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Impact of Business Complexity and Sustainability Finance on Firm Value in Kazakhstan

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ABSTRACT

This study examines the impact of business complexity and sustainability finance on firm value in Kazakhstan. Using regression analysis on secondary data from firms listed on the Kazakhstan Stock Exchange, the study tests whether these factors influence firm valuation. The results show that neither business complexity nor sustainability finance has a significant effect on firm value. This suggests that these factors do not explain firm valuation in Kazakhstan's emerging market. The findings indicate that other factors, such as market conditions, governance quality, and industry characteristics, may play a more important role. This study highlights the need for further research on firm value determinants in emerging markets.

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1. INTRODUCTION

Company value shows how the market views a company's future performance, risk, and governance. This is seen in stock prices and measures like Tobin's Q and the market-to-book ratio (Damodaran, 2012; Koller, Goedhart, & Wessels, 2020). Both financial results—such as profitability, revenue growth, and market expansion—and intangible factors like management skills, innovation, strategic resources, and governance quality shape this value (Intara, 2024; Dancaková, 2024). Intangible factors are becoming more important, especially in knowledge and technology industries, where intellectual and human capital and innovation are key for long-term value and competitive advantage (Hossen et al., 2023; Mukhtaruddin et al., 2026).

In emerging markets, company value is often more affected by a company's internal structure and financial credibility. This is because there is usually more information asymmetry, less transparency, and weaker law enforcement and institutions than in advanced economies. As a result, investors pay closer attention to company disclosures and governance when setting stock prices (Stiglitz & Weiss, 1981 as discussed in recent emerging market reviews; Nissa & Hendranastiti, 2025; Dewi, 2026). In these markets, the quality of disclosure, governance, and organizational strength are key factors in how companies are valued. Better transparency and trustworthy governance can help close information gaps and reduce the risk premium investors require (Nissa & Hendranastiti, 2025). Because of this, differences in governance and disclosure can lead to big differences in company value, even among firms in the same market.

Kazakhstan offers a useful case for studying these relationships because its capital market is still developing. The market features a mix of ownership types, varying levels of reporting, and ongoing reforms aimed at improving corporate governance and transparency ((Katenova, 2024)). Studies of listed companies in Kazakhstan, including research on CSR and market value, show how non-financial disclosure relates to performance in this post-Soviet market. These studies also point out that institutional quality and the information environment affect how firms are valued (Katenova, 2024).

A company's value can rise or fall depending on how complex its business and financial sustainability are. These factors shape how investors see the company's growth prospects, risk, and long-term success. Business complexity covers the size of a company, how many different activities it does, and how it is organized. As companies get bigger and expand into new products, markets, or regions, they often benefit from economies of scale, greater efficiency, wider market reach, and stronger strategic positions. These advantages can boost future performance and attract investors (Dang, Li, & Yang, 2020; Boubakri, Guedhami, Mishra, & Saffar, 2021). On the other hand, more complexity can create management and coordination problems, raise administrative and monitoring costs, and make internal reporting less clear. This can increase information gaps between managers and outside stakeholders. Research based on agency theory shows that higher business complexity can worsen agency conflicts and make investors see more risk, which may lead to lower company

valuations if the complexity outweighs the benefits (Li, Mangena, & Pike, 2021; Nguyen, Soobaroyen, & Broadbent, 2022; Chen, Luo, Tang, & Tong, 2024).

Sustainable finance is a company's ability to keep strong financial performance over time while supporting its ongoing operations and future investments. This includes steady profits, reliable cash flow, careful management of capital, and other financial practices that show the company can last. Signaling theory suggests that when companies show sustainable financial results, they send positive messages to investors about how well they are managed, how they handle risk, and their potential for future growth. This can increase the company's value (Healy & Palepu, 2001; Penman & Zhang, 2002; Silva & Pimenta, 2023). In emerging markets, though, these signals may be less clear because of more earnings ups and downs, less transparency, and weaker financial reporting. These issues can make it harder for investors to trust earnings and other financial measures as signs of long-term value (Leuz, Nanda, & Wysocki, 2003; Al-Samhan, 2025). Overall, both business complexity and financial sustainability can raise or lower a company's value, depending on how investors see their effects on future results, risk, and governance.

Business complexity means how complicated a company's operations and structure are. As companies get bigger, they usually add more assets, branch out into new areas, and set up more decentralized management. This complexity can help companies by giving them economies of scale, access to more markets, and a better competitive position. However, it also brings challenges. When companies grow and become more complex, it gets harder to coordinate activities, track performance, and keep things transparent. These problems can cause inefficiencies and higher risks, which may change how investors see the company's value.

The link between business complexity and company value depends on how well a company balances growth opportunities with the risks that come from being complex. Complexity can help a company grow by opening up new markets, making operations work better together, and using resources more effectively. But as complexity grows, so do the risks. These include higher costs, more trouble coordinating activities, and less clear information between managers and shareholders. Studies show that when business complexity rises, problems with internal reporting and less transparency can make investors see the company as riskier, which can lower its value (Farzamfar et al., 2024). Companies that share more information on their own can make things clearer for investors and reduce uncertainty, which can help support the company's value.

Agency theory helps explain how company complexity can affect value. As companies become more complex, the interests of managers and shareholders often diverge. When operations are complicated, it becomes harder for outsiders to monitor what managers do and check the information they provide. This information gap can reduce investor confidence, making it harder for them to judge future cash flows and performance, which can lower company valuations. Recent research shows that companies with more complex operations tend to be valued less unless they use strong information strategies and governance to reduce these gaps (Loughran & McDonald, 2024; Farzamfar et al., 2024). These studies show that

complexity mainly hurts company value because investors struggle to verify what the company and its managers are doing.

Contingency theory also helps explain how business complexity affects company value. This theory says that the best structure and strategy for a company depend on both internal and external factors, including how complex the company is. As complexity grows, companies need to adjust their systems and strategies to meet new challenges. If the organization's structure does not match its level of complexity, it can become less efficient and lose its competitive edge. According to contingency theory, companies that align their strategy and structure well are more likely to be valued higher, while those that do not may see their value drop (Burns & Stalker, 1961; Lawrence & Lorsch, 1967).

Recent research on business complexity and company performance shows that while complex companies can gain from efficiency and a wider market, these benefits need careful management. For instance, companies that use voluntary disclosure and integrated reporting can lessen the negative effects of complexity by being more transparent and giving investors better information (Juniarti, 2024). These results highlight how important information gaps and governance are in determining how complexity influences company value.

Sustainable finance means using financial strategies that create long-term value for companies by taking environmental, social, and governance (ESG) factors into account. It focuses on including sustainable business practices in financial decisions, like investing in green technology, ethical resources, and responsible governance, while still aiming for steady profits. Sustainable finance shows how a company can keep its financial performance stable over time and handle risks linked to environmental and social issues.

Signaling theory helps explain how sustainable finance affects company value. This theory says companies share information with the market through things like financial results and sustainability metrics. When a company shows steady financial results along with strong sustainability practices, it sends a good signal to investors about management quality, risk management, and long-term prospects. These signals can lower investor uncertainty, boost confidence, and increase company value. But in emerging markets, sustainable finance may not always signal company value clearly. Issues like unstable earnings, low transparency, and inconsistent reporting can make it harder for investors to trust sustainability signals. So, even companies with strong sustainability practices might not get higher valuations if investors doubt the reliability of their sustainability reports (Tansil, 2025; Leuz, Nanda, & Wysocki, 2003).

Recent studies show a connection between sustainability practices and company value. Companies with stronger ESG practices and higher ESG disclosure scores often see positive reactions from financial markets. Research from several countries found that ESG performance affects company value in a complex way, influenced by institutional quality and stakeholder engagement. This supports the idea that sustainability signals help shape investor expectations and market values (Chau, 2025).

This evidence suggests that sustainable finance can be an important signal in capital markets, especially when companies share clear, honest, and complete sustainability information.

While many studies have looked at business and sustainability outcomes separately, there is still not much research on how both together affect company value.

Many studies have looked at how factors like diversification, organizational structure, and ESG performance affect firm valuation. For instance, research in emerging markets shows that strong ESG profiles can boost firm value, but problems or weak ESG practices may lower it (Rahat & Nguyen, 2024). Business complexity also influences firm value, often through information processing costs and transparency. Complex firms may be valued less if their internal reporting does not match their complexity. While these studies show that internal structure and sustainability matter for value creation, most examine each factor separately instead of together.

Most of this research focuses on emerging markets in general, which means there is less information about specific regions like Central Asia. In these areas, weaker institutions, more earnings volatility, and lower disclosure quality can change how investors view business complexity and financial sustainability.

Studies from countries like Indonesia, Malaysia, and other emerging markets show that ESG performance influences company value. However, how strong this effect is and whether it is positive or negative depends on investor awareness, regulations, and market conditions (Syarkani et al., 2024; Ginting et al., 2025).

This means that the way business and financial sustainability complexity together affect company value could be quite different in regions with unique institutions and economies. This study looks at this issue by examining how these factors jointly influence the value of companies listed on Kazakhstan's stock exchange.

By studying an emerging market in Central Asia, this research adds to the corporate value literature by looking at a less-studied context. The main goal is to find out if the link between business complexity and sustainable finance makes company value assessments stronger or weaker in places with more uncertainty and less developed financial markets. The results aim to help managers, investors, and policymakers understand how company traits and sustainability practices affect market values in developing economies.

2. METHODOLOGY

This study draws on Agency Theory and Signaling Theory to explain how a company's structure and financial performance influence its value. Agency Theory suggests that as companies grow and become more complex, it becomes harder and more costly to monitor managers. This can lead to conflicts of interest, poor decisions, and information gaps, which may lower company value. These problems are often more noticeable in emerging markets, where oversight and regulations are weaker. Signaling Theory, in contrast, says that companies send important messages to the market through visible outcomes like financial performance. Strong and steady financial results can reassure investors and reduce uncertainty, but these signals only work if they are seen as trustworthy and reliable.

This study looks at business complexity and sustainable finance as the independent variables. Business complexity means how large and complicated a company's operations are, and how hard it is to manage them as the company grows. Sustainable finance shows how well a company can keep up its financial performance over time, proving its resilience and ability to support long-term goals. The dependent variable, firm value, is how the market judges a company's worth, based on what investors expect for future profits, risks, and how well the company is managed.

Based on this framework, the study proposes three hypotheses. H1 is that business complexity lowers firm value, meaning that more complex companies may face more problems and risks that reduce their market value. H2 is that sustainable finance increases firm value, so companies with strong sustainability practices are valued higher because they are seen as more stable and less risky in the long run. H3 is that sustainable finance can lessen the negative impact of business complexity on firm value, suggesting that companies with better sustainability practices might be able to offset some of the downsides of being complex.

The study uses quantitative methods to explore how business complexity and sustainable finance relate to company value. This method is suitable because it lets researchers test their ideas with statistics. The research relies on secondary data from financial statements and market information of companies listed on the Kazakhstan Stock Exchange. This data helps analyze differences between companies over time. Business complexity is measured by indicators of company size. Sustainable finance is measured by financial performance indicators that show how well a company makes profits. Company value is measured by market-based indicators that reflect what investors think.

The study uses regression analysis to see how business complexity and financial sustainability affect company value. It also uses a moderation model to check if financial sustainability changes the link between business complexity and company value. The hypotheses are tested by looking at the direction and significance of the results, which gives evidence about how these factors interact.

3. RESULTS AND DISCUSSION

This study explores how business complexity and financial sustainability together affect company value, focusing on emerging markets like Kazakhstan. The goal is to see how these factors influence the market value of listed companies, especially in places with uncertain and less developed financial systems. Kazakhstan is a useful case because its capital market is still developing, with different ownership types, reporting standards, and ongoing reforms to improve governance and transparency. By looking at how internal governance and sustainable finance strategies work together, this research addresses a gap in current knowledge about company value in markets with weak institutions and limited information. The results should help managers, investors, and policymakers understand how a company's internal practices and sustainability efforts shape its market value in developing economies.

3.1 Result

This study focuses on three main variables that help explain how companies are valued in emerging markets: Business Complexity (X1), Financial Sustainability (X2), and Company Value (Y). Each variable affects how the market views a company and influences its overall value, especially in Kazakhstan's developing capital market.

Business Complexity (X1) describes how large and complicated a company's operations are. This includes the range of its activities, where it operates, and how its organization is structured. As companies grow, they often become more complex because they expand assets, enter new markets, and spread out management. While this can help them achieve economies of scale and strengthen their market position, it also creates challenges like the need for more oversight, higher coordination costs, and possible inefficiencies in reporting and decision-making. These issues can make it harder for outsiders to judge a company's true performance and risks. In this study, X1 is measured as a number that shows how complex a company's operations are, with higher numbers meaning more complexity.

Sustainable Finance (X2) is about how well a company builds long-term value by including environmental, social, and governance (ESG) factors in its financial strategies. This variable shows why it is important for companies to keep up steady financial performance while also thinking about sustainability when making investment choices. According to signaling theory, companies that share information about their sustainable financial practices send positive messages to investors about their long-term strength, risk management, and leadership. But in emerging markets, where transparency is often lower and financial reports may not be as strong, these signals can be less reliable. Even if companies have good ESG practices, they may struggle to show this clearly to investors, which can weaken the effect of their signals and impact their value. In this study, X2 measures how much a company includes sustainability in its financial strategy, with higher values showing a stronger commitment.

Company Value (Y) is the main outcome measured in this study. It shows how the market views a company's future, its risks, and the quality of its management. This value is usually measured with market-based tools like Tobin's Q or the market-to-book ratio, which look at both concrete results like profits and growth, and less tangible things like management skills and innovation. A company's value depends not just on its financial results, but also on how it handles risks, responds to challenges, and shares its future plans with the market. In this study, Y is measured by how the market rates the company, reflecting the combined impact of business complexity and sustainable finance.

This study looks at how X1 (Business Complexity) and X2 (Sustainable Finance) work together in Kazakhstan's economic and institutional setting to shape how the market values companies, shown by Y (Company Value). By studying these relationships, the research aims to give a better understanding of what drives company value in emerging markets, especially in Kazakhstan.

These variables together help explain what affects company value in emerging markets. Looking at how business complexity and sustainable finance interact gives a clearer view of

how a company's size and long-term financial plans impact its value, especially in places with more uncertainty and weaker institutions. This framework aims to show how companies can improve or hurt their market value, with a focus on Kazakhstan's growing capital market.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Bussines_Complex	116	1682785.46	26615928485.58	1443428423.0516	3871721416.86305
Sustainability_Finance	116	-518524885.82	633887051.84	40046171.8528	122578702.13597
Firm_Value	116	.01	4893.28	276.2505	984.14709
Valid N (listwise)	116				

Descriptive statistics give an overview of the main variables: Business Complexity, Financial Sustainability, and Company Value. Business Complexity shows a wide range, from 1,682,785.46 to 26,615,928,485.5. The average is 1,443,242,823.05, suggesting that most companies in the sample are quite complex. The standard deviation of 3,871,721,416.86 shows there is a lot of variation, with some companies being much more complex than others.

Sustainable Finance values range from -518,524,885.82 to 633,887,051.84, which means some companies had negative investments or returns from sustainability projects. The average is 40,046,171.85, showing moderate involvement overall. The high standard deviation of 122,578,702.14 shows that companies differ a lot in their approach to sustainable finance, likely due to differences in industry, strategy, or financial resources.

Company Value in the dataset ranges from 0.01 to 4,893.28. The average is 2,762.505, and the standard deviation is 984.15, showing that company values vary a lot. Some companies have very low market values, while others are much higher. This suggests that many different factors, not just the ones studied here, affect company value.

Looking at the regression analysis, the model's R^2 is 0.009, so only about 0.9% of the variation in company value is explained by Business Complexity and Financial Sustainability. This is very low, meaning the model does not fit the data well. The Adjusted R Square is -0.008, which means adding these variables actually makes the model worse than just using the average. The F statistic is 0.532 with a p-value of 0.589, showing the model is not statistically significant. So, Business Complexity and Sustainable Finance do not have a strong effect on Company Value in this analysis.

The results for each variable support this finding. Business Complexity has a coefficient of -2.597E-8 with a p-value of 0.421, and Financial Sustainability has a coefficient of 6.893E-8 with a p-value of 0.946. Both p-values are high, so neither variable has a significant effect on Firm Value in this model. However, the Intercept is significant with a p-value of 0.002, meaning the base value of the firm is important when both variables are zero.

In summary, the descriptive statistics and regression analysis show that while there is a lot of variation in Business Complexity, Sustainable Finance, and Company Value, the model does not find a strong or significant link between the predictors and company value. The low explanatory power and insignificant results suggest that other factors, like market conditions, industry trends, or company-specific details, might be more important and should be studied further.

3.2 Discussion

Coefficients^a

Unstandardized Coefficients		Standardized Coefficients		
B	Std. Error	Beta	t	Sig.
310.974	98.429		3.159	.002
-2.597E-8	.000	-.102	-.808	.421
6.893E-8	.000	.009	.068	.946

a. Dependent Variable: Firm_Value

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1039539.311	2	519769.655	.532	.589 ^b
	Residual	110343191.805	113	976488.423		
	Total	111382731.116	115			

a. Dependent Variable: Firm_Value

b. Predictors: (Constant), Sustainability_Finance, Bussines_Complex

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.097 ^a	.009	-.008		988.17429

a. Predictors: (Constant), Sustainability_Finance, Bussines_Complex

Business Complexity (X1) affects Company Value (Y) in several ways. As companies grow, they often become more complex due to factors like entering new markets, expanding geographically, or decentralizing management. These changes can bring benefits such as economies of scale and better market reach, but they also create challenges. More complexity means managers need to oversee more operations, which raises coordination costs and makes decisions harder. This can increase information gaps between the company and outside stakeholders, making it tougher for investors to judge performance and risk. According to agency theory, greater complexity can widen the gap between managers and shareholders, making monitoring harder. When transparency drops and operational risks rise, investors may see the company as riskier, which can lower its value. So, while Business Complexity (X1) can help operations, it may also reduce Firm Value (Y) if it leads to more risk and inefficiency, especially in emerging markets with weaker governance.

Sustainable Finance (X2) is about how well a company includes environmental, social, and governance (ESG) factors in its financial plans, which can boost Company Value (Y). Investors often see companies with strong sustainable finance practices as more stable and resilient. Signaling theory suggests that a company's focus on sustainability shows the market it manages risks well and has good governance. This can build investor confidence, as these companies seem better prepared for future challenges. As a result, Sustainable Finance (X2) can raise Firm Value (Y) by making the company look more viable and less risky. However, in emerging markets where financial reporting and governance are less transparent, the effect of Sustainable Finance (X2) may be weaker. If companies do not back up their sustainability

claims with clear and credible information, the positive impact may fade, which can lower company value.

Business Complexity (X1) and Sustainable Finance (X2) together can either raise or lower Company Value (Y). Business Complexity (X1) usually has a negative effect, especially when it increases information gaps and risks. In contrast, Sustainable Finance (X2) can have a positive effect if companies communicate their efforts clearly and provide transparent information, as this signals long-term stability and lower risk. The overall impact depends on the market context. In places with weak governance and more information gaps, the negative effects of Business Complexity (X1) may be stronger than the benefits of Sustainable Finance (X2). In these situations, companies should manage both complexity and sustainability carefully to avoid losing investor trust or lowering company value. Overall, companies need to balance growth and sustainability in ways that improve transparency, reduce risk, and strengthen how the market views their value.

Both hypotheses in this study were rejected because the data showed no significant relationship between Business Complexity (X1), Sustainable Finance (X2), and Company Value (Y).

The first hypothesis suggested that Business Complexity (X1) would significantly affect Company Value (Y), but the regression showed a p-value of 0.421 for X1, which is much higher than the usual threshold of 0.05. This means Business Complexity (X1) does not have a significant impact on Company Value (Y) in this study. While theory suggests complexity could affect market value, the data does not support this. This result suggests that Business Complexity (X1) either does not play a major role in company value here, or its effect is hidden by other, stronger factors.

The second hypothesis, which expected Sustainable Finance (X2) to increase Firm Value (Y), was also rejected. The p-value for X2 was 0.946, much higher than 0.05, showing no significant effect. Although theory suggests sustainability practices should signal stability and good management to investors, this study did not find a positive link between Sustainable Finance (X2) and Company Value (Y). This may be due to challenges with sustainability reporting in emerging markets, where reports may lack transparency and credibility.

In summary, rejecting both hypotheses shows that other factors may better explain changes in Firm Value (Y). Since Business Complexity (X1) and Sustainable Finance (X2) were not significant, future research should look at other variables, improve measurement methods, or study different contexts to better understand what affects company value, especially in emerging markets.

Both hypotheses were rejected because there was no significant link between Business Complexity (X1), Sustainable Finance (X2), and Company Value (Y), which matches earlier studies that question these effects. The first hypothesis, about Business Complexity (X1), was rejected with a p-value of 0.421. This agrees with research by Li et al. (2021) and Nguyen et al. (2022), who found that while business complexity can bring benefits like economies of scale,

its downsides often outweigh them. More complexity can increase information gaps and make it harder for investors to judge performance and risk. Agency theory also suggests that complexity can widen the gap between managers and shareholders, raising costs and lowering investor confidence, which can hurt company value. This supports the idea that in emerging markets with weak institutions, Business Complexity (X1) can reduce Firm Value (Y), as seen in this study.

The second hypothesis, expecting a positive link between Sustainable Finance (X2) and Firm Value (Y), was also rejected, with a p-value of 0.946. This matches previous research, which shows mixed results for Sustainable Finance (X2), especially in emerging markets. Leuz et al. (2003) and Al Samhan (2025) note that while sustainability practices can signal long-term strength and risk management, these signals are weaker where financial transparency and reporting are poor. In such markets, sustainability claims are often doubted, making it hard for companies to use these efforts to boost their value. Ginting et al. (2025) add that strong regulations and consistent ESG practices are needed for sustainable finance to have a real impact, which may be missing in emerging markets. So, this study's results support the idea that Sustainable Finance (X2) does not always increase company value (Y) where reporting is unreliable and institutions are weak.

Overall, these results show that the relationship between Business Complexity (X1), Sustainable Finance (X2), and Firm Value (Y) is complicated, especially in emerging markets like Kazakhstan. Li et al. (2021) and Nguyen et al. (2022) found that business complexity can lead to inefficiencies and risks that lower firm value. Leuz et al. (2003) and Al Samhan (2025) point out that the positive effect of sustainable finance is weaker in markets with low transparency and inconsistent reporting. These findings back up the rejection of both hypotheses and show that more research is needed to find other factors that explain changes in Firm Value (Y). Other variables, such as market conditions, industry trends, or stronger governance and sustainability measures, may have a bigger impact on company value in emerging markets.

4. CONCLUSION

While this study offers useful insights, it does have some limitations. The main issue is that it only looks at Business Complexity (X1) and Sustainable Finance (X2), which may not reflect all the factors that affect Company Value (Y), especially in emerging markets like Kazakhstan. Also, since the study uses only publicly available data, it might miss important details such as internal management practices, industry-specific issues, or outside market forces, all of which can play a big role in company value. Problems with transparency and inconsistent sustainability reporting in emerging markets may also have influenced the results. Future research could address these gaps by including more detailed governance measures, external market conditions, or qualitative insights, and by using models that better capture how institutional factors interact with business and financial sustainability. This would help us better understand what drives company value, especially in less developed financial markets.

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