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# Do local or global risk factors explain the size, value and momentum trading pay-offs on the Warsaw Stock Exchange?

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Pages 1497-1508 | Published online: 13 Sep 2013

Cite this article <https://doi.org/10.1080/09603107.2013.835478>

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## Abstract

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relationship between Polish, European and global currency-adjusted smallminus big (SMB) and high minus low (HML). It is further shown that after adjustment for fluctuations between USD and PLN, the magnitude and correlation structure between local and global risk factors change significantly.

Keywords: size and value effects momentum trading global risk factors international asset pricing  
Warsaw Stock Exchange

JEL Classification: G12 G11

## Acknowledgements

I thank Kenneth French for making the US, European and global risk factors available via his data library. I am grateful to Sven Husmann, Hong Noh, Michael Soucek, Michał Przykucki and Thomas Walsh for their useful comments and support. I also appreciate suggestions of the anonymous reviewer that enriched the content and improved the exposition of this article.

## Funding

This study was financially supported by the Graduate College 'Risk Analysis in Baltic States and Central and Eastern Europe' of the European University Viadrina in Frankfurt (Oder).

## Notes

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effect, see Lakonishok et al. (1994). For the rational expectation-based interpretation of

value effect, see Zhang (2005), Petkova and Zhang (2005) and Petkova (2006). The theoretical defence of momentum as a risk-related effect can be found in, e.g., Chordia and Shivakumar (2002). Also Kang et al. (2011) examine the momentum relation to macroeconomic variables. Data related arguments come from, e.g., Kothari et al. (1995).

<sup>2</sup> The list of stocks available for short selling on the WSE can be viewed at [http://www.gpw.pl/papiery\\_wartosciowe\\_dopuszczone\\_do\\_krotkiej\\_sprzedazy](http://www.gpw.pl/papiery_wartosciowe_dopuszczone_do_krotkiej_sprzedazy). However, even if short selling is restricted, for the purpose of portfolio management the short portfolio can be used to underweight assets relative to the market index (De Groot et al., 2012). Size effect is shown to emerge from a tiny portion of microstocks, see Chan and Chen (1991), Fama and French (2007) and De Moor and Sercu (2013), among others. Regarding momentum trading, Hong et al. (2000), Grinblatt and Moskowitz (2004) and Lesmond et al. (2004) claim that profits yield from the short positions in small, illiquid stocks' related to higher transaction costs. The latter paper shows that transaction costs of small stocks are much higher than previously stated and that momentum 'paper profits' are spurious. However, Israel and Moskowitz (2013) argue that this evidence is sample specific. Furthermore, the value strategy was shown to be particularly strong among small stocks, see, e.g., Petkova and Zhang (2005), Fama and French (2012).

<sup>3</sup> [http://static.gpw.pl/pub/files/PDF/prezentacje/inwestorzy\\_gieldowi\\_ankieta\\_2011.pdf](http://static.gpw.pl/pub/files/PDF/prezentacje/inwestorzy_gieldowi_ankieta_2011.pdf) and [http://static.gpw.pl/pub/files/PDF/badanie\\_inwestorow\\_dane\\_na\\_www2012.pdf](http://static.gpw.pl/pub/files/PDF/badanie_inwestorow_dane_na_www2012.pdf).

<sup>4</sup> Along this article, I deem small, high book-to-market ratio and loser stocks as risky according

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<sup>6</sup> [www](http://www)

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<sup>8</sup> Outp... ore profitable than passive investment in the market index, see also van der Hart et al.



(2005). Lesmond et al. (2004) consider additionally the middle, nontraded portfolio, but the authors follow a different grouping technique.

9<sup>9</sup> The public pension system reform in 1999 introduced the option to join the privately managed open-end pension funds that started to invest on the WSE.

10<sup>10</sup> I use the value-weighted market returns for consistency with the CAPM assumption that the return to stocks measures the return to the aggregate wealth portfolio, Jagannathan Wang (1996). Further, available European and global market risk factors are value-weighted. See Hou et al. (2011) for the use of equal-weighted market return and Griffin (2002) for both.

11<sup>11</sup> For the rationale behind small minus big (SMB) and high minus low (HML) factors, see, e.g., Fama and French (1993) and the website of Kenneth French [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). To facilitate the comparison with, e.g., van der Hart et al. (2005), I follow earlier studies and proxy global factors with American counterparts.

12<sup>12</sup> <http://www.nbp.pl/homen.aspx?c=/ascx/archen.ascx>.

13<sup>13</sup> Jegadeesh and Titman (1993) document an average monthly momentum profit of roughly 1% for the US market during their study period. However, their results hold for different investment windows.

14<sup>14</sup> Results are qualitatively similar for all three holding periods. For brevity, the results for the 1 and 12 months holding periods of size and value strategies are not presented in the ar

15<sup>15</sup> The factors is 0.69 (0.7) period 1990–2005 (19 market risk premium

16<sup>16</sup> SD/PLN ed sample period U D of 0.06.

17<sup>17</sup> Fa wide nes even if controlling for 90% of relevant aggregated market capitalization. Fama and French

(2008) note that microstocks make 3% of the market capitalization in the NYSE/Amex/Nasdaq environment but 60% of the total stocks in number.

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