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Gender diversity and firm value: Evidence from an emerging market

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Abstract

Women play a crucial role in society by contributing to economic growth, fostering social development, and promoting cultural diversity through their perspectives, skills, and leadership. Therefore, it is interesting to explore the role of females from different perspectives in various cultures and countries. This study examines the impact of female board representation on firm value in an emerging market. Utilizing a dataset of 722 listed firms and 6,765 observations over the 2010-2022 period, we apply multiple econometric approaches, including GLS, PSM, GMM, and DiD. The regression results indicate a significant positive association between firm value and both the presence and the increasing proportion of females on boards. These findings align with the argument that women, being more risk-averse than men, contribute to enhanced monitoring and corporate governance and leverage unique networks that benefit firm performance. The empirical evidence suggests that policymakers should consider implementing strategies to promote female participation on corporate boards and within firms to enhance firm value.

1. Introduction

Gender equality is an essential topic in economics research (Agénor & Canuto, 2015; Girón & Kazemikhasragh, 2022). At firm level, the role of females has been examined in several topics in corporate finance, such as the effect of top executive gender and board diversity on financing decisions (Datta et al., 2021), earnings forecasts (Datta et al., 2022), asset prices (Y. Li & Zeng, 2019), corporate cash holdings (Datta et al., 2023), financial reporting quality (Hrazdil et al., 2023), firm performance (Brahma et al., 2021), firm investment (Griffin et al., 2021; Q. T. Phan, 2021), firm risk (Jane Lenard et al., 2014). Corporate governance is evaluated across various dimensions, including board structure and composition, transparency and disclosure, shareholder rights and engagement, executive compensation, ethics and compliance, and risk management. Within these dimensions, gender diversity stands out as a crucial component of effective corporate governance. Because gender board diversity tends to lead to better decisions due to a variety of perspectives and experiences. Moreover, women can bring unique viewpoints to enhance problem-solving and innovation.

Firm value is important for firms and investors as it partially reflects a firm's health and future growth prospects. It also helps investors evaluate opportunities and risks in their investment decision-making process. Therefore, various studies have been focused on different factors affecting firm value, such as government subsidies (Lee et al., 2014), corporate governance (Ammann et al., 2011), risk management (Krause & Tse, 2016), firm investment (Dehning et al., 2005), stakeholder welfare (Jiao, 2010), cash holdings (Martínez-Sola et al., 2013), earning quality (Gaio & Raposo, 2011), corporate environmental responsibility (Z. Li et al., 2020). It is essential to investigate the effect of gender diversity on firm value since it helps firm owners understand how gender diversity influences decision-making processes; hence, it can help firms develop more effective strategies, improving performance. Moreover, the gender diversity on the board aligns with the social aspect of ESG (Environment – Society – Governance) criteria, reflecting a commitment to gender equality and corporate social responsibility.

Women entrepreneurs in developing countries, such as Vietnam, face various challenges, including gender discrimination, balancing work and family responsibilities, limited access to training and education, and managing diverse personality factors (Panda, 2018). Vietnam is an attractive emerging economy to explore the role of females on boards on firm value since Vietnam has made significant efforts in recent years to enhance economic growth and address gender inequality in both the public and private sectors. On one hand, Vietnam's stock market has been established for over 20 years, with market capitalization as a percentage of GDP (Gross Domestic Product) increasing from 12.5% in 2008 to 76.1% in 2021 and dropping to 41.6% in 2022. According to Country Gender Equality Profile – Viet Nam 2021 by UN (United Nations) Women, the proportion of women in National Assembly Deputies averaged 30.26% during 2021-2026, compared to a global average of only 25.5%. In addition, the weighted gender pay gap based on monthly wages is only 13.7%, compared to a global pay gap of 20.5%. Furthermore, Vietnam ranked second regarding the highest rate of women on boards and women serving as chairpersons of boards in publicly listed firms in the ASEAN (Association of Southeast Asian Nations) region.

The effect of gender diversity on firm value has been evaluated in several countries, such as in the UK (Agyemang-Mintah & Schadewitz, 2019), in Pakistan (Ullah et al., 2019), in some ASEAN countries (Khunkaew et al., 2023). However, the evidence from Vietnam is limited. Therefore, this study aims to evaluate the impact of women on the Board of Directors (BOD) on firm value in Vietnam. Using a dataset of listed firms over the 2010 – 2022 period, the regression results show that the presence of women helps firms enhance higher market value.

This result can be explained by the fact that the presence of women on boards can foster diverse perspectives, enhance governance and accountability, meet stakeholder expectations, and drive financial performance and value creation.

The study consists of 5 sections. The first section introduces the overview of the study, section 2 summarizes the literature review, section 3 demonstrates the model and sample, and section 4 discusses the regression results. The final section presents the conclusion.

2. Literature review

The literature on the effect of gender diversity on firm value in recent years has been mixed - the first stream of literature documents the positive link between female on board and firm value. Gender role theory suggests that the differences in behaviors between men and women can be attributed to the societal norms and expectations of each gender. Indeed, women can contribute their unique skills to an organization (Kim & Starks, 2016). Besides, many studies document differences in decisions between men and women (Booth & Nolen, 2012; Mukhtar, 2002). From an agency theory perspective, gender diversity enhances the board's ability to control and monitor managers, suggesting that diverse directors may be more effective at overseeing management. The reasons are that women take active roles on their boards (Virtanen, 2012), are more prepared for meetings (Pathan & Faff, 2013), attend more board meetings (Adams & Ferreira, 2009), are more inclined to ask questions, debate issues (Ingley & Van Der Walt, 2005), display participative leadership and collaboration skills (Eagly & Johnson, 1990), hold their organizations to higher ethical standards (Pan & Sparks, 2012), maintain their firms with greater levels of public disclosure (Ahmed et al., 2017; Nadeem, 2020), better oversight of management reporting that enhances earnings quality (Saona et al., 2023), and enhance better board development evaluations and programs (Nielsen & Huse, 2010). Resource dependency theory suggests that organizations depend on external resources for success and survival. It implies that female directors bring unique and valuable resources, such as diversity in networks and relationships to help the board make better decisions and improve governance. Indeed, women may have more diverse networks (Ibarra, 1993; O'Neil et al., 2011). The positive link between females on board and firm value has been confirmed in prior studies using different methods and datasets in several entities. In an international setting, Terjesen et al. (2016) used the dataset from 3,876 public firms in 47 countries in 2010 with the GMM (Generalized Method of Moments) regression. For a single country, Campbell & Mínguez-Vera (2008) obtained the Spanish dataset of 68 listed firms over the 1995 – 2000 period and the 2SLS (Two-Stage Least Squares) method; N. Carter et al. (2003) employed a sample of US firms; Conyon & He (2017) explored the dataset of 3000 US firms from 2007 to 2014 with the OLS (Ordinary Least Squares) and quantile regression; Agyemang-Mintah & Schadewitz (2019) utilized dataset of 63 financial institutions in the UK over the 2000-2011 period with the FEM (Fixed Effects Model) and REM (Random Effects Model) regression; Ullah et al. (2019) used the dataset of Pakistani firms over the 2010 – 2017 period and female presence is proxied by a dummy variable.

The second stream of literature argues for the negative link between females on boards and firm value. On one hand, homogeneous groups communicate more frequently due to shared opinions, are more cooperative, and face fewer emotional conflicts (Earley & Mosakowski, 2000). However, greater gender diversity on board may generate more opinions and critical questions, which can lead to more conflicts, making decision-making more time-consuming and less effective (Lau & Murnighan, 1998). Moreover, women are less cooperative (Brown-Kruse & Hummels, 1993) and more risk-averse (Jianakoplos & Bernasek, 1998) than men. Evidence on the negative effect of gender diversity on firm value, such as a dataset of ten well-developed countries (the US, the UK, France, Germany, Italy, Switzerland, the Netherlands, Belgium, Australia and Japan) over the 2006 – 2014 period with the OLS regression (Vo &

Bui, 2017), a dataset of French firms for the 2001 - 2010 period with FEM and GMM methods (Bennouri et al., 2018), a dataset of US firms (Adams & Ferreira, 2009), a dataset of Egyptian firms during 2014 – 2016 with OLS and 2SLS methods (Ramadan & Hassan, 2021).

Lastly, the gender diversity of BOD may not impact firm value since the gender difference does not influence decision-making (Klenke, 2003). Some evidence of the insignificant relationship between females on board and firm value, such as D. A. Carter et al. (2010) used the dataset of firms in the S&P 500 index for the 1998–2002 period with FEM regression; Rose (2007) employed the cross-sectional analysis in Danish firms over the 1998–2001 period; Farrell & Hersch (2005) applied the Poisson regressions and an event study in the US firms.

In Vietnam, women have more opportunities to participate in the labor force and be promoted to middle management positions. However, they still face many obstacles and efforts since general views on women's rights, internal work locus of control, and women's leadership qualities are rarely recognized (A. T. Phan & Nguyen, 2022). The ratio of women holding C-suite positions is still relatively low in Vietnam (Q. T. Phan, 2021; Song & Chung, 2023). Therefore, when they become a member of the BOD, they must prove their ability and important role to protect their positions. A greater presence of women on board will help firms protect and improve their value since women support decisions that help firms maintain good results for shareholders. In addition, they also have more supervisory activities, improve corporate governance and monitoring, and create more firm value. In conclusion, we expect that females on boards positively affect firm value in Vietnam.

3. The model and research methodology

3.1 The model and variable measurements

In line with the prior studies test the effect of female presence on boards on firm value (e.g., Campbell & Mínguez-Vera, 2008; Ullah et al., 2019; Vo & Bui, 2017), our model is as follows:

$$TobinQ_{it} = \beta_0 + \beta_1 FE_{it} + \beta_{2-7} (Control_Firm)_{it} + \varepsilon_{i,t}$$
 (1)

where: TobinQi,t represents firm value, approximately measured by the ratio of market value to book value of total assets. This measure is widely used to represent firm value in previous studies (Bennouri et al., 2018; Campbell & Mínguez-Vera, 2008).

FEi,t denotes the presence of women on boards, proxied by FE_BOD and FE_DUM. FE_BOD refers to the percentage of female members on the board of directors (BOD), while FE_DUM is a dummy variable that takes a value of 1 if a firm has at least one female board member and 0 otherwise.

The control variables include LEV, LIQ, GROW, ROA, SIZE, and TANG:

- LEV represents financial leverage, measured by the ratio of total debt to total assets.
- LIQ indicates firm liquidity, measured by the ratio of current assets to current liabilities.
- GROW reflects firm growth, measured by the annual percentage change in sales.
- ROA captures profitability, measured by the ratio of earnings before interest and taxes (EBIT) to total assets.
- SIZE denotes firm size, measured by the natural logarithm of total assets.
- TANG represents tangibility, measured by the ratio of fixed assets to total assets.

3.2 The sample and research methodology

We obtained financial information from the FiinPro database and manually collected data on female board members from financial statements. Financial firms were excluded due to differences in capital structure and business operations. Additionally, observations with missing data were removed. The final sample comprises 722 firms with 6,765 observations spanning the period from 2010 to 2022.

To estimate the impact of female participation on firm value, we employ several econometric approaches, including Generalized Least Squares (GLS), Propensity Score Matching (PSM), Generalized Method of Moments (GMM), and Difference-in-Differences (DiD). Firstly, GLS is utilized to address heteroskedasticity and autocorrelation issues. At the firm level, variations in size, leverage, industry, and risk exposure may lead to heteroskedasticity, while the persistent nature of firm performance or investment patterns may result in autocorrelation. By accounting for these issues, GLS provides more efficient and unbiased estimates. Secondly, PSM is applied to examine the effect of female board representation (FE DUM) on firm value. This method mitigates selection bias by matching firms with female board members to similar firms without such representation based on observable characteristics. By comparing these matched groups, we estimate the Average Treatment Effect on the Treated (ATT), ensuring that pre-existing firm characteristics do not dirve any observed differences in firm value. Thirdly, we conduct a GLS regression on the matched sample obtained from PSM. While PSM reduces selection bias, it does not address unobserved heterogeneity or time-varying effects. Performing a GLS regression on the matched sample allows us to control for unobserved firm-specific factors and enhances causal inference by accounting for time-consistent, unmeasured characteristics. Next, following prior studies (Y. Li & Zhao, 2018; Thu & Minh, 2023), we incorporate the one-year lagged firm value as an explanatory variable. This inclusion is motivated by its ability to capture dynamic effects, as positive past firm performance may signal future growth prospects, enhance investor confidence, and subsequently increase current firm value. However, including a lagged dependent variable as a regressor may introduce endogeneity due to its potential correlation with the error term. We employ the Generalized Method of Moments (GMM) estimator to address endogeneity and serial correlation concerns, which provides consistent and efficient parameter estimates under these conditions.

In addition, we employ the DiD approach to examine the effect of female board representation on firm value, as it provides a quasi-experimental framework that facilitates the identification of causal effects. The DiD method requires defining a specific period for analysis, focusing on the structure of the pre-treatment and post-treatment periods. This approach compares changes in outcomes (firm value) over time between the treated group (firms with female directors) and the control group (firms without female directors). In our analysis, we evaluate the impact of female participation on firm value before and after the introduction of Decree No. 85/2015/ND-CP, issued by the Government on October 1, 2015. This decree outlines detailed regulations on the implementation of certain provisions of the Labor Code regarding policies for female employees. It aims to promote gender equality and support the professional development of women in the workplace. The DiD analysis allows us to estimate the causal effect of female representation on firm value while controlling for time-invariant unobserved factors.

4. Results

4.1 Statistical description

Table 1 demonstrates the statistical description of all variables. On average, TobinQ has a mean value of 0.879, which partially reflects the low investor expectations about firm growth in the future. This value is lower than the 1.042 reported for French firms (Bennouri et al., 2018) and 1.642 for Spanish firms (Campbell & Mínguez-Vera, 2008). The average percentage of females on board is 15.0%, which is higher than 10.72% in French firms (Bennouri et al., 2018) and 32.83% in Spanish firms (Campbell & Mínguez-Vera, 2008). LEV, representing the capital structure, indicates that 48.4% of total assets are funded by debt. LIQ, which measures firm liquidity, shows an average value of 2.378, suggesting that firms exhibit a strong ability to meet short-term liabilities on average. Firm growth (GROW) averages 20.2%, although

some firms experience a decline in sales of up to 72.9%. The Return on Assets (ROA) is relatively low, with an average value of 7.8%, while 19.0% of total assets consist of fixed assets (TANG), reflecting the degree of asset tangibility.

Table 1 Statistical description

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
TobinQ	6,765	0.879	0.402	0.221	2.919
FE_BOD	6,765	0.150	0.168	0.000	0.600
LEV	6,765	0.484	0.220	0.039	0.902
LIQ	6,765	2.378	2.695	0.399	18.284
GROW	6,765	0.202	0.713	-0.729	5.045
ROA	6,765	0.078	0.075	0.001	0.392
SIZE	6,765	13.565	1.557	9.987	17.848
TANG	6,765	0.190	0.196	0.000	0.842

Note: TobinQ is measured by the ratio of market value to book value of total assets. FE_BOD is the percentage of females on BOD. LEV is the financial leverage, mesured by the ratio of total debt to total assets. LIQ is firm liquidity, measured by the ratio of current assets to current liabilities. GROW is firm growth in sales. ROA is profitability, measured by the ratio of EBIT to total assets. SIZE is firm size, measured by the natural logarithm of total assets. TANG is tangibility, measured by the ratio of fixed assets to total assets.

Table 2 shows the correlation matrix among variables. The highest positive correlation among independent variables is 0.321 between SIZE and LEV, potentially implying that larger firms may have higher leverage. The lowest negative correlation is -0.585 between LIQ and LEV. That implies that a firm with high leverage may have a low liquidity ratio.

Table 2 Correlation matrix

	TobinQ	FE_BOD	LEV	LIQ	GROW	ROA	SIZE	TANG
TobinQ	1.000							
FE_BOD	0.078	1.000						
LEV	0.030	-0.125	1.000					
LIQ	-0.013	0.081	-0.585	1.000				
GROW	-0.017	0.023	0.019	0.021	1.000			
ROA	0.310	0.081	-0.444	0.220	0.039	1.000		
SIZE	0.179	-0.004	0.321	-0.206	0.031	-0.088	1.000	
TANG	0.064	-0.064	-0.041	-0.154	-0.061	0.087	0.038	1.000

4.2 Results and Discussions

Table 3 shows the regression results from three estimation approaches: GLS, GLS based on the matched sample from PSM, and GMM. The coefficients for FE are significantly positive across all models, indicating the positive effect of female participation and firm value. This finding suggests that the presence of females on boards contributes to an increase in market value, supporting the notion that gender diversity at the board level has a positive impact on firm market performance. This result aligns with the conclusions of previous studies (Agyemang-Mintah & Schadewitz, 2019; Campbell & Mínguez-Vera, 2008; Terjesen et al., 2016; Ullah et al., 2019), reinforcing the beneficial role of female representation in enhancing firm value. Gender diversity brings a broader range of perspectives, experiences, and expertise between males and females to decision-making processes that can lead to more comprehensive discussions, innovative ideas, and better-informed strategic decisions. In addition, gender diversity can enhance governance practices by promoting greater accountability, transparency,

and ethical standards (Ahmed et al., 2017; Song & Chung, 2023), leading to better risk management strategies and improved earnings (Saona et al., 2023).

Table 3 Regression results

*7 * 11	GLS	PSM	GMM (3)	
Variables	(1)	(2)		
FE	0.037***	0.023*	0.054*	
	(3.370)	(2.004)	(2.274)	
LEV	0.446***	0.408***	0.119***	
	(31.783)	(24.819)	(3.852)	
LIQ	0.003*	-0.001	-0.004	
	(2.154)	(-0.601)	(-1.343)	
GROW	-0.002	-0.004	-0.000	
	(-0.835)	(-1.919)	(-0.045)	
ROA	0.618***	0.455***	0.851***	
	(15.527)	(11.254)	(6.371)	
SIZE	0.029***	0.034***	0.005	
	(15.414)	(14.164)	(1.536)	
TANG	0.020	0.032*	0.039*	
	(1.728)	(2.291)	(2.276)	
L.TobinQ			0.764***	
			(21.159)	
Intercept	0.097***	0.072*	0.043	
_	(3.955)	(2.344)	(1.030)	
Observation	6,765	5,463	5,754	
AR(2) test			0.156	
Hansen test			0.074	

Note: Columns (1), (2), and (3) show regression results using GLS, GLS based on the matched sample from PSM, and GMM, respectively. L.TobinQ is the one-year lagged TobinQ. t-statistic are in brackets. *, ** and *** show the confident level at 10%, 5% and 1%.

For the control variables, the coefficients for LEV (leverage) and ROA (return on assets) are positively significant across all estimations. The coefficients for LIQ (liquidity), SIZE (firm size), and TANG (asset tangibility) are positively significant in some estimations, while the coefficient for GROW (sales growth) remains insignificant in all models. The positive and significant relationship between leverage (LEV) and firm value suggests that higher debt financing provides tax advantages due to the tax-deductibility of interest payments. This tax shield reduces the firm's taxable income, leading to lower tax liabilities and higher after-tax profits, thereby increasing cash flows available to shareholders and enhancing firm value. This finding is consistent with prior studies, such as Ibhagui & Olokoyo (2018). Similarly, the positive association between ROA and firm value indicates that higher firm performance reflects greater efficiency and productivity in managing resources. Firms with higher ROA are better equipped to maintain competitive advantages, improve operational performance, and increase shareholder value. This outcome underscores the importance of efficient resource management in driving firm value.

A higher liquidity ratio (LIQ) indicates that a firm possesses sufficient short-term assets to meet its liabilities, reflecting financial stability. This stability reduces the risk of financial distress, enhancing investor confidence and supporting a higher firm valuation. Larger firms (SIZE) often benefit from economies of scale, where the cost per unit of output decreases as the scale of production increases. These operational efficiencies lower production costs,

improve resource utilization, and enhance profitability. Consequently, larger firms are more likely to achieve higher profit margins and generate greater cash flows, which contribute to an increase in firm value. Tangible assets (TANG) can serve as collateral, reducing the risk for lenders and enabling firms to access cheaper debt financing. This can lower the firm's cost of capital and increase firm value. Moreover, firms with higher tangibility are less likely to face financial distress because they have physical assets to secure financing during economic downturns. In contrast, sales growth (GROW) is often seen as a positive indicator of a company's ability to execute its strategy effectively. It can signal investors that the firm can increase profits through increased sales. However, this positive effect may have disappeared since rapid sales growth often requires significant investments in research and development, production, and working capital.

Table 4 presents the balance test for the PSM procedure. After applying PSM, this test evaluates whether the covariates influencing treatment assignment are balanced between the treated and control groups. The results indicate good covariate balance, as the t-tests for all covariates are not statistically significant, with p-values greater than 0.05. This suggests that the matched sample effectively reduces systematic differences between the treated and control groups. The PSM approach assesses the effect of female participation on firm value by comparing the Average Treatment Effect on the Treated (ATT) between the unmatched (before matching) and matched (after matching) groups with similar characteristics. The estimated ATT is positive (ATT = 0.054) with a t-statistic of 4.3, indicating that female participation on the board significantly increases firm value.

Table 4 Balance test for PSM

Variables	Matching	Treated Mean	Control Mean	Bias reduction (%)	P-value
LEV	Before	0.459	0.513		0.000
	After	0.459	0.461	97.4	0.790
LIQ	Before	2.509	2.228		0.000
	After	2.509	2.435	73.7	0.234
GROW	Before	0.213	0.189		0.167
	After	0.213	0.234	13.8	0.257
ROA	Before	0.083	0.072		0.000
	After	0.083	0.084	91.6	0.633
SIZE	Before	13.599	13.525		0.053
	After	13.599	13.574	66.9	0.521
TANG	Before	0.185	0.196		0.017
	After	0.185	0.183	85.9	0.718

Table 5 presents the results of the DiD analysis in both the standard DiD and DiD with Kernel-based PSM models and radomization inference. The DiD evaluates the effect of female participation by comparing the changes in firm value over time between a treatment group and a control group. The treatment group consists of firms with female directors, while the control group includes firms without female representation on the board. The DiD with Kernel-based PSM approach enhances the identification strategy by ensuring that the treated and control groups are comparable in observable characteristics before applying the DiD framework. Kernel-based PSM constructs a counterfactual using a weighted average of all control observations, thereby providing a more precise estimate of the treatment effect and improving causal inference. The coefficient for 'Difference-in-Difference' is the average treatment effect on the treated. The results indicate that the treatment effect (ATT) is positive and statistically significant at the 1% level in both the standard DiD and DiD with Kernel-based PSM models.

Table 5 DiD analysis

	Control	Treated	Difference	Difference-in-Difference
	Before			
	-0.004	-0.016	-0.012	
DiD			(-0.890)	
עוט	After			
	0.197	0.257	0.060***	0.072***
			(5.380)	4.120
	Before			
D'D '41	0.730	0.730	0.000	
DiD with Kernel-based- PSM			(0.020)	
	After			
	0.940	1.002	0.062***	0.062***
		_	(4.730)	(3.100)

Note: t-statistics are in brackets. *, ** and *** show the confident level at 10%, 5% and 1%.

5. Conclusion

This study examines the impact of female board representation on firm value in an emerging market. Utilizing a dataset of 722 listed firms and 6,765 observations over the 2010 – 2022 period, we apply multiple econometric approaches, including GLS, PSM, GMM, and DiD. The regression results indicate a significant positive association between firm value and both the presence and the increasing proportion of females on boards. These findings align with the argument that women, being more risk-averse than men, contribute to enhanced monitoring and corporate governance and leverage unique networks that benefit firm performance. The empirical evidence suggests that policymakers should consider implementing strategies to promote female participation on corporate boards and within firms to enhance firm value.

Some implications are suggested based on empirical results. The policymaker should implement the requirement of a minimum percentage of female board members in the corporations. This implementation can be achieved through enforcement of regulations of a minimum level of gender diversity on boards or by providing tax incentives or other benefits for firms that meet minimum level or exceed gender diversity targets on their boards. In addition, the government can fund more programs supporting female leaders' role in corporations, such as leadership training, mentorship programs, and networking opportunities, since female board members can bring different viewpoints, experiences, and approaches, contributing to better overall governance and strategic choices. For corporations, gender diversity on boards can signal to investors that the company is committed to inclusive practices and forward-thinking governance, potentially leading to increased investor confidence and higher stock valuations. Female directors can contribute to stronger corporate governance by promoting transparency, accountability, and ethical behavior. Their presence can help ensure that diverse stakeholder interests are considered and that governance practices are robust.

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