

Checkpoint Exam 1 (Readings 1–16) - Questions

Questions 1–4 relate to Goldensand Jewelry, Ltd.

Introduction

Rajesh Singh is the CFO of Goldensand Jewelry, Ltd, a London-based retailer of fine jewelry and watches. Singh has noticed that the price of gold has begun to increase. If economic activity continues to pick up, the price of gold is likely to accelerate its rate of increase as both the level of demand and inflation rates increase.

Implications of Rising Gold Price

Singh has become concerned about the cost implications for Goldensand if gold prices continue to rise. He has requested a meeting with Anita Biscayne, Goldensand's COO. In preparation for the meeting, Singh asked one of his staff, Yasunobu Hara, to prepare a regression analysis comparing the price of gold to the average cost of Goldensand's purchases of finished gold jewelry. Hara provides the regression results as shown in Exhibit 1.

Exhibit 1: 1979–2009 Annual Data (31 Observations)

Variable	Coefficient	Standard Error of the Coefficient
Intercept	11.06	7.29
Cost of gold	2.897	0.615

standard error of the forecast = 117.8

Testing for Heteroskedasticity

Biscayne remarks that the dramatic increase in the price level over the past 30 years leads her to suspect heteroskedasticity in the regression results. She suggests to Singh that they should conduct a Breusch-Pagan chi-square test for heteroskedasticity by calculating the following test statistic:

$$n \times R^2 \text{ with } k \text{ degrees of freedom}$$

where:

n = number of observations

R^2 = R^2 of the regression of jewelry prices on gold prices

k = number of independent variables

Model Misspecification

Biscayne and Singh have various views on the potential for model misspecification and the effect of any such misspecification.

- Biscayne worries that the regression model is misspecified because it does not include a variable to measure the cost of the highly specialized labor used by manufacturing jewelers. She points out that the effect of omitting an important variable in a regression analysis is that the regression coefficients will be unbiased and inconsistent.
- Singh adds that another common consequence of misspecifying a regression analysis is creating undesired stationarity.

Multiple Regression

Hara conducts a series of regression analyses using all possible combinations of the suggested independent variables based on their average quarterly values. He returns with the following regression results as shown in **Exhibit 3** for the equation which uses all suggested independent variables.

Exhibit 3: 1999–2009 Quarterly Data (44 Observations)

Independent Variables	Coefficient	t-Statistic
Intercept	-3.9	3.7
Gold price	4.7	14.5
Silver price	1.2	7.8
Platinum price	3.5	3.1
Labor costs	0.82	2.4
GDP (EU)	0.000274	5.7
GDP (Middle East)	0.000049	3.6
Personal income (EU)	0.000314	2.1
Personal income (Middle East)	0.009876	2.2

R²: 0.55
Durbin-Watson: 3.89

Hara is concerned about the equation described in **Exhibit 3**. He makes the following statement:

The model appears to suffer from multicollinearity. Dropping one or more independent variables will increase the coefficient of determination.

Biscayne responds with the following statement:

A serial correlation problem can be addressed by using the Newey-West method to adjust the R^2 .

Question 1 of 24

Is Biscayne correct with regard to the specification of the Breusch-Pagan test?

- A) No, because it is an F -test.
- B) No, because the wrong R^2 is used.
- C) No, because the degrees of freedom are equal to k and $n - k - 1$.

Question 2 of 24

Regarding the comments on the potential consequences of misspecification in the simple linear regression, is Singh correct or incorrect regarding his comment on his concern over stationarity, and is Biscayne correct or incorrect about the effect of omitting an important variable?

- A) Only Singh is incorrect.
- B) Only Biscayne is incorrect.
- C) Both are incorrect.

Question 3 of 24

Is Hara's Statement 3 about multicollinearity accurate?

- A) Yes.
- B) No, because removal of independent variables is a remedy for residual autocorrelation.
- C) No, because the coefficient of determination would not increase.

Question 4 of 24

Is Biscayne correct regarding his statement concerning how to correct for autocorrelation?

- A)** No, because the White method is used to adjust the R^2 .
- B)** No, because the Newey-West method adjusts the standard errors.
- C)** No, because the Hansen method is used to address the problem of multicollinearity.

Questions 5-8 relate to Robert Williams.

Robert Williams is a junior analyst at Anderson Brothers, a large Wall Street brokerage firm. He reports to Will McDonald, the chief economist for Anderson Brothers. McDonald provides economic research, forecasts, and interpretation of economic data to all of Anderson's investment departments, as well as to the firm's clients. McDonald has asked Williams to analyze economic trends in the country of Bundovia. Bundovia has strict capital controls limiting the flow of capital into and out of the country. The currency of Bundovia is the bunco (BUN).

McDonald believes that the Bundovian economy is experiencing a hyper-inflationary environment and that the Bundovian government is poised to follow a restrictive monetary and fiscal policy to combat high inflation.

Williams is also permitted to trade in the forex markets when he sees an opportunity to make a profit. Williams' bank quotes the following exchange rates to him:

- USD/GBP = 2.0010 – 20
- USD/SFr = 0.8550 – 60

Williams asks the bank for a GBP/SFr cross rate.

Williams receives the following forward rate quotes from the same bank:

- 30-day forward rate: USD/GBP = 2.0045 – 55
- 60-day forward rate: USD/GBP = 2.0075 – 85

Williams decides to go long 1 million GBP (and short USD) in the 60-day forward contract.

30 days after the initiation of the USD/GBP forward contract, the exchange rate and interest rates are as follows:

Quotes	USD/GBP
Spot	2.0086/2.0089
30-day forward	+7.6/+8
60-day forward	+8.7/+9.1
90-day forward	+9.2/+9.8

Interest Rates	USD	GBP
30 day	4.00%	3.00%
60 day	4.25%	3.00%