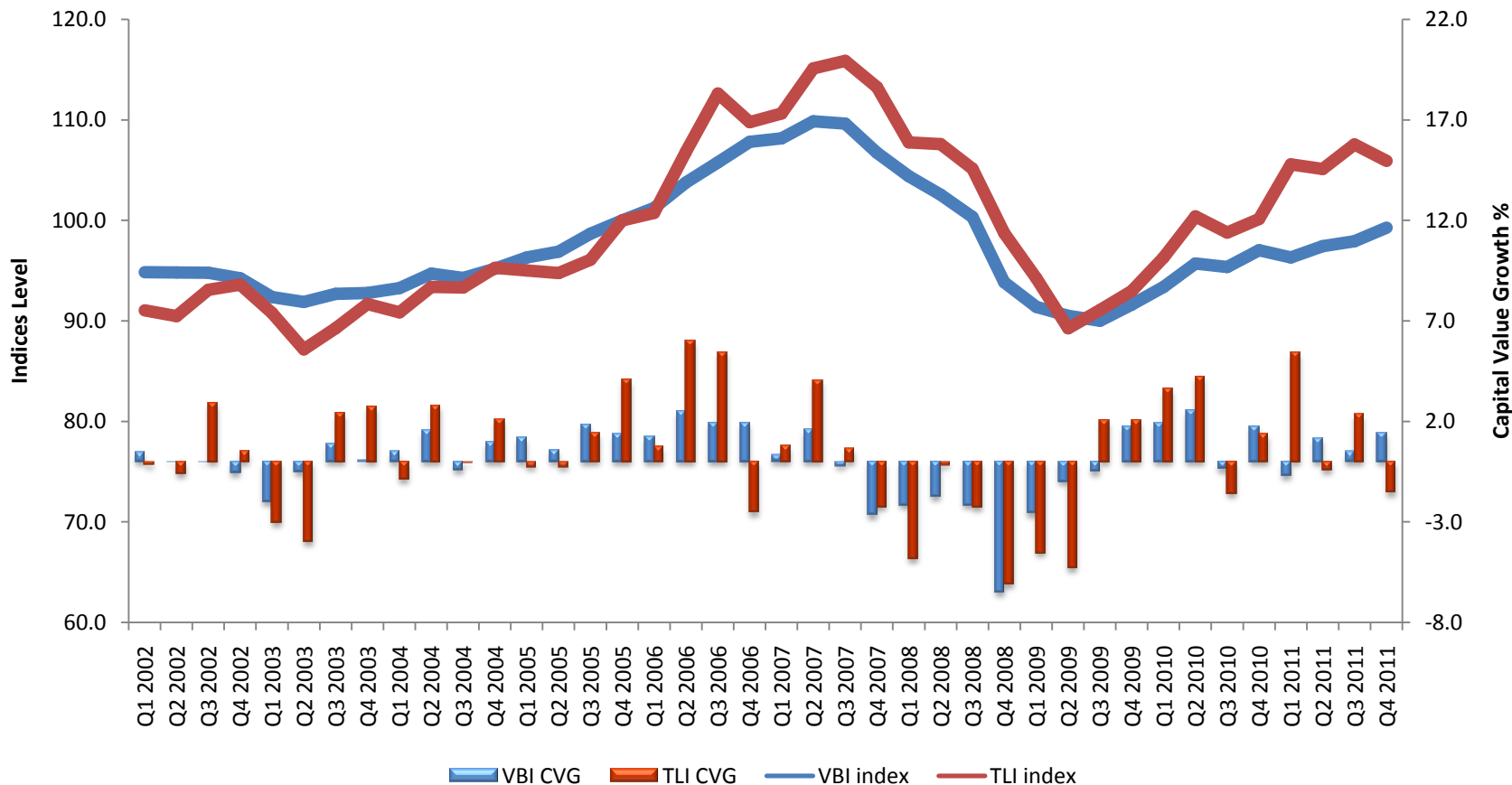|	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.10%	0.29%	0.24%		0.68	0.22%	-	-	-	-
TLI	2.22%	0.62%	5.97%	24.45	-0.48	-10.90%	-	-	-	-

UK

	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	1.55%	0.26%	4.17%		0.76	-29.55%	53.2%	Q1 02-Q2 07	-42.4%	Q2 07-Q2 09
TLI	1.94%	0.38%	5.07%	1.22	0.53	-29.46%	60.3%	Q2 02-Q2 07	-44.1%	Q2 07-Q2 09

Pan Europe

	Average Rolling Annual CVG	Average Quarterly CVG	Quarterly CVG Volatility	SD ratio (quarterly)	Autocorrelation (quarterly)	VaR(0.5%, 1 year)	Upswing	Upswing Period	Downswing	Downswing Period
VBI	0.51%	0.14%	1.78%		0.60	-12.38%	19.6%	Q2 03-Q2 07	-18.1%	Q2 07-Q3 09
TLI	1.93%	0.42%	3.05%	1.71	0.31	-16.37%	32.9%	Q2 03-Q3 07	-23.0%	Q3 07-Q2 09

IPD Risk Metrics: European Details

	VBI St Devn	TLI St Devn	VBI VaR	TLI VaR	Equity St Devn
Pan Europe	1.78%	3.05%	-12.38%	-16.37%	9.84%
Euro-zone	0.80%	3.20%	-5.68%	-13.91%	11.33%
Denmark	1.15%	6.88%	-2.02%	-18.82%	11.47%
France	1.66%	4.60%	-8.01%	-14.61%	11.40%
Germany	0.31%	5.58%	-3.72%	-12.68%	12.27%
Ireland	5.45%	11.30%	-42.83%	-49.34%	12.8%
Netherlands	1.13%	3.25%	-7.62%	-14.03%	12.15%
Norway	1.52%	7.64%	-7.69%	-17.60%	14.2%
Southern Europe	1.02%	5.97%	-6.52%	-26.04%	n/a
Sweden	1.55%	5.92%	-9.59%	-17.60%	10.9%
Switzerland	0.24%	5.97%	0.22%	-10.90%	8.7%
UK	4.12%	5.01%	-29.55%	-29.46%	8.6%

Equity Sources: Pan Europe – MSCI, Euro zone – FTSE E300, Denmark – OMXCCAP, France – CAC40, Germany – DAX, Ireland – ISEQ, Netherlands – AEX, Norway – OSEBX, Switzerland – SMI, UK - FTSE All Share

Options now available for price indicators

4 possibilities going forward:

1. Live with the currently available valuation based measurements across major European markets

   ..approaches too varied, frequencies generally inadequate, smoothing, lagging..

2. Switch to a purely transaction based method for market price reporting

   ..proved inadequate, too rigid for complex low liquidity markets, too data demanding

3. Work for an enhanced set of valuation based indices

   ..essential, with 2 key conditions: consistently applied open market approach
                                            refreshed no less than quarterly

   ..requires tolerance of reduced sample sizes, political will **..and support from IPD**

4. Utilise hybrid TLI techniques for more realistic risk assessment

   ..NOT an alternative but an essential, prudent complement to VBIs

      ..providing evidence based risk metrics

Any Questions?

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