EXPLORING THE POWER OF FINANCIAL DATA VISUALIZATION: ENHANCING BUSINESS INSIGHTS THROUGH EXCEL DASHBOARD ANALYTICS

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ABSTRACT

In this digital era, business financial analysis is becoming increasingly complex with the emergence of large and diverse data sets. The larger the business, the greater the amount of financial data it is accompanied by. Therefore, the development of effective and efficient analytical methods is needed to support the right decision-making in business. One approach that can be used is the use of an interactive Excel dashboard visualization. This study aims to identify the benefits and potential of using visualization dashboards in business financial analysis and to apply the concept to specific business problems. Thus, the benefits for business owners are that they can optimize financial performance through proper analysis and make future business decisions for their business development.

Introduction

In today's competitive business environment, making the right decisions based on accurate financial analysis is very important. The benefits of financial analysis are that it can help entrepreneurs make business decisions to avoid losses. The results of the analysis can be given to investors so that they are interested in investing in the business. With promising analysis results, investors are definitely interested in investing in a business (Aurellia, 2022). However, the process of financial analysis is often complex and time-consuming, especially when large and complex datasets are involved.

Interactive Excel dashboard visualization can be an effective solution to this challenge. By aggregating relevant financial data into one easy-to-understand view, decision-makers can gain faster and deeper insights into business performance, trends, and potential issues. Microsoft Excel or those who are more familiar with Excel can help analyze large amounts of financial data and then visualize it in a form that is easier for others to understand (https://support.microsoft.com/id). Attractive dashboard visualization can help its users make better decisions regarding the future of their business.

Financial analysis

Financial analysis, of course, refers to analysis with reference to data in financial reports. According to Sujarweni (2019), financial statement analysis is an attempt to analyze the entity's financial condition, past work, and future estimates to determine the entity's performance to date and estimate it in the future. Further understanding, according to Subramanyam (2019), of financial statement analysis is the application of tools and techniques to analyze financial reports with relevant data that has a general purpose and is useful for generating estimates and conclusions that can be used in business analysis.

Kasmir (2018) states that the purpose of analyzing financial statements is (1) to find out the company's financial position in one period, including both assets, liabilities, capital, and business results that have been achieved by the company for several periods. (2) To find out what weaknesses the company lacks. (3) To find out the strengths of the company. (4) To find out what corrective steps the company needs to take in the future related to its current financial position. (5) To evaluate the performance of company management to determine whether it needs refreshment or not because it has been considered successful or unsuccessful. (6) It can also be used as a comparison with similar companies about the results they have achieved.

Based on the explanation above, it can be concluded that financial statement analysis is an effort to analyze the financial data of an entity by using financial statement analysis tools and techniques so that the performance of the related entity's financial statements can be known, making it easier for users of financial statements to make a business decision.

Data Visualization with Excel Dashboard Analytics

Data Visualization with Excel Dashboard Analytics is the theory behind using Excel to create interactive dashboards that visually and interactively visualize financial data. In this theory, Excel is used as a tool for processing and analyzing company financial data, and interactive dashboards are used to present financial information clearly and easily (Rahmanasari et al., 2013).

In making decisions, management needs information that is easy to understand and tailored to its needs. One technology that can provide a solution to the need for presenting data and information in an attractive and easy-to-understand visual form is the dashboard. A display that allows decision-makers to get a summary of important information quickly and easily as a basis for making important decisions for the company (Jayanti and Ani, 2017).Data visualization aims to explore and analyze data quickly, interactively, and intuitively using visual representations. Faced with the constant growth of data in terms of volume and diversity, visualization techniques must confront the challenge of dealing with increasingly large datasets in terms of representation, interaction, and performance. Therefore, these techniques must be able to effectively convey the characteristics of the information space and inspire discovery (Antonini, 2022).

Previous studies have demonstrated the benefits of using visualization dashboards, including the ability to better analyze and understand data, detect previously invisible patterns and trends, and identify issues that need to be addressed proactively. The concept of an effective visualization dashboard involves selecting the right metrics, setting up an intuitive layout, using relevant graphs and charts, and having the interactive ability to explore further data. The ultimate goal is making the right decisions for the business.

Research methods

This research is a type of case study research using a qualitative approach, which emphasizes the researcher as an instrument, but researchers can also use other instruments as support. The goal is to get research results that are valid and in accordance with existing reality. According to Yin (2009), the case study research method is the right strategy to use in research that uses how or why research questions, the researcher has little time to control the events studied, and the research focus is contemporary phenomena to track contemporary events. In the case study method, researchers focus on research design and implementation.

The data source used in this study is company financial data for two years, namely 2021 and 2022, which are then compiled as raw data in the initial Excel data input. The financial data presented includes current assets, non-current assets, total assets, and others that are needed to analyze financial statements.

Research Result

Microsoft Excel is a software program that enables its users to process, calculate, and analyze data that is numeric (numbers). Data processing is done using certain formulas in a sheet in Excel. To be able to process data with interactive dashboard visualization, use all versions of Microsoft Excel for the Financial Report facility with Dashboard Visualization. For Microsoft

Excel Final Version (latest), it may be superior to Chart, Graphic, and other support facilities from the old version. What the author uses in this study is Microsoft Excel 2021.

The Financial Statements so far that we know are a series of numbers and groups of numbers per month, per quarter, per semester, and lastly, per year. Big data, financial figures, and financial reports will be unattractive if presented as is (only a collection of numbers and letters). Excel ability and skill are needed so that the presentation is neater and easier to analyze. It needs appeal to be read and understood by people whose financial knowledge base is not as good as that of an Accountant or someone who understands finance. The Dashboard Visualization function makes it easy for report readers to see reports in the form of Trend charts and graphics, and there are very interactive options so that the reports are easy to read and analyze.

Preliminary data analysis in this study presents findings and results of analysis of company financial data for 2 years, namely 2021 and 2022, with a focus on identifying trends and performance comparisons shown in Figure 1 below:

Figure 1. Company Financial Data for 2021–2022

Tahun	Bulan	Perusahaan	Aktiva Lancar	Aktiva Tdk Lancar	Total Aktiva	Hutang Lancar	Hutang Tidak Lanca	Hutang	Ekuitas	Total Hutang + Ekuitas	Penjualan	HPP	Laba Kotor	Beban Operational	Laba Bersih Sebelum PJK	EBITDA	Likuiditas Rasio	Solvabilitas Rasio
2021	Jan	Perusahaan A	100,000	50,000	150,000	70,000	40,000	110,000	40,000	150,000	100,000	70,000	30,000	25,000	5,000	9,000	143%	13
2021	Feb	Perusahaan A	110,000	55,000	165,000	75,000	45,000	120,000	45,000	165,000	105,000	73,000	32,000	25,125	6,875	10,875	147%	13
2021	Mar	Perusahaan A	120,000	60,000	180,000	80,000	50,000	130,000	50,000	180,000	110,000	76,000	34,000	25,251	8,749	12,749	150%	13
2021	Apr	Perusahaan A	130,000	65,000	195,000	85,000	55,000	140,000	55,000	195,000	115,000	79,000	36,000	25,377	10,623	14,623	153%	13
2021	May	Perusahaan A	140,000	70,000	210,000	90,000	60,000	150,000	60,000	210,000	120,000	82,000	38,000	25,504	12,496	16,496	156%	14
2021	Jun	Perusahaan A	150,000	75,000	225,000	95,000	65,000	160,000	65,000	225,000	125,000	85,000	40,000	25,631	14,369	18,369	158%	14
2021	Jul	Perusahaan A	160,000	80,000	240,000	100,000	70,000	170,000	70,000	240,000	130,000	88,000	42,000	25,759	16,241	20,241	160%	14
2021	Aug	Perusahaan A	170,000	85,000	255,000	105,000	75,000	180,000	75,000	255,000	135,000	91,000	44,000	25,888	18,112	22,112	162%	14
2021	Sep	Perusahaan A	180,000	90,000	270,000	110,000	80,000	190,000	80,000	270,000	140,000	94,000	46,000	26,018	19,982	23,982	164%	14
2022	Oct	Perusahaan A	190,000	95,000	285,000	115,000	85,000	200,000	85,000	285,000	145,000	97,000	48,000	26,148	21,852	25,852	165%	14
2021	Nov	Perusahaan A	200,000	100,000	300,000	120,000	90,000	210,000	90,000	300,000	150,000	100,000	50,000	26,279	23,721	27,721	167%	14
2021	Dec	Perusahaan A	210,000	105,000	315,000	125,000	95,000	220,000	95,000	315,000	155,000	103,000	52,000	26,410	25,590	29,590	168%	14
2022	Jan	Perusahaan A	220,000	110,000	330,000	130,000	100,000	230,000	100,000	330,000	160,000	106,000	54,000	26,542	27,458	31,458	169%	14
2022	Feb	Perusahaan A	230,000	115,000	345,000	135,000	105,000	240,000	105,000	345,000	165,000	109,000	56,000	26,675	29,325	33,325	170%	14
2022	Mar	Perusahaan A	240,000	120,000	360,000	140,000	110,000	250,000	110,000	360,000	170,000	112,000	58,000	26,808	31,192	35,192	171%	14
2022	Apr	Perusahaan A	250,000	125,000	375,000	145,000	115,000	260,000	115,000	375,000	175,000	115,000	60,000	26,942	33,058	37,058	172%	14
2022	May	Perusahaan A	260,000	130,000	390,000	150,000	120,000	270,000	120,000	390,000	180,000	118,000	62,000	27,077	34,923	38,923	173%	14
2022	Jun	Perusahaan A	270,000	135,000	405,000	155,000	125,000	280,000	125,000	405,000	185,000	121,000	64,000	27,212	36,788	40,788	174%	14
2022	Jul	Perusahaan A	280,000	140,000	420,000	160,000	130,000	290,000	130,000	420,000	190,000	124,000	66,000	27,348	38,652	42,652	175%	14
2022	Aug	Perusahaan A	290,000	145,000	435,000	165,000	135,000	300,000	135,000	435,000	195,000	127,000	68,000	27,485	40,515	44,515	176%	14
2022	Sep	Perusahaan A	300,000	150,000	450,000	170,000	140,000	310,000	140,000	450,000	200,000	130,000	70,000	27,622	42,378	46,378	176%	14
2022	Oct	Perusahaan A	310,000	155,000	465,000	175,000	145,000	320,000	145,000	465,000	205,000	133,000	72,000	27,761	44,239	48,239	177%	14
2022	Nov	Perusahaan A	320,000	160,000	480,000	180,000	150,000	330,000	150,000	480,000	210,000	136,000	74,000	27,899	46,101	50,101	178%	14
2022	Dec	Perusahaan A	330,000	165,000	495,000	185,000	155,000	340,000	155,000	495,000	215,000	139,000	76,000	28,039	47,961	51,961	178%	14

Source: Internal Data, 2022

Based on the financial data above, data on current assets, non-current assets, total assets, current debt, non-current debt, total debt, equity, sales, COGS, gross profit, operating expenses, net profit before tax, EBITDA, liquidity ratio, ratio solvency, gross profit, and net profit for 2 years (2021 and 2022) The data above is the result of pulling accounting software data used by the company, which is then processed using various Excel facilities that support the creation of financial dashboards, including:

- Conditional Formatting: This serves to highlight and color the cells in the dashboard based on certain rules. This allows users to visually identify important patterns, trends, or discrepancies in financial data quickly and intuitively.
- Pivot Table: This tool is a powerful tool in Excel that allows users to summarize and analyze financial data easily. By using a pivot table, users can turn raw data into a summary table that can be used in the dashboard. This allows users to view and analyze data in detail and comprehensively and make comparisons and aggregations of data easily. The pivot table process is shown in Figure 2 below:

Figure 2. Financial Data Pivot Table Process
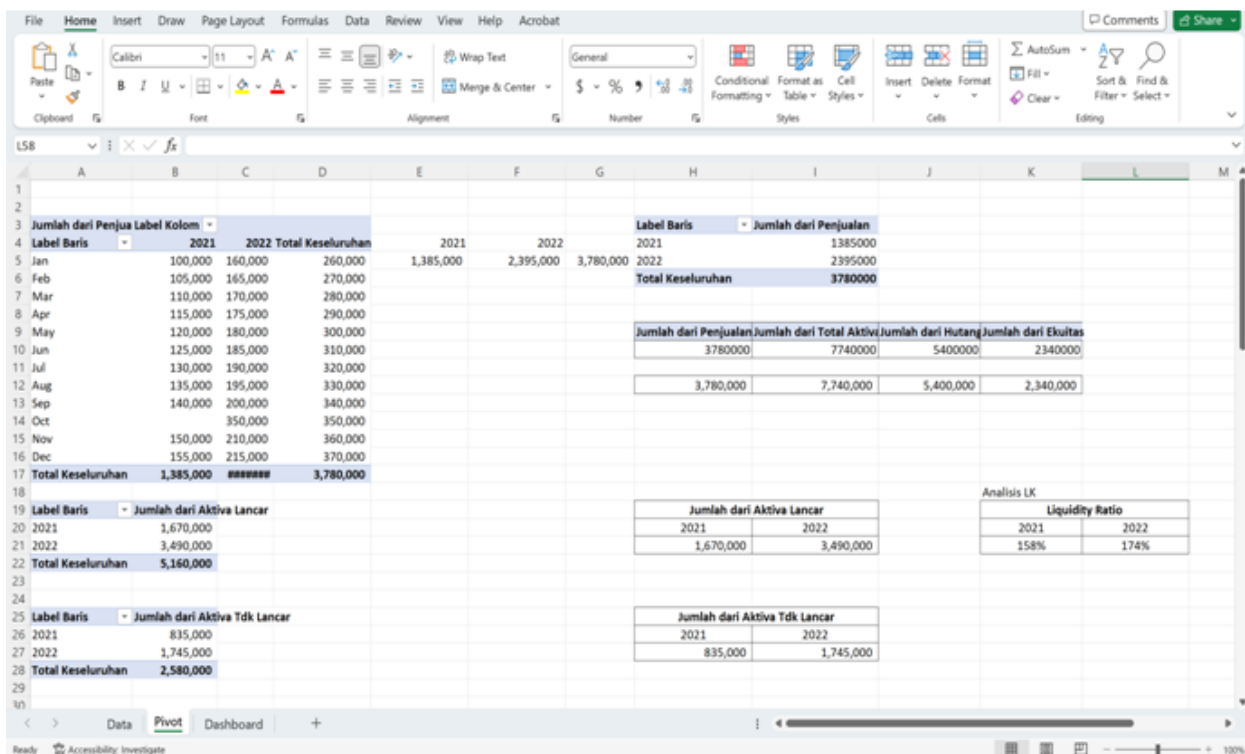
Source: Internal Data, 2022

In figure 2 above, it can be seen that the Pivot Table feature helps summarize financial data that was previously a lot more concise based on month, year, and financial ratio data needed to be displayed in an interactive dashboard visualization. In the screenshot display example above, the financial ratios displayed are current assets, non-current assets, current debt, non-current debt, equity and current ratio.

- Charts & Graphs: Various types of graphs and charts in excel can be used to present financial data visually on the dashboard. Users can choose the chart that best suits the type of data they want to present, such as a line graph, bar graph, or pie graph. By using the right graphs and charts, users can convey financial information more clearly, easily visualize trends, comparisons and patterns in data, and facilitate understanding and decision making. These charts and graphs are used as the basis for creating interactive dashboard visualizations, as shown in Figure 3 below:

Figure 3. Interactive Dashboard Visualization

Source: Internal Data, 2022

As seen in Figure 3, this interactive dashboard visualization display displays various graphs, tables, and relevant metrics to visualize data in an intuitive and informative way. Every component in this dashboard can be accessed and changed through the buttons that we have integrated as needed. In addition, the appearance of the dashboard can also be changed according to the needs of its users. Each button has been carefully designed to suit your needs, is well implemented, and is easy to use. Users can interact with these buttons to change data views, filter data based on certain criteria, or dig deeper into relevant financial information. All of these buttons provide a smooth and responsive experience, allowing users to customize the view and analysis according to their needs.

For example, users can choose to display financial data for one year, two years, only one month, or several months by clicking the button provided. Thus, users who are generally business owners can compare financial data. Furthermore, users can also carry out more precise and interactive business analysis and evaluation. In addition, we also want to remind you that if you are interested in seeing the original appearance of the Excel dashboard, which is the basis of this visualization, you can contact us via the email listed in our bio. We are happy to provide further information and provide access to you.

Conclusion

The development of analytical visualization using interactive dashboards has been successfully completed. A dashboard is a tool that gives users the ability to efficiently access, analyze, and visualize data. The buttons in this dashboard are well designed and work seamlessly, allowing users to change views and apply filters according to their needs. In using this dashboard, users can enlarge or reduce the displayed time range, dig deeper into relevant information, and select the variables to be displayed. These features provide users with greater flexibility and control, enabling them to gain deeper and more accurate insights from the data they analyze. The author believes that this interactive dashboard will provide good added value for users (business owners) from various industries. By combining the power of intuitive data visualization with powerful interactive functionality, these tools can enhance users' understanding of data and support more informed decision-making.

The limitations of the existing dashboard in this research are due to still using Microsoft Excel, starting with the input, processing, and visualization of the dashboard. So that it cannot present data in real time that can be directly integrated with the company's accounting software. Creating a dashboard with Microsoft Excel does not require a large fee and can be said to be free. To make it, you only need basic Excel skills and art to compile the dashboard view. This dashboard is more suitable for small-scale companies (in general) that do not have a large budget for investing in their software needs. The next research is expected to be able to present more sophisticated dashboard visualizations with real-time data presentation, but it can still be said to be low-cost. The author invites users and related parties to contact us via the email listed in our bio to get full access to this interactive dashboard. We really hope that this tool will provide significant benefits to users and help them maximize the potential of their data.

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