Chapter 1 : Unit 33 Data Analysis and Design Assignment Brief

40 DATA ANALYSIS AND FINDINGS Introduction This chapter will cover the data analysis, which includes the normality test, descriptive analysis, correlation analysis and multiple regression tests.

Cite Harvard Anvar, A. Return on Assets and Financial Soundness Analysis: Ensuring financial stability and soundness of companies operating in a particular industry depends on the several internal and external factors, which can be classified as firm and macro levels. According to classical business finance theories, return on assets ROA are thought to be the most effective instrument of measuring monitoring the financial status of companies. In most literature, revenues from sales, total operating cost and asset structure of a company plays an important role in shaping an acceptable ROA indicator. In this paper, impact level of these factors on ROA was examined in case of three grain processing companies in Uzbekistan. Conducted OLS test showed that total operating cost and asset structure had negative influence on ROA, while revenues from sale supported the financial stability of the companies. Capital, profit, income, cost, tax and turnover indicators reflect the overall financial profile and play central role in strategic management and decision-making. In a wider horizon, financial indicators are classified as liquidity, operational, profitability, debt and market indicators. Especially return on assets gains inherent importance in investor evaluation. Understanding the trajectory provides a foundation for taking a longer-term perspective that can help companies shape winning strategies Hagel et al, Despite a great deal of financial soundness indicators, return on assets depicts the map for decision making in investment an management processes. Return reflects the true and the most reliable stance and scenario of financial health of the company by covering two key financial stability indicators: Asset structure provides a foundation and prerequisite for the presence of company, while profit level shows to what extent the company is operating. Combination of both stability-reflecting indicators how company is working out the invested capital by bearing profit. Uzbekistan is the most diversified economy of Central Asia with progressively transiting economic sectors from agricultural and raw material to industrial output. In the economic development history of Uzbekistan, agricultural sector, namely cotton production had a strong position importance gross national output, employment, income. Grain industry was a comparatively new but with a perspective area, which expanded through the reduction of cotton fields. Nowadays, grain industry gains the key position in domestic supply and market saturation of grain and grain products in the economy due to the grain milling companies, located across countries. Their financial health is prone to the default and at non-viability risk. Literature Review Return on assets has been the mostly discussed topic of scientific debates since the emergence of the modern business relations, as it reflects the true scene of the success in doing business. A great deal of literature studies the theoretical and practical aspects of return on assets through multilateral approaches. Moreover, international audit companies regularly publish monitoring reports on the recent trends in the application and limitations of return on assets theory. Results of recent studies showed that there is a growing level of skepticism among researchers over the appropriateness of return on assets as a tool for assessing the financial stability of a company. They proved that ROA is vulnerable to changes in financial condition of a company, especially changes in revenues from sales, income and assets. Lassala, Apetrei and Sapina examined the impact of financial performance of companies on sustainability through financial ratio analysis. Their studies suggested that return on assets is an important indicator of sustainability for companies of specific industries. The study by Youn and Gu attempted to assess the impact of return on assets on the performance of lodging firms in Korea. Their evaluations showed that operational cost and debts had the most considerable effect in return on assets. Methodology Profitability of a company is influenced by micro and macro factors, occurred in firm and economy levels. Other market factors such as seasonal and substitute may lead to significant changes in financial stability of the company. Grain industry companies are often vulnerable to natural factors, like weather condition, environment and agricultural calendar. Research methodology, applied in the paper is based on the set of financial report data and macroeconomic indicators. The total cost embraces all incurred costs company spent during its functioning. Assets structure shows the dynamics of invested capital and the expansion of the company. Analytical part is based on the econometric

analysis in OLS method. The structured model is specified as follows: Data Analysis In the analytical part, financial soundness of selected grain milling companies are tested through OLS test. Hannan-Quinn criterion opted the best-fit model with Durbin-Watson statistic showed that autocorrelation does not exist.

Unit 33 Data Analysis and Design Assignment Solution. TASK 3: Be able to use manipulation and querying tools Explain the benefits of using manipulation and query tools in a relational database system.

Data Analysis and Design Scenario You are working in a company which is developing an application for the organisation of fixtures and results in the English Premier League. Your job as a data analysis and designer is to implement the data requirements summarized below. The people involved in the league include players, coaches, managers, and referees. Each person is identified by a unique personnel id. They are also described by their first and last names along with the date and place of birth. Players are further described by other attributes such as their position on the field goal-keeper, defender, midfielder, or striker and have a squad number associated with them. Teams are uniquely identified by their names. Teams are also described by the city in which they are located. Teams have one manager, a number of coaches, and a number of players. One of these players is the captain. At the beginning of each season all fixtures should be available to view in the database. Each team plays every other team twice. Games are played between two teams with one assigned referee. For any particular game on a particular date, there is one team designated as the hometeam and the other team designated as the awayteam. Once the game has taken place, the final result of the game is recorded. The score and the scorers are recorded for each team. Understand data models and database technologies By relating your answer to the above scenario where applicable: Compare database systems with file based systems and also discuss the benefits andlimitations of different database technologies. Relate your answer to the above scenario. Analyse different approaches to database design. Be able to design and implement relational database systems In this task you are expected to design a relational database system to meet the requirement given in the above scenario and subsequently build a relational database system based on a prepared design. You will apply a range of database tools and techniques to enhance the user interface. All entity types, their attributes and relationships must be clearly shown. You will also be required to show all cardinality and participation constraints. Clearly state any de-normalization, if any, in all your relations and clearly state the reasons for de-normalizing relations in your implemented solution. Your tables should also show all constraints applied at either column or table level. You must include the code used in your report. You may use screen shots for this explaining the different screen sections of the IDE.

Chapter 3 : How to Conduct Data Analysis (with Pictures) - wikiHow

The data analysis and result analysis of the topic has been shown below. The implementation of data has been done using Statistical Package for the Social Sciences (SPSS).

Getting Information â€" Observing, receiving, and otherwise obtaining information from all relevant sources. Interacting With Computers â€" Using computers and computer systems including hardware and software to program, write software, set up functions, enter data, or process information. Processing Information â€" Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data. Communicating with Supervisors, Peers, or Subordinates â€" Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. Identifying Objects, Actions, and Events â€" Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. Updating and Using Relevant Knowledge â€" Keeping up-to-date technically and applying new knowledge to your job. Interpreting the Meaning of Information for Others â€" Translating or explaining what information means and how it can be used. Establishing and Maintaining Interpersonal Relationships â€" Developing constructive and cooperative working relationships with others, and maintaining them over time. Communicating with Persons Outside Organization â€" Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources. This information can be exchanged in person, in writing, or by telephone or e-mail. Making Decisions and Solving Problems â€" Analyzing information and evaluating results to choose the best solution and solve problems. Organizing, Planning, and Prioritizing Work â€" Developing specific goals and plans to prioritize, organize, and accomplish your work. Thinking Creatively â€" Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions. Evaluating Information to Determine Compliance with Standards â€" Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards. Developing Objectives and Strategies â€" Establishing long-range objectives and specifying the strategies and actions to achieve them. Monitor Processes, Materials, or Surroundings â€" Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. Training and Teaching Others â€" Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others. Developing and Building Teams â€" Encouraging and building mutual trust, respect, and cooperation among team members. Judging the Qualities of Things, Services, or People â€" Assessing the value, importance, or quality of things or people. Provide Consultation and Advice to Others â€" Providing guidance and expert advice to management or other groups on technical, systems-, or process-related topics. Coaching and Developing Others â€" Identifying the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills. Coordinating the Work and Activities of Others â€" Getting members of a group to work together to accomplish tasks. Performing Administrative Activities â€" Performing day-to-day administrative tasks such as maintaining information files and processing paperwork. Estimating the Quantifiable Characteristics of Products, Events, or Information â€" Estimating sizes, distances, and quantities; or determining time, costs, resources, or materials needed to perform a work activity. Scheduling Work and Activities â€" Scheduling events, programs, and activities, as well as the work of others. Guiding, Directing, and Motivating Subordinates â€" Providing guidance and direction to subordinates, including setting performance standards and monitoring performance.

Chapter 4 : - Intelligence Analysts

Data analysis is a process of inspecting, cleansing, transforming, and modeling data with the goal of discovering useful information, informing conclusions, and.

We focus on the four types of data analytics we encounter in data science: Descriptive, Diagnostic, Predictive and Prescriptive. In this blog post, we focus on the four types of data analytics we encounter in data science: Their answers have been quite varied. My message to them is that their most important skill will be their ability to translate data into insights that are clear and meaningful to a non-quant. The Swedish statistician Hans Rosling is famous for this. The following TedTalk by Hans Rosling sheds some light: On this theme, it would be worth unpacking some of the tools used to help individuals understand the role of analytics in helping develop valuable insights. One such tool is the 4-dimensional paradigm of analytics. Simplistically, analytics can be divided into four key categories. This is the most common of all forms. In business it provides the analyst a view of key metrics and measures within the business. Similarly, an analyst could have data on a large population of customers. Understanding demographic information on their customers e. Utilising effective visualisation tools enhances the message of descriptive analytics. Why is it happening? On assessment of the descriptive data, diagnostic analytical tools will empower an analyst to drill down and in so doing isolate the root-cause of a problem. Well-designed business information BI dashboards incorporating reading of time-series data i. What is likely to happen? Predictive analytics is all about forecasting. Predictive models typically utilise a variety of variable data to make the prediction. The variability of the component data will have a relationship with what it is likely to predict e. These data are then compiled together into a score or prediction. In a world of great uncertainty, being able to predict allows one to make better decisions. Predictive models are some of the most important utilised across a number of fields. Here are the Top Pitfalls to avoid in Predictive Analytics 4. What do I need to do? The next step up in terms of value and complexity is the prescriptive model. Prescriptive analysis is typically not just with one individual action, but is in fact a host of other actions. A good example of this is a traffic application helping you choose the best route home and taking into account the distance of each route, the speed at which one can travel on each road and, crucially, the current traffic constraints. Another example might be producing an exam time-table such that no students have clashing schedules. Conclusion While different forms of analytics may provide varying amounts of value to a business, they all have their place. With over 13 years of experience in the Southern African, West African and Middle Eastern retail credit markets, Tom has primarily been involved in consulting, analytics, credit bureau and predictive modelling services.

Chapter 5 : Introduction to Categorical Data Analysis

Your job as a data analysis and designer is to implement the data requirements summarized below. The people involved in the league include players, coaches, managers, and referees. The people involved in the league include players, coaches, managers, and referees.

Retrieve Value Given a set of specific cases, find attributes of those cases. What is the value of aggregation function F over a given set S of data cases? What is the sorted order of a set S of data cases according to their value of attribute A? What is the range of values of attribute A in a set S of data cases? What is the distribution of values of attribute A in a set S of data cases? What is the correlation between attributes X and Y over a given set S of data cases? Barriers to effective analysis[edit] Barriers to effective analysis may exist among the analysts performing the data analysis or among the audience. Distinguishing fact from opinion, cognitive biases, and innumeracy are all challenges to sound data analysis. Confusing fact and opinion[edit] You are entitled to your own opinion, but you are not entitled to your own facts. Daniel Patrick Moynihan Effective analysis requires obtaining relevant facts to answer questions, support a conclusion or formal opinion , or test hypotheses. Facts by definition are irrefutable, meaning that any person involved in the analysis should be able to agree upon them. This makes it a fact. Whether persons agree or disagree with the CBO is their own opinion. As another example, the auditor of a public company must arrive at a formal opinion on whether financial statements of publicly traded corporations are "fairly stated, in all material respects. When making the leap from facts to opinions, there is always the possibility that the opinion is erroneous. Cognitive biases[edit] There are a variety of cognitive biases that can adversely affect analysis. In addition, individuals may discredit information that does not support their views. Analysts may be trained specifically to be aware of these biases and how to overcome them. In his book Psychology of Intelligence Analysis, retired CIA analyst Richards Heuer wrote that analysts should clearly delineate their assumptions and chains of inference and specify the degree and source of the uncertainty involved in the conclusions. He emphasized procedures to help surface and debate alternative points of view. However, audiences may not have such literacy with numbers or numeracy ; they are said to be innumerate. Persons communicating the data may also be attempting to mislead or misinform, deliberately using bad numerical techniques. More important may be the number relative to another number, such as the size of government revenue or spending relative to the size of the economy GDP or the amount of cost relative to revenue in corporate financial statements. This numerical technique is referred to as normalization [7] or common-sizing. There are many such techniques employed by analysts, whether adjusting for inflation i. Analysts apply a variety of techniques to address the various quantitative messages described in the section above. Analysts may also analyze data under different assumptions or scenarios. For example, when analysts perform financial statement analysis , they will often recast the financial statements under different assumptions to help arrive at an estimate of future cash flow, which they then discount to present value based on some interest rate, to determine the valuation of the company or its stock. Smart buildings[edit] A data analytics approach can be used in order to predict energy consumption in buildings. Analytics and business intelligence[edit] Main article: Analytics Analytics is the "extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions. Initial data analysis[edit] The most important distinction between the initial data analysis phase and the main analysis phase, is that during initial data analysis one refrains from any analysis that is aimed at answering the original research question. The initial data analysis phase is guided by the following four questions: Data quality can be assessed in several ways, using different types of analysis: Test for common-method variance. The choice of analyses to assess the data quality during the initial data analysis phase depends on the analyses that will be conducted in the main analysis phase. One should check whether structure of measurement instruments corresponds to structure reported in the literature. There are two ways to assess measurement: If the study did not need or use a randomization procedure, one should check the success of the non-random sampling, for instance by checking whether all subgroups of the population of interest are represented in sample. Other possible data distortions that should be checked are: It

is especially important to exactly determine the structure of the sample and specifically the size of the subgroups when subgroup analyses will be performed during the main analysis phase. The characteristics of the data sample can be assessed by looking at: Basic statistics of important variables Scatter plots Cross-tabulations [31] Final stage of the initial data analysis[edit] During the final stage, the findings of the initial data analysis are documented, and necessary, preferable, and possible corrective actions are taken. Also, the original plan for the main data analyses can and should be specified in more detail or rewritten. In order to do this, several decisions about the main data analyses can and should be made: In the case of non- normals: In the case of missing data: In the case of outliers: In case items do not fit the scale: In the case of too small subgroups: In case the randomization procedure seems to be defective:

Chapter 4 Data analysis and findings 96 Four data sets, collected from the 26 student teachers in the study, were analysed, namely observational data (cf. section), which also provided oral data based on the IELTS.

Be able to test and document relational database systems 4. Relational database for English Premier League is as follows: Databases are a collected of files and records containing different data types, interconnected to each other, therefore databases are heterogenous. With the presence of various data types and records, large databases may have integration and implementation errors, which affect system security, reliability, consistency and performance in negative way. Thus in order to obtain a database system which satisfies database properties like Atomicity, consistency, isolation, durability etc. Purpose of testing the database: Testing is done to find the errors in the database, thus improving its quality and effectiveness. Many users are connected with single database and web application , so data is critical from business perspective. Companies that are associated with data storage need to have a reliable and consistent storage medium. If any of the CRUD operations like insert, update, delete etc are performed without verifying the database for its consistency, then there is risk of system crash and data loss, which might affect all the connected users of database. Disadvantages of testing the database: Databases keeps on changing constantly, as operations like insert, update and delete are being performed on them. Thus the setup required to test the database becomes very expensive and bulky. For testing the database, we need to start from scratch. Entire database has to be removed and new test cases have to be created. In this project, I have created six database tables for English Premier League database: Each table is identified by a unique primary key. Foreign key constraints are also defined in respective tables. In this database we can see that: Players, coach, manager, refree are entities involved in English Premier League. A team can be home team or away team. Each team has to play twice, once with home team and once with away team. Players can be captain, striker, midfielder, goal keeper, defender. A captain is assigned to each team. Verification and Validation are two software testing processes, applied on any product or software to check its quality. Here is a list of differences between these two processes. Verification Validation Verification process is always done before validating a software. This step is performed after verifying the software for consistency and at end of development process. Verification process checks that the product or software is designed to give all functionality to the client. Verification involves periodic reviews, meetings and walkthroughs over the system to be developed. Manual Testing involves functional and Non Functional Testing. The documents that are required for verification are test plans, code, design specifications, requirement specifications, traceability matrix etc. It is a low level activity. Validation is a high level activity. Verification checks whether the product is being built in correct way. An example can be: Then verification process involves checking that it has all four legs, which are of correct size, table top is of correct diameter. Validation process will involve checking that the final table is exactly in accordance with the requirements of client. Verification process answers questions like â€" Am I building the product in correct manner. Validation process answers questions like â€" Am I building the right product, which will meet user requirements. Checking the product specifications before actually starting to make the product saves cost. It helps to decrease the count of errors in the later part of product development. This process helps in understanding the product better. If some requirements are missed during verification process then, they can be covered up during validation process. If any defects are missed during verification they can be covered up during validation process. The difference between actual results and expected results can be understood during validation. It covers up the defects of verification process. This process helps in building product as per user requirements. Ways of managing or controlling various objects or activities in the fashion we desire, are called control mechanisms. It is essentially moulding the environment variables as per our desire and requirements. In our project on English Premier league, we have applied some control checks over various entities like players who have to play within certain team. Every team has to play twice, once as home team and second time as away team. Scores and scorers for each team will be recorded. Refree, manager, coach have to be assigned to every team. Players can be captain, midfielder, goal keeper, striker and defender.

One of the players will be captain for each team. Thus various such control mechanisms have to be applied, so that functioning of the organization or English Premier League takes place smoothly. Dynamic data extraction with SQL statement [Online]. Available on world wide web:

Chapter 7 : The 4 Types of Data Analytics

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo and Resnik () various analytic procedures "provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest.

Chapter 8 : Data analysis - Wikipedia

Summary of personal data Section A revealed the respondents' age distribution, racial group, home languages, highest school qualification, and monthly (30 days) household income.

Chapter 9 : Programmatic Data Analysis a Critical Skill for Digital Analysts - 33 Sticks

X Relative Frequency 0 1 2 3 4 Data Analysis Figure 24 5. Eight hundred insects were weighed, and the resulting measurements, in milligrams, are summarized in the boxplot in Data Analysis Figure 25 below.