

Web Portals for Financial Analytics: How Effective Are They from the End-Users' Perspective

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ABSTRACT

As more investors and traders globally manage their own stock portfolio without the help of human brokers, there is an increasing need to acquire and use financial knowledge and financial data analytics to ensure that a self-maintained financial portfolio is soundly managed. There are a growing number of special web portals that provide financial analytics services for investors and traders who demand detailed analyses of their stocks and other financial derivatives. The objective of this paper is to examine how end-users value the overall usefulness of web portals that provide financial analytics services and capabilities. This research endeavors to identify different unique features of financial analytics web portals, and ask users which of these features prove to be highly useful for their needs in analyzing when to buy, hold, and sell stocks.

Keywords: End-Users, Financial Analytics Services, Financial Data Analytics, Investors, Web Portals

1. INTRODUCTION

Due to the massive need to process raw financial and economic data in the global financial market such as daily stocks prices, volume of stocks traded, stock price fluctuations, the movement of major stock indices, there has been a growing need for new ways to generate both visual and textual knowledge representations, so that non-professional investors and traders can make more informed and intelligent investment and trading decisions in managing their own finances.

Knowledge representation is how information or data is represented to enable human beings to grasp data and information in meaningful terms. We sometimes think human knowledge is communicated mostly through textual information, but other types of knowledge are more effectively communicated visually in terms of graphs, pictorials, symbols, and images. Information in graphic or symbolic form is not only expressing what is being shown, but how it is being shown to improve the effectiveness and speed of human cognition. Sometimes text, numbers, graphs, animation, and symbols can

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all be combined in a rich form of knowledge representation to amplify human cognition, speed up the cognitive process, and enhance intelligent perception.

For investors and traders, how massive amounts of financial data is processed and presented in both textual and graphic form is very important when making daily buying and selling decisions. The math wizards of Wall Street often referred to as the “quants” (Crooks, Slayton, Burbridge, 2011; Patterson, 2010) use mathematical algorithms (Deng, Wang, & Dong, 2012) and fast super-computers (Kelly, 2012) to generate stock price predictions that are able to process massive amounts of raw financial data and transform them into intelligent stock price predictions that can be read by both humans and machines. While these data can be presented in both text and visual representations, many investors and traders seem to be able to make more intelligent split-second decisions on the buying and selling of stocks based on easy-to-interpret real-time visual data representations that they see on their screen such as “candlestick charts” (Nisson, 2001).

The problem that analytics software designers are currently facing is determining which features are highly desirable and effective from an end-user’s perspective. Because stock traders and investors have a very limited time window to analyze and intelligently digest financial data before they decide to buy or sell stocks and options, designing effective software interface for financial analytics is critical for this particular end-user group. According to Daugherty (2013), Chief Technology Officer of Accenture, “In a recent Accenture Analytics survey of 600 executives representing large organizations in the UK and US ... only 20% are “very satisfied” with the business outcomes from their existing analytics programs. These are underwhelming responses to say the least.”

The main contribution of this paper is to determine what software design, interface features, and functions are considered most desirable in the domain of financial analytics from an end-user’s perspective. With the findings of this research, software analytics designers

will have a better grasp at how users rate the usefulness of different software features found in financial web portals.

This paper is organized starting with Section 2 discussing the research objective. After that, Section 3 is dedicated to the literature reviews on analytics and knowledge representations, which are related to the research objective. Section 4 discusses the methodology for gathering and analyzing data. Section 5 introduces the basic objectives of financial web portals, while Section 6 provides the critical elements that make financial web portals successful in addressing the needs of the users. Section 7 threshes out four cases of financial web portals, while Section 8 looks at the survey results gauging how users are satisfied with the different features of the four financial web portals being compared in this study. Section 9 summarizes the study with a concluding discussion.

2. RESEARCH OBJECTIVE

Currently, there is little research that determines how effective financial knowledge-based systems are in generating truly useful intelligent data analytics and effective knowledge representation from a trader’s or investor’s perspective. The purpose of this research is to determine how effective these systems are from the end user’s perspective. The ‘users’ of the system are individuals who invest and trade stocks who need the analytical capabilities and visual representations that these intelligent systems can provide to help them make better-informed investments and trading decisions. Yap and Lin (2001) conducted a study introducing the knowledge management capabilities of online brokerage firms including knowledge generation, knowledge mapping, and knowledge representation, but did not elaborate on how users thought these systems helped them with their trading decisions. This research aims to build on that literature in terms of how various knowledge representations are effective in helping traders.

There are several web portals that offer traders and investors a variety of financial

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