

# MEASUREMENT CONCEPTS FOR FINANCIAL SUSTAINABILITY

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## Agenda

1. Corporate Governance and Economic Sustainability
2. Measures for Economic Sustainability in GRI 4.0
3. Association of Economic Sustainability with Risk Governance
4. Measures for Economic Sustainability
5. Conclusions

## Change of the German Corporate Governance Codex

GCGC as of November 7, 2002

### 4. Vorstand

Shareholder Value Orientation

#### 4.1 Aufgaben und Zuständigkeiten

4.1.1 Der Vorstand leitet das Unternehmen in eigener Verantwortung. Er ist dabei an das Unternehmensinteresse gebunden und der Steigerung des nachhaltigen Unternehmenswertes verpflichtet.

GCGC as of May 5, 2015

### 4 Vorstand

Stakeholder Value Orientation

#### 4.1 Aufgaben und Zuständigkeiten

4.1.1 Der Vorstand leitet das Unternehmen in eigener Verantwortung im Unternehmensinteresse, also unter Berücksichtigung der Belange der Aktionäre, seiner Arbeitnehmer und der sonstigen dem Unternehmen verbundenen Gruppen (Stakeholder) mit dem Ziel nachhaltiger Wertschöpfung.

## Dimensions of Sustainability

Time horizon:

### Intergenerational Justice

(Brundtland Commission, UN Report 1987, p. 16)

„... sustainable development

- to ensure that it meets the needs of the present (generation)
- without compromising the ability of future generations to meet their own needs.

Triple Bottom Line  
(Scope):

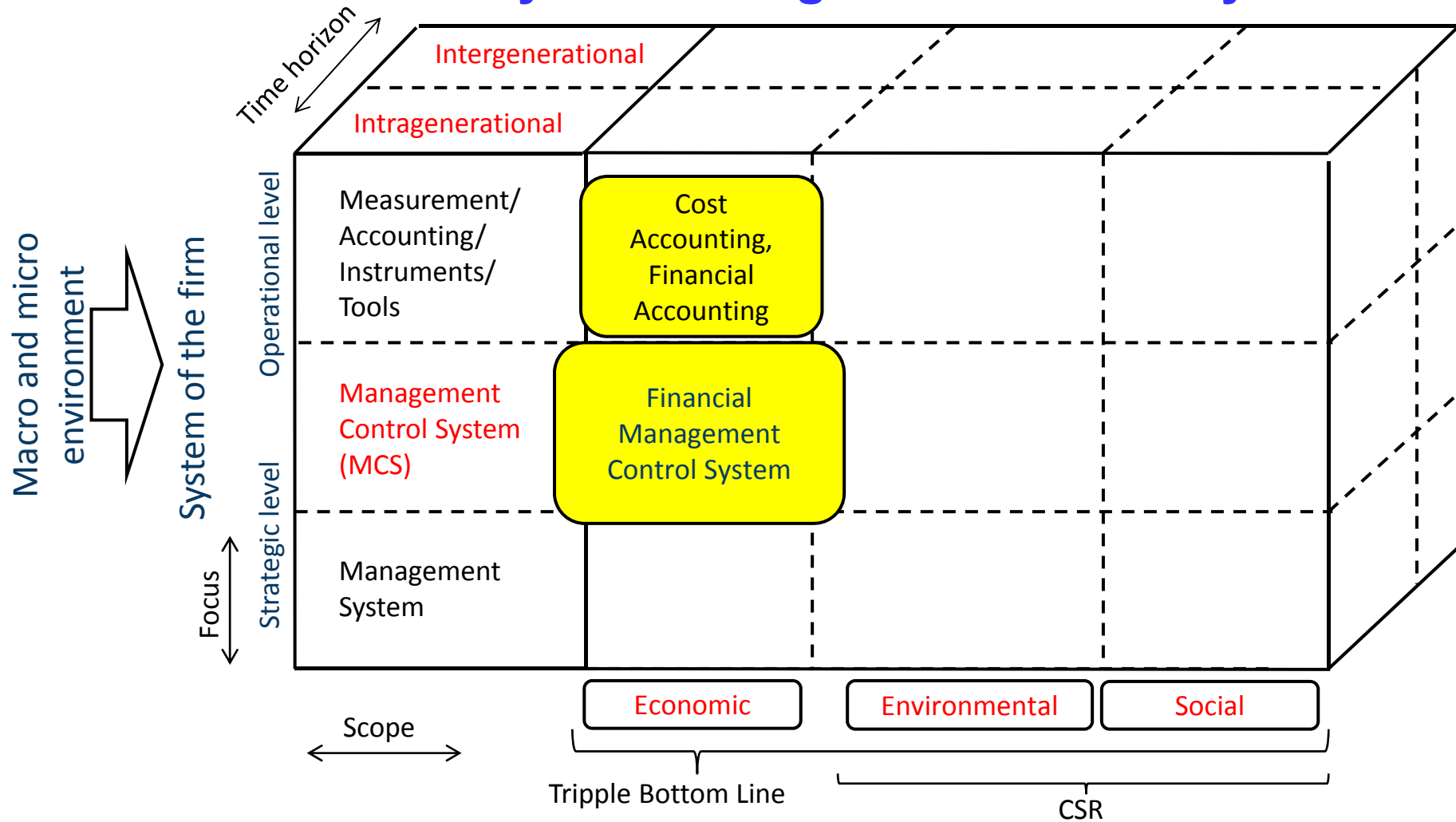
### Intragenerational Justice:

Economic Activities within one generation to satisfy all three dimensions of the Triple Bottom Line:

- Social Sustainability
- Ecological Sustainability
- Economic Sustainability

Source: in Anlehnung an: GÜNTHER, E. (2008): Ökologieorientiertes Management, Lucius&Lucius: Stuttgart, S. 45ff.

# Sustainability and Management Control Systems



Source: Günther, E./Endrikat, J./Güttnher, T. (2016): Environmental Management Control Systems: A Conceptualization and a Review of Empirical Evidence, Journal of cleaner Production (forthcoming).

Aspect: Economic Performance

# Economic Sustainability following the GRI 4.0 Guidelines

G4-EC1

See references 14, 15, 16, 18.

**DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED**

a. Report the direct economic value generated and distributed (EVG&D) on an accruals basis including the basic components for the organization’s global operations as listed below. If data is presented on a cash basis, report the justification for this decision and report the basic components as listed below:

- Direct economic value generated:

- Revenues

- Economic value distributed:

- Operating costs
  - Employee wages and benefits
  - Payments to providers of capital
  - Payments to government (by country)
  - Community investments

- Economic value retained (calculated as ‘Direct economic value generated’ less ‘Economic value distributed’)

b. To better assess local economic impacts, report EVG&D separately at country, regional, or market levels, where significant. Report the criteria used for defining significance.

**Economic Performance** als Value Added:  
  
Sales – Costs = Net Earnings

# Economic Sustainability: Indicators following GRI 4.0

GRI Indicator	Measurement
G4-EC2	Financial Implications and Other <b>Risks and Opportunities</b> for the Organization's Activities <b>due to Climate Change</b>
G4-EC3	Coverage of the Organization's <b>Defined Benefit Plan Obligations</b>
G4-EC4	Financial <b>Assistance Received From Government</b>
G4-EC5	Ratios of Standard <b>Entry Level Wage by Gender</b> Compared to Local Minimum Wage at Significant Locations of Operation
G4-EC6	Proportion of <b>Senior Management Hired from Local Community</b> at Significant Locations of Operation
G4-EC7	Development and Impact of <b>Infrastructure and Services supported</b>
G4-EC8	Significant <b>Indirect Economic Impacts</b> , Including the extent of Impacts

## „Obligation“ for Risk Management and Risk Governance for Top Management in German Law

### § 91 AktG

(2) Der Vorstand hat geeignete Maßnahmen zu treffen, insbesondere ein **Überwachungssystem** einzurichten, damit den **Fortbestand der Gesellschaft gefährdende Entwicklungen** früh erkannt werden.

→ Internal Control System → Risk Management System

### § 93 AktG Business Judgement Rule

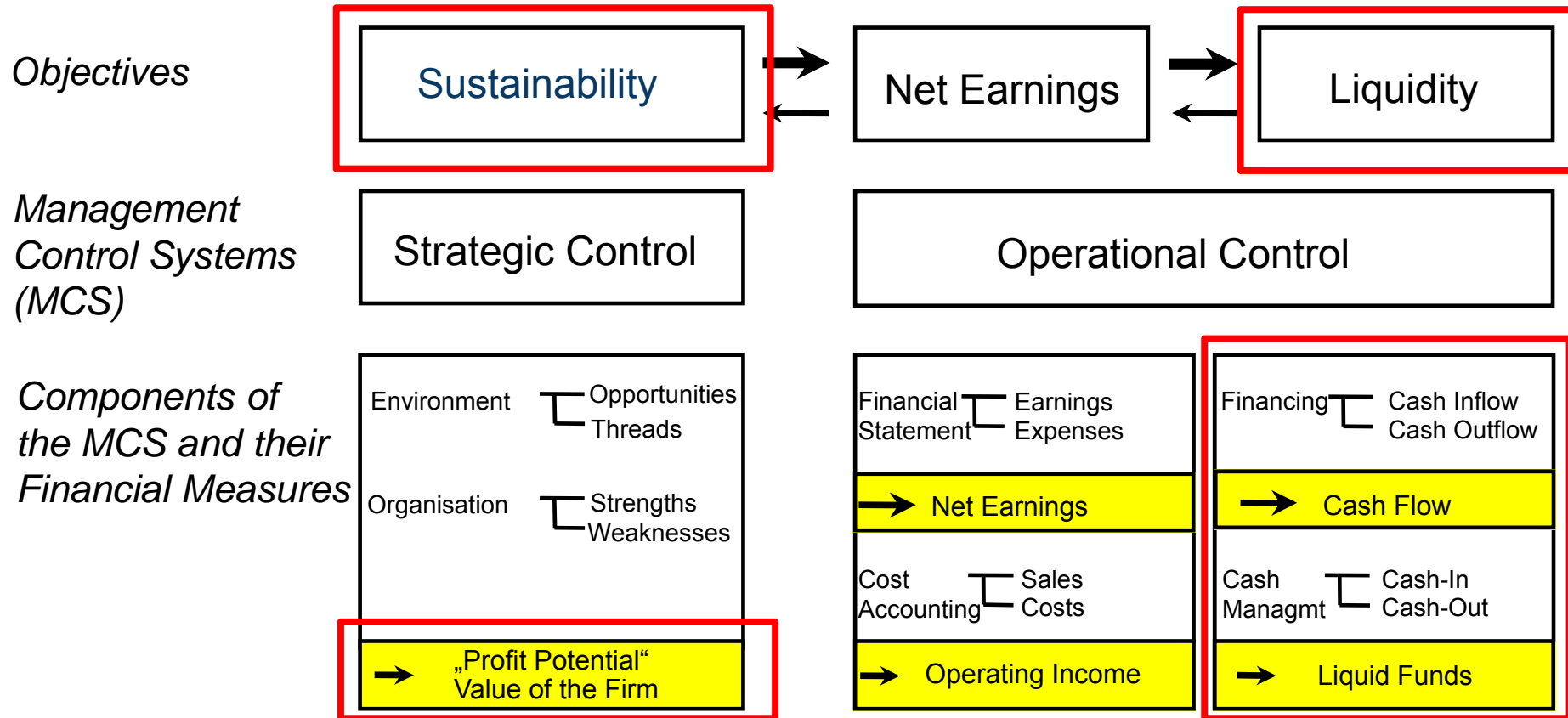
(1) Die Vorstandsmitglieder haben bei ihrer Geschäftsführung die **Sorgfalt eines ordentlichen und gewissenhaften Geschäftsleiters anzuwenden**. Eine Pflichtverletzung liegt nicht vor, wenn das Vorstandsmitglied bei einer unternehmerischen Entscheidung vernünftigerweise annehmen durfte, auf der **Grundlage angemessener Information zum Wohle der Gesellschaft** zu handeln.

→ Business Judgement Rule → Guidelines for Planning and Decision Making

→ Role Model of the AktG for other legal forms (e.g., § 43 GmbHG)



## Objectives and Management Control Systems of the Firm



Source: Baum, H.-G./Coenenberg, A.G./Günther, T. (2013): Strategisches Controlling, 5. Aufl., Stuttgart: Schäffer-Poeschel, S. 13

## Conceptual foundation of „Financial Sustainability“

### The Stylist Facts:

1. The companies keep at least their real size, which means they have **a long-term positive real growth rate**.
2. The companies have a **below-average probability of default** (above-average rating), which means the probability of complete failure is low (low bankruptcy risk).
3. The companies have a (clearly) **below-average income risk** (earning risk, cash flow volatility), i.e. stable earnings as a result of a stable business model.
4. Companies are on a permanent basis attractive to equity investors and can hold equity accordingly because the **return on equity is greater than the risk-adjusted cost of equity** (or the underlying capital gain is greater than the intrinsic value of equity).

# Criteria for Assessment of „Financial Sustainability“

Criteria #		Definition key figures	Example: key figures for a company	met
1	<b>Real growth</b> The company has a positive real sustainable, which means inflation-adjusted growth. In general, it is also desirable that the market share at least does not decrease.	$w_{T,real} = w_T - i_{EZB} \geq 0$	$w_{T,real} = -2\%$	✗
2	<b>Financial stability and credit rating</b> The long-term probability of default expressed by the rating is below 1% per annum (about a BB rating).	$PD_T \leq 1\%$	$PD_T = 3,0\%$	✗
3	<b>Low company risk</b> The company has no existence-threatening strategic risks (especially threats to the potential for success) and a below-average income risk (eg measured in the coefficient of variation V of income or cash flows).	$V(CF) = \frac{\sigma(earnings)}{E(earnings)} \leq 40\%$	$V(earnings) = 35\%$	✓
4	<b>Value generation (return &gt; cost of capital)</b> The company creates sustainable value, which means the value tends to increase over time and the fundamental income value (W) is higher than the balance sheet value of equity. Such a situation exists when the business is growing and the return on capital is consistently above the cost of capital (see 3).	$W_{Equity} \geq EK_{financial}$	$W_{Equity} = 4.265$ $EK_{financial} = 4.397$	✗
		$r_{EK} = \frac{earnings_{aft.tax}}{EK_{financial}} \geq k_{EK}$	$r_{EK} = 11,4\%$ $k_{EK} = 9,1\%$	✓

**Assumptions:**

- risk-free interest rate  $r_f = 3\%$  Due to the current political distortion of the interest rate, the risk-free interest rate is determined as the sustainable real interest rate (1%) plus the ECB target inflation rate (2%).
- expected market yield  $E(r_m) = 8\%$
- volatility in market yield  $\sigma(r_m) = 20\%$

Instead of ROE ( $r_{EK}$ ) and EC ( $k_{EK}$ ), return on capital employed ROCE and total capital costs (k) can also be used.

- $E(CF)$  Expected value of uncertain payments  $CF$  (earnings or cash flow)
- $\sigma(CF)$  Standard deviation of uncertain payments  $CF$  as risk measure  $R(.)$
- $V(CF)$  Coefficient of variation of uncertain payments  $CF$

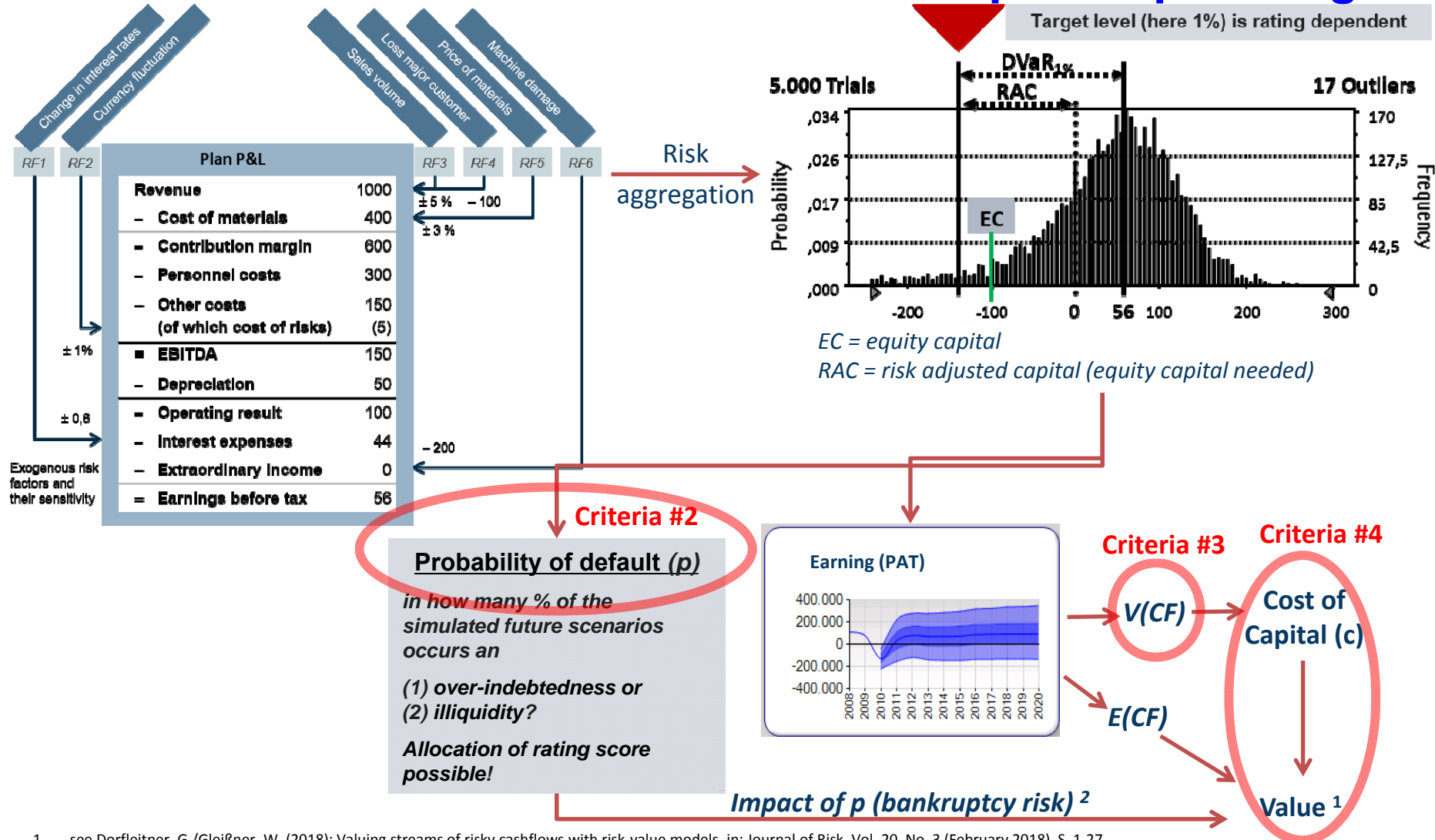
# Assessment of „Financial Sustainability“: Methodology

Criteria #		Methodology
1	<b>Real growth</b>	Estimate the future long-term growth rate of the return (or cash flow), e.g. by extrapolation of historical growth rates in association e.g. analysis of strategic success potential ("quality companies") <sup>1</sup>
2	<b>Financial stability and creditworthiness</b>	Quantification of the bankruptcy risk with (1) financial indicator rating (based e.g. on equity and return on assets, Altman 2000), (2) risk aggregation using Monte Carlo simulation or (3) binomial models (Friedrich (2015) <sup>2</sup> or (4) model of Lahmann / Schreiter / Schwetzler (2018) <sup>3</sup>
3	<b>Low company risk</b>	Estimation of income risk - Coefficient of variation of earnings - by (1) statistical analysis of historical fluctuations in earnings (e.g., Walkshäusl, 2013) <sup>4</sup> or risk aggregation related to enterprise planning (Gleißner, 2017: Grundlagen des Risikomanagements, 99-280)
4	<b>Value generation (return &gt; cost of capital)</b>	Derivation of capital costs (c) from income risk based on the method of "incomplete replication" (risk-value model based on assumption: 2 cash flows at the same time have the same value if expected value and risk measure are identical; capital market need not be perfect). Dorfleitner/Gleißner <sup>5</sup> & Gleißner 2014 <sup>6</sup> $c = \frac{1+r_f}{1-\lambda*V*d} - 1$ <p> <math>r_f</math>: riskfree interest rate  <math>V</math>: coefficient of variation CF  <math>\lambda</math>: sharp-ratio of stock market  <math>d</math>: diversification factor </p>

Instead of ROE ( $r_{EK}$ ) and EC ( $k_{EK}$ ), return on capital employed ROCE and total capital costs (k) can also be used.

1) see e.g. Kyosev, G./Hanauer, M. X./Huij, J./Lansdorp, S. (2018): Does Earnings Growth Drive the Quality Premium?, Download unter: [https://papers.ssrn.com/sol3/Delivery.cfm/SSRN\\_ID3190044\\_code2061164.pdf?abstractid=2794807&mirid=1](https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID3190044_code2061164.pdf?abstractid=2794807&mirid=1); 2) Friedrich, T. (2015): Unternehmensbewertung bei Insolvenzrisiko. 3) Lahmann, A./Schreiter, M./Schwetzler, B. (2018): Der Einfluss von Insolvenz, Kapitalstruktur und Fremdkapitalfälligkeit auf den Unternehmenswert, in: ZfbF, Heft 1-2 (März 2018), Volume 70, S. 73–123.; 4) Walkshäusl, C. (2013): Fundamentalrisiken und Aktienrenditen – Auch hier gilt, mit weniger Risiko zu einer besseren Performance, in: CORPORATE FINANCE biz, 3/2013, S. 119–123.; 5) Dorfleitner, G./Gleißner, W. (2018): Valuing streams of risky cashflows with risk-value models, in: Journal of Risk, Vol. 20, No. 3 (February 2018), S. 1-27.; 6) Gleißner (2014): Kapitalmarktorientierte Unternehmensbewertung: Erkenntnisse der empirischen Kapitalmarktforschung und alternative Bewertungsmethoden, in: Corporate Finance 4/2014.

# Derivation from risk simulation of corporate planning



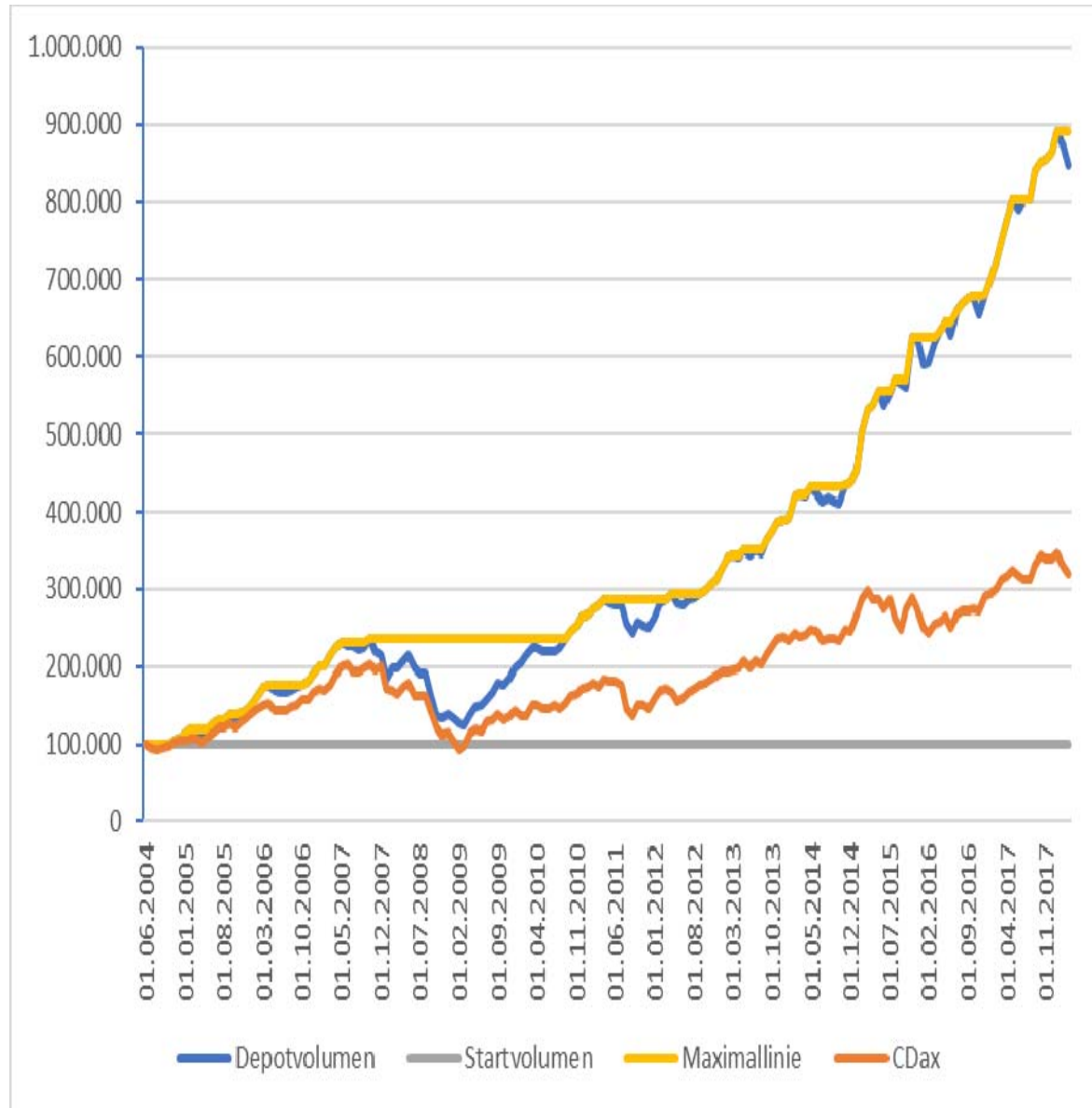
1. see Dorfleitner, G./Gleißner, W. (2018): Valuing streams of risky cashflows with risk-value models, in: Journal of Risk, Vol. 20, No. 3 (February 2018), S. 1-27.  
 2. Gleißner, W./Ernst, D. (2019): Company valuation as result of risk analysis: replication approach as an alternative to the CAPM, in: Business Valuation OIV Journal, Vol. 1, No. 1 (Frühjahr 2019), S. 3-18.

## Preliminary empirical results

Shares of financially sustainable companies generate an excess return over the total market (CDAX).

Over a period of 14 years  
(from 30.04.2004 to 30.03.2018)

an excess return of 8.0% p.a (annual rebalancing, equal weighted portfolio) is generated.



## Conclusions for „Economic Sustainability“

- Economic Sustainability is legally associated with „good“ corporate governance
- Existing measures for Economic Sustainability (e.g., GRI 4.0) are inadequate to capture long-term value creation of the firm
- Alternative measures are suggested to capture Economic Sustainability
- Measures are associated with risk simulation of corporate planning
- Measures allow management, shareholders and other stakeholders better insights in long-term value creation of the firm.