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Istanbul Insurance Conference Earthquake Risk, Modelling & Role of the Broker

Importance of Diversification

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When do catastrophe models give the *right* answer?

Guy Carpenter's Risk Management Process

- Helping our clients achieve their business objectives

1. Analysis of portfolio composition

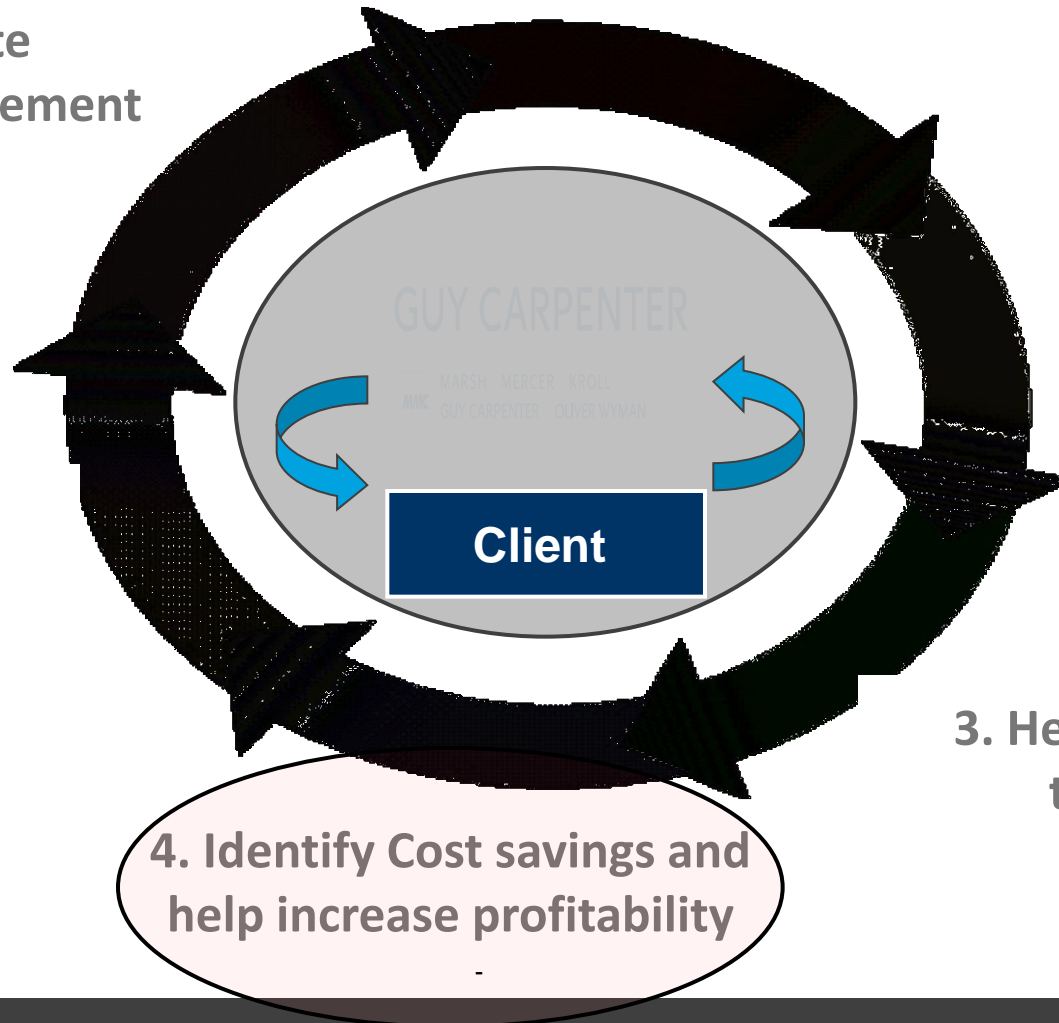
2. Measuring catastrophe risk

3. Help define risk tolerance

4. Identify Cost savings and help increase profitability

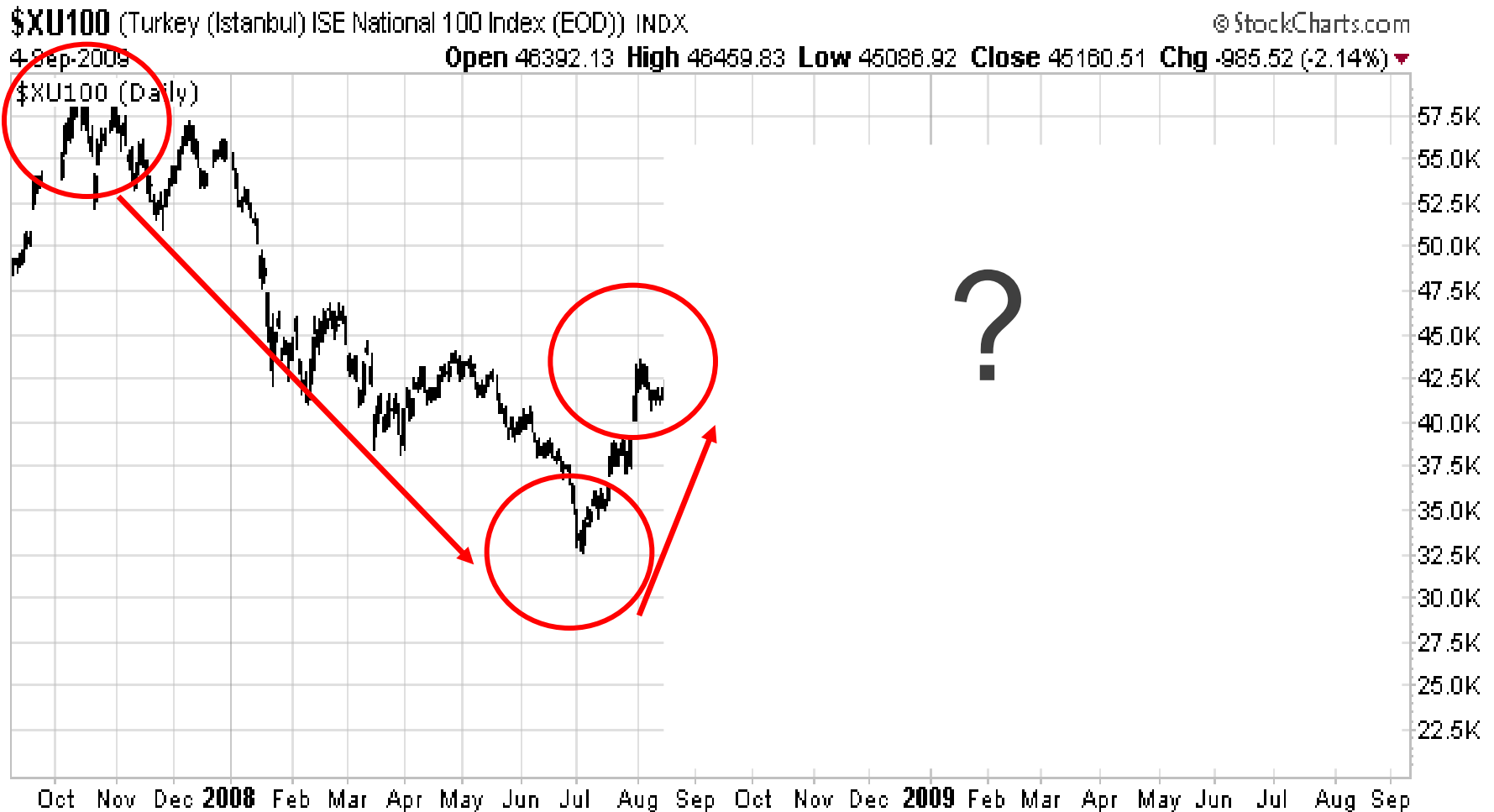
6. Execute Program placement

5. Marketing Strategy



Identify Cost Savings and help increase Profitability

Analogy of Investing in the Turkish stock market at August 2008



Aim is to reduce volatility and maximise returns











Identify Cost Savings and help increase Profitability

Analogy of Investing in the Turkish stock market at August 2008

Strategy 1: Investing in Football Clubs

 BEŞİKTAŞ JK	69%
 TRABZONSPOR	-35%
 <small>Site oficial do clube Fenerbahçe fenerbahce.org</small>	-32%
	1%

Strategy 2: Investing in Banks

 AKBANK	34%
 ANADOLUBANK	25%
 FINANSBANK	25%
 Şekerbank	0%
 TEKFENBANK	-37%
 TEKSTILBANK	-46%
 TEB	16%
 Garanti	48%
 TÜRKİYE İŞ BANKASI	10%
 YapıKredi	11%
	9%

Strategy 3: Investing in 5 ICE 100s

 ERDEMİR	-30%
 TAV	-33%
 TURCCAS	-32%
 GSD Holding	-46%
 İhlas Ev Aletleri	-56%
	-39%

Strategy 4: Investing in top 10 ICE firms

 Top 10	11%
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Strategy 5: Investing in top 20 ICE firms

 Top 20	14%
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Strategy 6: Investing in top 30 ICE firms

 Top 30	10%
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Strategy 7: Investing in top 100 ICE firms

 Top 100	1%
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A selective degree of diversification is required

Identify Cost Savings and help increase Profitability

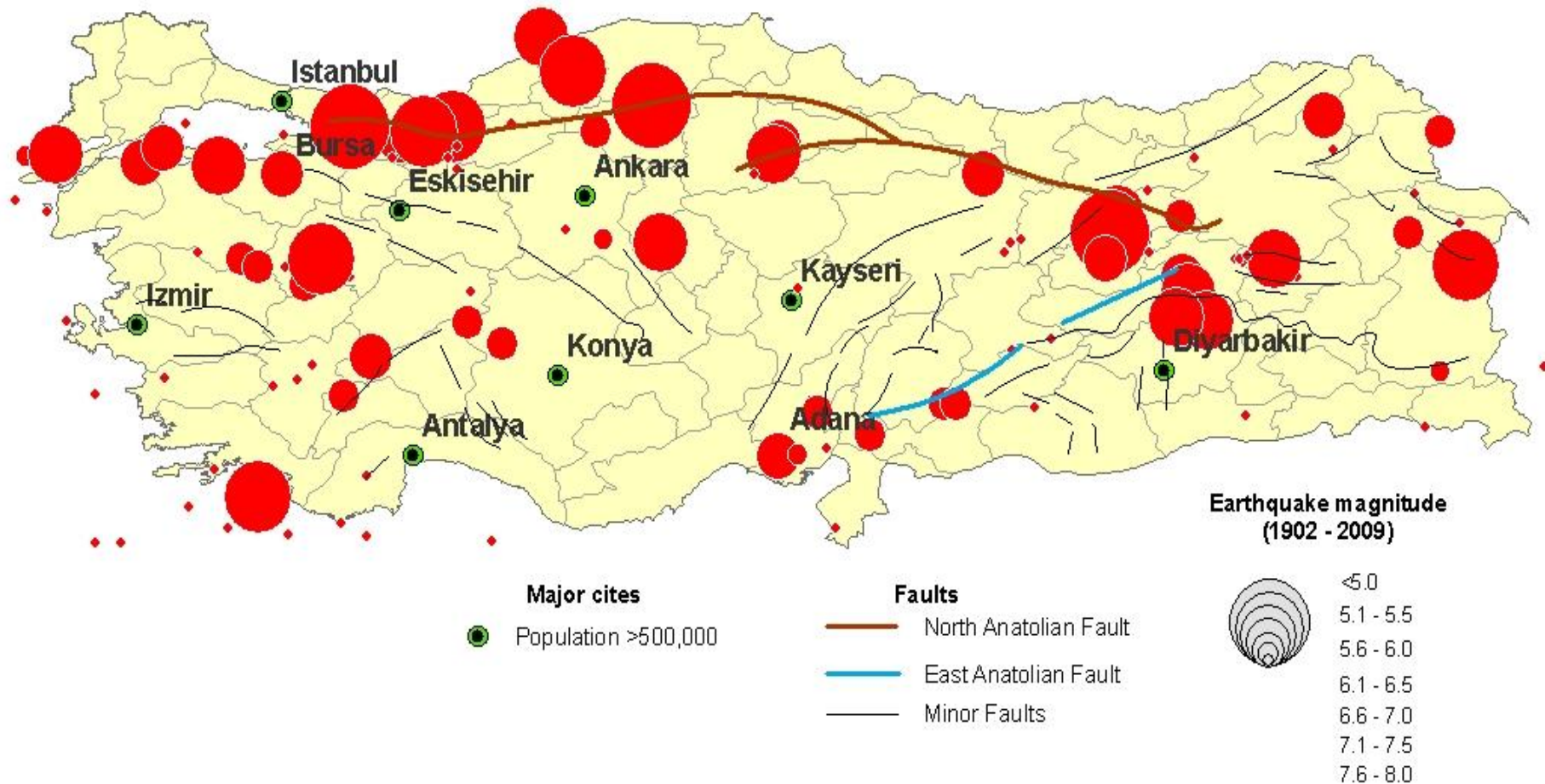
Analogy of Investing in the Turkish stock market at August 2008



Selective diversification out-performed the market

Identify Cost Savings and help increase Profitability

Underwriting Turkish Earthquake Risk – Historical Turkish earthquakes (1902-2009)

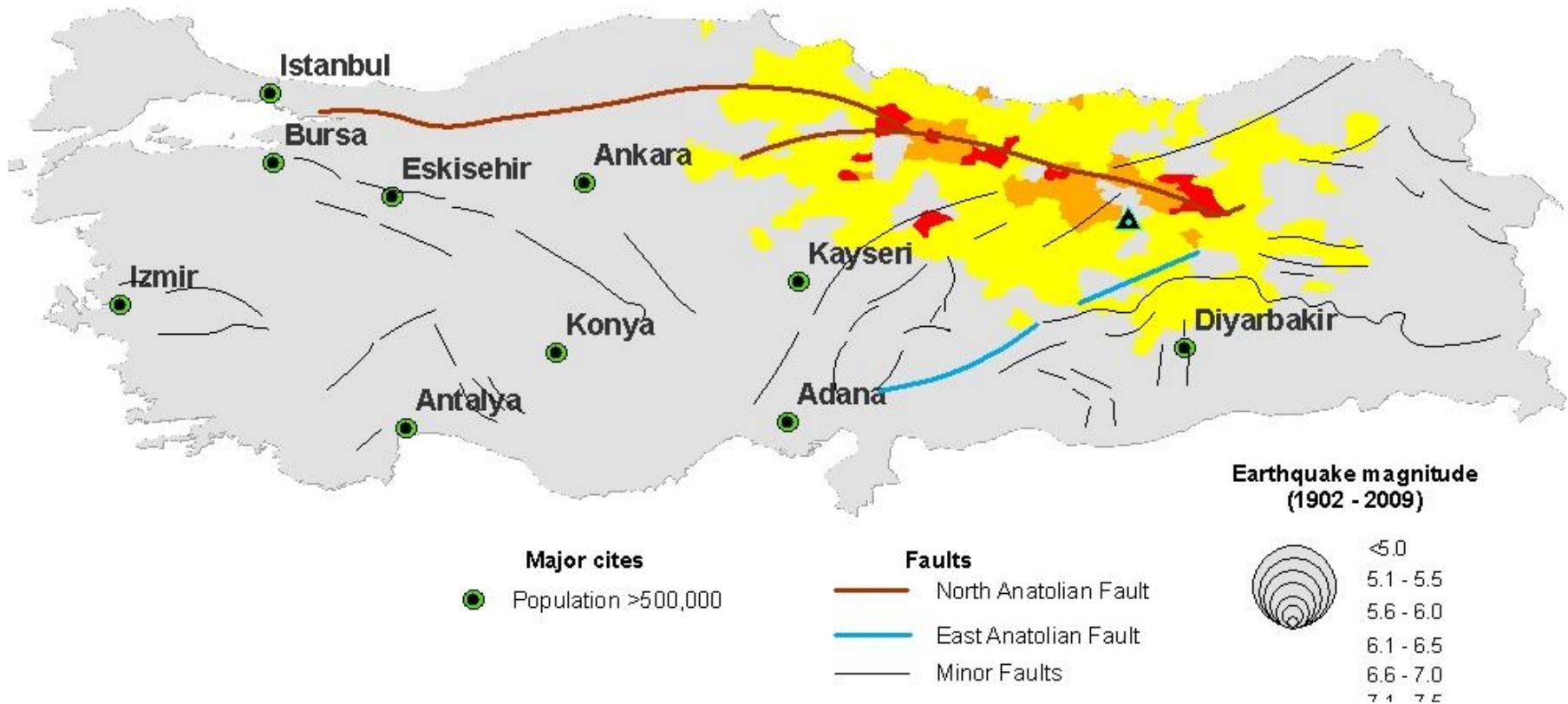


Geographic diversification reduces probability of ruin and increases returns

Identify Cost Savings and help increase Profitability

Underwriting Turkish Earthquake Risk – key historical events

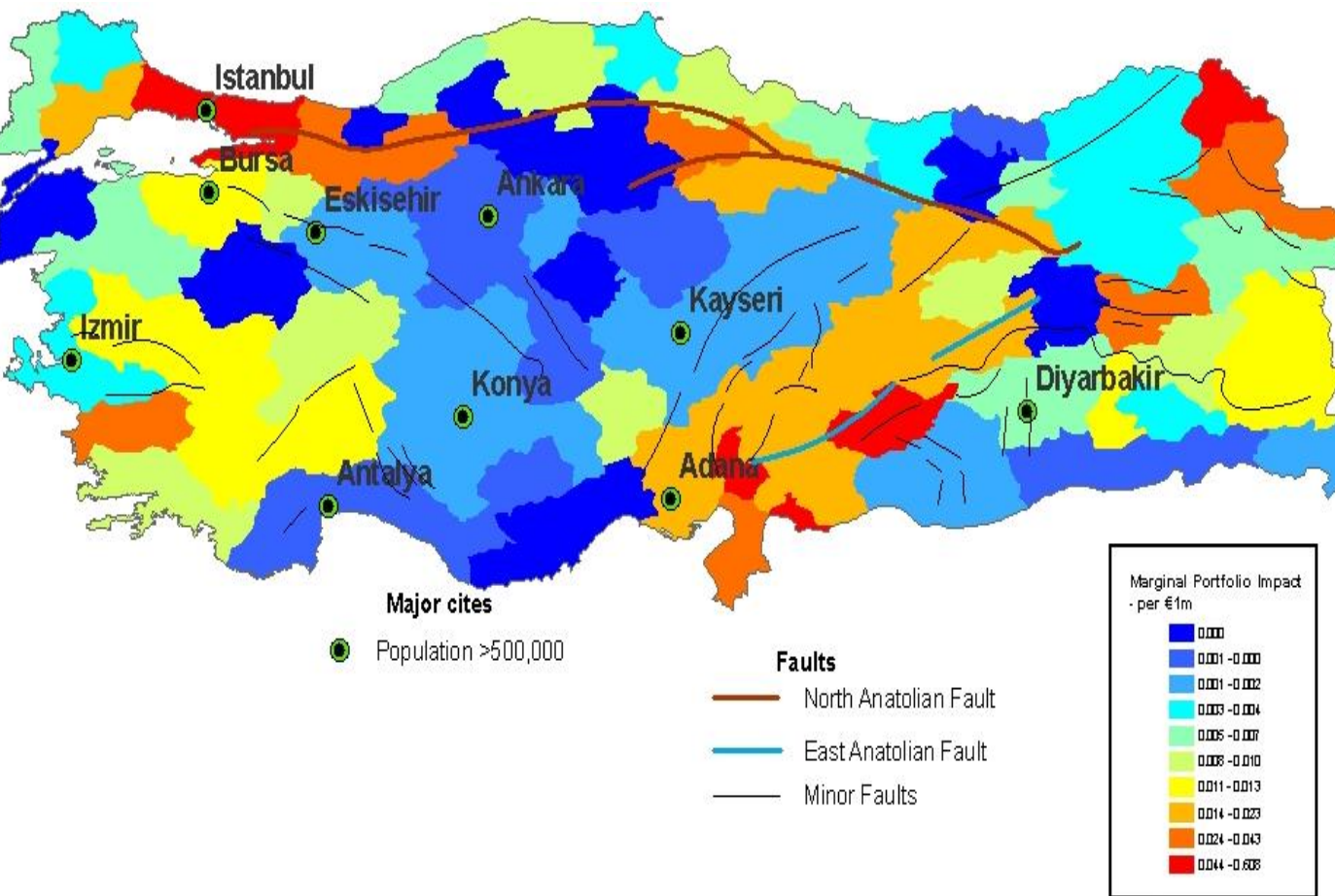
Erzincan 1939 (€7-9bn; 6% population)



Geographic diversification generates portfolio resilience

Identify Cost Savings and help increase Profitability

Underwriting Turkish Earthquake Risk – Gradient ^{ix} map



Minimal Growth Opportunity

Rank	State	Gradient per sq/km	Index
1	YALOVA	0.61	100%
2	OSMANIYE	0.08	12.5%
3	KOCAELI	0.06	9.7%
4	ARDAHAN	0.06	9.6%
5	ADIYAMAN	0.06	9.6%
6	ISTANBUL	0.05	7.9%

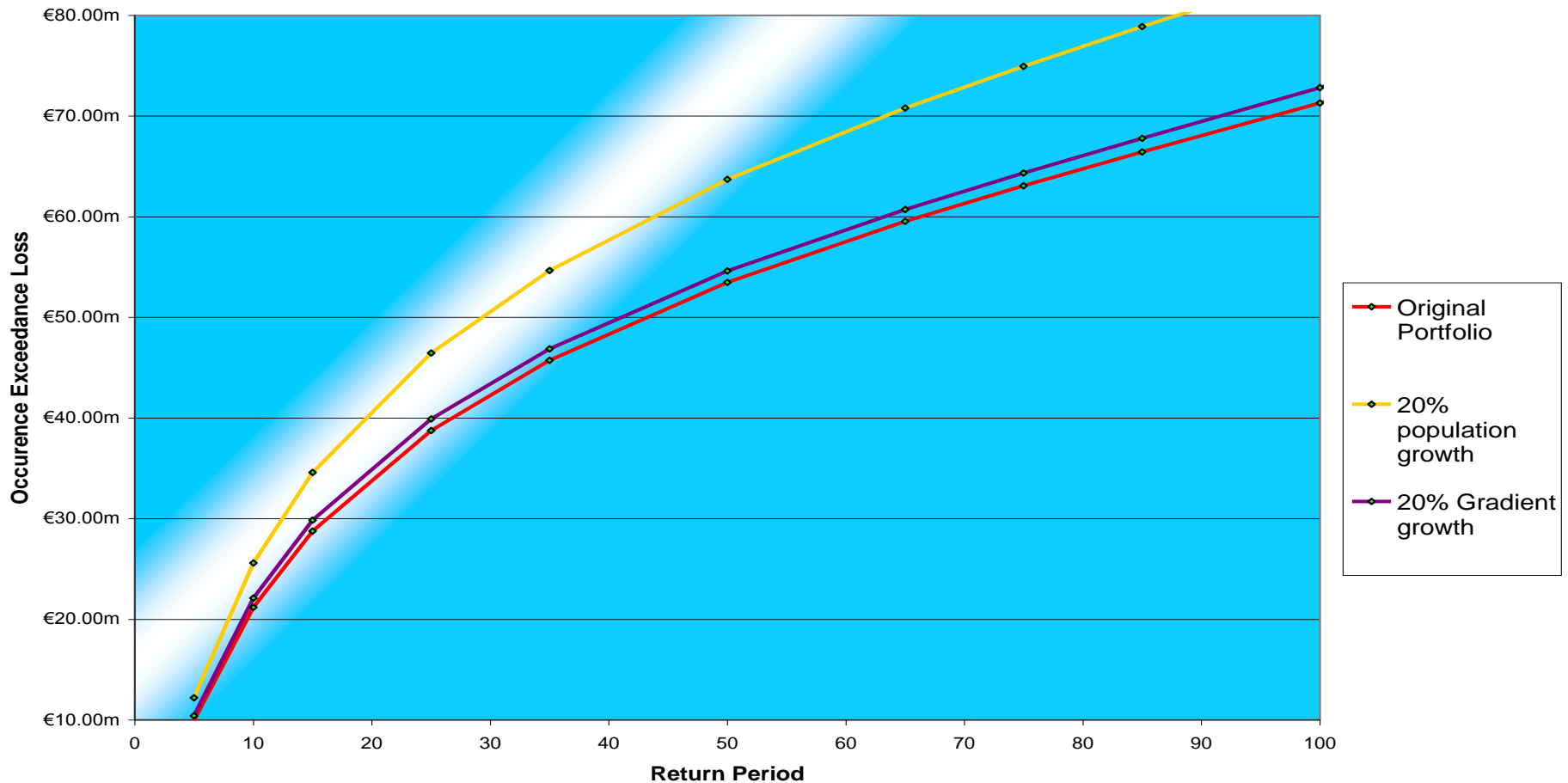
Maximum Growth Opportunity

Rank	State	Gradient per sq/km	Index
56	SIVAS	0.00	0.3%
58	ESKISEHIR	0.00	0.2%
61	KONYA	0.00	0.2%
64	ANTALYA	0.00	0.1%
67	TRABZON	0.00	0.1%
69	ANKARA	0.00	0.0%

Diversifying the business albeit by adding minimal correlated quake risk

Identify Cost Savings and help increase Profitability

Underwriting Turkish Earthquake Risk – Gradient^{ix} savings



Gradient^{ix} tool helps achieve geographic diversification and deliver cost savings



Understanding location/account *relativities* is key