

chapter 1 Introduction

* Financial econometrics



application of statistical and mathematical techniques to problem in finance.

* Type of Data 8-

* 1. time series data

* 2. cross sectional data

* 3. panel data

* 4. pooled cross-sectional data

(2000-2018) observe the same variable → specific period

* no time → time dimension ←

at the same point of time

(different variable at the same time)

* no time dimension

variable or variables at the same time

* cross sectional + time series = panel data

↓

* Example 8-

(1) time series

obs	year	GDP	Income
1	1950		
2	1951		
	2018		

تسلسل زمني للبيانات في متغير واحد (1950 - 2018)

(2) cross sectional

obs	wage	edu	age	gender
1	250	15	20	F
2	500	12	30	M

بيانات مقطعية في متغير واحد

(3) panel data non experimental data

obs	city	year	population	murders
1	1	1986		
2	1	1990		
3	2	1986		
4	2	1990		

* unbalanced panel → في الشركات في مؤامرات
في مؤامرات في مؤامرات

X 1993

1995

1997

Y 1993

1995

1997

→ $X \neq Y$ ليس في
في مؤامرات

* Data → 1) experimentelle في مؤامرات
2) non experimentelle observe

* time not important

put firm as individual → في مؤامرات

1993 a

i

1995 a

→

في مؤامرات في مؤامرات

في مؤامرات في مؤامرات

1

* to identify the relationship between X, Y we need :-

1) economic theory (income, Exp)

2) Finance theory (risk, return) CAPM

2 Formulate theoretical model

3 collect data

4 estimate model

5 is the model adequate

No

Yes

reformulate model

use for analysis

* $\bar{y} = B_0 + B_1 \bar{x} + U \rightarrow$ error term $\downarrow$
 Lihasi Ujaino

$y =$ intercept When $x = 0$

$x = 0$

$y = 5$



Y di atas Y Lajul Gili - gidi

$B_0 \rightarrow x = 0$

$B_1 \rightarrow y = 0 \rightarrow \text{slope} = \frac{\Delta y}{\Delta x}$

Ex $\rightarrow$ Consumption = $B_0 + B_1$ income x
 y

Single linear regression $\rightarrow$ dependent
 independent

$y = a + bx + u$

(x, y) scattered = Estimable

$(x, y) = (y, x)$

$U =$ error term