

VALIDATION OF THE SUPERVISORY ANALYST EXAM (SERIES 16) BY THE NEW YORK STOCK EXCHANGE

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ABSTRACT: The Supervisory Analyst (Series 16) Examination is a criterion-referenced licensure/certification examination used to qualify persons for supervisory positions in financial data analysis for New York Stock Exchange member firms. A job analysis was conducted to update the examination to ensure its content validity. The analysis revealed 4 major tasks performed by the supervisory analyst. KSAs were determined for each of the tasks. The KSAs were distributed between two parts: 1) Securities Analysis, and 2) Regulatory Administration. Multiple-choice items were written for each part, and the distribution of items was designed to reflect the relative weights of the KSAs as determined by the job analysis.

The organization in which the study was completed: For the New York Stock Exchange Qualifications Testing Unit.

Reason for the Study: To document and update the content validity of a currently existing qualifications test.

A description of the position to be considered: The New York Stock Exchange (NYSE) develops several qualifications (criterion-referenced) examinations for the registration of securities personnel. One of these exams is the Supervisory Analyst (Series 16) Examination. A supervisory analyst is an employee of an NYSE member organization who is responsible for approving written and oral communications on the analyses of individual companies, industries, governments, markets, and other investment vehicles, to provide information for making investment decisions. The primary purpose of the Supervisory Analyst's position is to verify that all communications with customers and the general public are in compliance with the regulations set forth by the Securities and Exchange Commission (SEC) and by the NYSE. In many

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organizations, the Supervisory Analyst is also responsible for implementing research systems for securities analysis, although this is generally a secondary function.

To show evidence of acceptability as a supervisory analyst, a person must demonstrate sufficient experience (at least 3 years as a securities analyst), and must pass the Supervisory Analyst Examination. The exam, by Exchange rules, has two parts: 1) Securities Analysis; and 2) Regulatory Administration (i.e., rules of the NYSE and SEC). A candidate must receive a passing score in both parts in order to qualify as a Supervisory Analyst.

The applicable Dictionary of Occupational Titles code for this position is 020.167-014 (Financial Analyst).

Sampling strategies employed in the study: Subject matter experts (SMEs) were sampled from the NYSE's roster of registered supervisory analysts. All of the SMEs were currently working as analysts for New York Stock Exchange member firms at the time of the study. Most of the participants were prominent individuals in the field previously known to the NYSE staff or referred to the staff by other analysts.

Job analysis methodology/

Data collection strategies: The development of this examination followed the model presented by Mussio and Smith (1973) for the development of content valid tests. The steps taken in this analysis were as follows:

Step 1: The subject matter experts were contacted by the NYSE staff and were asked to provide company job descriptions of the Supervisory Analyst position. From these job descriptions, a preliminary list of 8 tasks was constructed.

Step 2: Individual interviews were conducted with two subject matter experts. Using the preliminary list of tasks as a "prompt" (see Gael, 1983, p. 77), the subject matter experts were asked to modify, add to, or delete from the list as they deemed appropriate in order to accurately describe their own positions. The changes were recorded by the job analysts and combined to construct a 2nd draft of the task list.

Step 3: Individual interviews were conducted with three more SMEs in the same manner as in Step 2, using the second draft of the task list as a prompt. The results of these interviews were used to modify and expand the task list into a 3rd draft, which served as a prompt for interviews with two more SMEs.

Step 4: The 3rd draft was modified into a 4th draft consisting of 5 major tasks, along with the particular behaviors required to perform each task. An example of one task from the 4th draft, along with the accompanying behaviors, appears below:

TASK: Disseminate research findings and recommendations based on those findings to clients and other interested parties.

BEHAVIORS:

1. Recommend and provide research information and opinions on various securities and industries to institutional and other clients through oral, written, and electronic means.
2. Recommend and provide research information and opinions on various securities and industries to press, media, and general public subsequent to distribution to customers, according to the firm's compliance policies.
3. Review all analysts' and other employees speeches to ensure compliance with industry rules.

The purpose for obtaining the behaviors under each task was to facilitate the determination of the knowledge, skills, and abilities (KSAs) needed to perform those tasks (see Mussio & Smith, 1973, p. 58). This procedure also lessens the likelihood of "missing" an important KSA that may be necessary to the job, but would not be obvious due to the wording of the task statement.

Step 5: The 4th draft of the task list served as the basis for interviews with two more subject matter experts. The modifications/additions from these interviews were used for the development of a list of 4 tasks, plus a preliminary list of knowledge areas needed to perform each task. These lists were presented to a committee of 6 subject matter experts, who discussed, amended, and revised the lists, and gave final approval to them as the tasks and necessary knowledge areas of the Supervisory Analyst position. The group approved these lists as the blueprint for the new test.

Step 6: Each knowledge area determined in Step 5 was assigned to one of two subtests: 1) Securities Analysis; and 2) Regulatory Administration. A second group of 7 subject matter experts were then asked to weight the relative importance of the KSAs for the two parts of the exam. The averages of these weights were computed, to serve as the final weights for the exam. These weights were used as the basis for determining the proportions of items allotted to each of the knowledge areas.

The characteristics of the subject samples: The sample of subject matter experts included 16 Supervisory Analysts from 10 NYSE member firms, ranging from small firms with "one man" research departments, to major retail broker/dealers with large research departments. All of the subject matter experts were registered as Supervisory Analysts with the NYSE.

Other relevant data for the sample of subject matter experts were as follows:

<u>SEX:</u>	<u>RACE:</u>
Male: 12	White: 15
Female: 4	Asian: 1
<u>AGE:</u>	<u>YEARS IN SECURITIES INDUSTRY:</u>
Mean: 46.4	Mean: 13.7
SD: 8.9	SD: 6.6
N: 13	N: 12

Complete description of all variables in the study: The final list of tasks, along with their associated knowledges, appears in Figure 1.

The final list of knowledge areas, along with their associated weights for Parts 1 and 2 of the test, appear in Figures 2 and 3 respectively.

The list of knowledge areas and their associated weights served as the basis for the blueprint for the test. The test forms were constructed to be 100 multiple choice items (4 choices per item) in length, one item

Figure 1

Task and Knowledge Areas for the Supervisory Analyst Position

TASK 1:

Review and approve research reports written by analysts to ensure that all opinions and information released to clients and the public are of the highest quality.

Knowledge Required:

- A. Industry rules with regard to the preparation/ review of research reports (Part 2)
1. NYSE Rule 472 (Communications with the Public)
 2. NYSE Rule 791 (Communications with Options Customer)
 3. Securities Act of 1933 (Sections 5b(1), 5b(2), 17b; Rules 134, 134A, 135, 135A, 137, 138, 139)
 4. Securities Act of 1934 (Section 9a(5); Regulations 10b-1, 10b-2, 10b-3, 10b-5)

Figure 1 (Continued)

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- B. Crucial parts of a research report (e.g., title, gist of the report, earnings/growth potential) (Part 2)
 - C. Typical derivative products (e.g., mutual funds, REITs, fixed-income securities) (Part 1)

TASK 2:

Prepare research reports on the financial condition of and outlook for domestic and foreign corporations, partnerships, the federal government, state and local governments, and foreign governments, for the rendering of opinions to substantiate expectations of performance.

Knowledge Required:

- A. Financial Data Analysis (Part 1)
 - 1. Income statement analysis
 - 2. Cash flow table analysis
 - 3. Balance sheet analysis
 - 4. Procedures for determining trends in earnings
- B. Other equity analyses and sources of data (Part 1)
(e.g. perception of the company, competition)
- C. Other fixed income analyses (Part 1)
(e.g. duration and convexity, yield analysis)

TASK 3:

Disseminate research findings and recommendations based on those findings to clients and other interested parties.

Knowledge Required:

- A. Procedures for disseminating research data (Part 2)
 - 1. Electronic
 - 2. Written
 - 3. Oral
- B. Industry rules with regard to the dissemination of information (Part 2)
(NYSE rules 472.20, 791(d), 791.10; SEC Rule 134A; Blue Sky provisions)

TASK 4:

Conduct internal surveillance functions of employee activities to maintain control and confidentiality of research information and to prevent misuse and abuse.

Knowledge Required:

- A. Procedures for monitoring trading by employees and their families for securities under study (Part 2)
 - B. Procedures for reviewing analysts' contacts with various parts of the firm when inside information is involved (Part 2)
 - C. Industry rules with regard to maintaining control and confidentiality of research information (NYSE Rules 342(b), 342.21, 401 Interpretation, 407; NASD Article III Section 27) (Part 2)
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Figure 2**Final List of Weighted Knowledges for Part 1–Securities Analysis**

	<u>WEIGHT</u>
I. Derivative Products	<u>14</u>
II. Financial Data Analysis	<u>45</u>
a) Income statements	13
b) Cash flow tables	<u>11</u>
c) Balance sheets	<u>13</u>
d) Trends in earnings	<u>8</u>
III. Other equity analyses/Sources of data	18
IV. Other fixed income analyses/sources of data	<u>23</u>
TOTAL	<u>100</u>

Figure 3**Final List of Weighted Knowledges for Part 2–Regulatory Administration**

	<u>WEIGHT</u>
I. Industry rules regarding the preparation/review of reports	<u>57</u>
a) NYSE Rule 472	44
b) NYSE Rule 791	<u>3</u>
c) Investment Advisers Act of 1940	<u>2</u>
d) Securities Act of 1933	<u>4</u>
e) Securities Act of 1934	<u>4</u>
II. Industry rules regarding dissemination of research findings	<u>11</u>
a) Blue Sky provisions	<u>11</u>
III. Industry rules regarding internal surveillance functions	9
IV. Crucial parts of a research report	<u>7</u>
V. Procedures for disseminating research data	<u>6</u>
VI. Procedures for monitoring employee trading	<u>5</u>
VII. Procedures for reviewing analysts' contacts	<u>5</u>
TOTAL	<u>100</u>

per KSA. The items were written by subject matter experts and were assigned to each content area. For reasons of test security, the actual test items cannot be shown. However, several sample items from each area are provided herewith:

Sample 1**Topic Area: Rule 472 (Exaggerated Language)**

Question 1 is based on the following passage from a member firm's sales literature:

"XYZ securities has been a full-service securities broker for more than 50 years. Our research department is staffed by experienced professionals with unmatched advice."

1. Which of these phrases constitutes a violation of NYSE rules?
- (A) "full-service"
 - (B) "more than 50 years"
 - (C) "experienced professionals"
 - *(D) "unmatched advice"

Sample 2**Topic Area: Cash Flow Tables**

1. An increase in a company's deferred income tax liability would affect earnings per share and cash flow in which of the following ways?

	Earnings per share	Cash flow
*(A)	Decrease	No effect
(B)	Decrease	Increase
(C)	No effect	Increase
(D)	Increase	Decrease

Sample 3**Topic Area: Income Statements**

3. Company A has an investment in Company B. Company A wishes to take into its income statement the pro rata share of Company B's profits. To do so, Company A must own what percentage of Company B's common stock?
- (A) 10%
 - *(B) 20%
 - (C) 35%
 - (D) 50%

The items for the final test forms were selected from the pool to match exactly the specifications outlined in Figures 2 and 3 (For example, 14 items for Part 1 were drawn from the area of "Derivative Products", 13 items were drawn from the area of "Income Statements," and 11 items were drawn from "Cash Flow Tables").

Justification: The Supervisory Analyst Examination is a licensure/certification test, not an employee selection test. Consequently, the pur-

pose of this exam is to *protect the public* by ensuring that those who are licensed possess the necessary knowledge and skills to perform the activities of the job safely and effectively.

Standard 11.1 of the Standards for Educational and Psychological Testing (AERA/APA/NCME, 1985) states:

“The content domain to be covered by a licensure or certification test should be defined clearly and explained in terms of the importance of the content for competent performance in an occupation. A rationale should be provided to support a claim that the knowledge or skills being assessed are required for competent performance in an occupation and are consistent with the purpose for which the licensing or certification program was instituted.”

The general procedure for determining the content domain of a position is through a job analysis. Content validity, by definition, requires *judgment* as to the correspondence of abilities covered in a test with abilities needed for success on the job. The intent is to develop a measurement instrument that can be logically shown to be job-related, based on systematic procedures and the use of expert judgment.

Thus, in order to determine what knowledge was needed for performing the Supervisory Analyst's job adequately, this study began with the identification of the major tasks of the position. This was done to avoid: 1) the identification of knowledge areas that *were not* necessary for adequate performance, and 2) the failure to identify knowledge areas that *were* necessary for performance.

Once the primary tasks were identified, the job analysts then determined the necessary knowledge for performing those tasks through interviews with individual SMEs, and through the consensus of a committee of experts. The determination of these knowledge areas served as the basis for the construction of the test, which could thereby be inferentially “linked” back to the job. The attainment of weights ensured that the test content reflected the relative importance of the various knowledge areas.

Comparison to other studies: No other study of this position has been performed using these job analysis techniques.

Potential generalizability: The methodology employed in this study is a commonly used procedure for the development of licensure/certification examinations. It is applicable to a wide variety of positions, and following it correctly should lead to the development of measurement instruments that are job-related and acceptable under the Uniform Guidelines on Employee Selection Procedures (1978).

The results of this job analysis are unique to the securities industry. However, they may be partially applicable to other examinations for

financial analysis personnel, including tests for the selection of such individuals.

REFERENCES

- American Educational Research Association, American Psychological Association, National Council on Measurement in Education (1985). *Standards for educational and psychological tests*, Washington, D.C.: American Psychological Association.
- Gael, S. (1983). *Job analysis—A guide to assessing work activities*. San Francisco: Jossey-Bass Publishers.
- Mussio, S.J. and Smith, M.K. (1973). *Content validity: A procedural manual*. Chicago: International Personnel Management Association.
- Uniform guidelines on employee selection procedures (1978). *Federal Register*, 43, 38, 290-38, 309.